Chapter – II

REVIEW OF LITERATURE

The present chapter reviews the literature relating to the study so as to formulate the problem precisely and develop a rationale for its undertaking. What follows, makes no pretence of being an exhaustive review of all the research work done on the problem, rather the objective is to indicate in a general way the type of work done in this direction. The review of various studies done in this chapter provides a broad spectrum about the productivity and efficiency levels in the Indian industrial sector in general and the small scale industrial sector in particular which would be helpful in the formulation of appropriate methodology for the present study.

With the integration of the global economy, rapid pace of technological developments, media revolution, intensified competition and heightened customer expectations, small firms in India have started realising the significance of improving their productivity levels more than ever before. Various empirical studies have been conducted from time to time to examine the different aspects of growth pattern and performance aspects of Indian manufacturing and small scale industry in India. In this context, the present chapter reviews the literature relating to the present study which is presented below in a chronological order. The chapter has been is divided into three sections. Section-I highlights the reviews of studies relating to the measurement of technical efficiency in the Indian manufacturing sector, whereas section-II focuses on the studies pertaining to the productivity performance of the Indian manufacturing sector. Section- III covers the reviews of studies relating to the issues and problems confronting the Indian small scale industrial sector.
Section – I

Subramaniyan (1982) utilised CMI and ASI data spanning over the period 1953 to 1969 to explore regional efficiency in Indian sugar industry using Cobb-Douglas production function. The study reported labour as a more important factor than capital in terms of ‘factor elasticity’, ‘marginal productivity’ and relative contribution to output growth in India, Uttar Pradesh, Bihar and Maharashtra. However, in Tamil Nadu and Andhra Pradesh, capital had been found to be a more important factor than labour. Constant returns-to-scale was observed in the states of Tamil Nadu, Maharashtra and Andhra Pradesh, whereas decreasing returns-to-scale was observed for all India as well as for UP and Bihar. Further, the study found Maharashtra to be the most efficient state compared to all other states under evaluation.

Jha and Sahni (1993) examined the efficiency of Indian sugar industry using CMI and ASI data for the period 1960-61 to 1986-87. Using the translog cost function, the study observed a mild downward trend in the pattern of allocative inefficiency in the Indian sugar industry. The following were the major conclusions drawn by the study: i) Capital using and labour saving character of technical progress in the industry; ii) the elasticity of cost with respect to output confirmed the presence of diseconomies of scale in the industry; iii) the government’s decision to expand capacity in the industry is wrong; iv) complementary nature of labour and capital is observed throughout the study period; v) no major structural break has been observed in the pattern of production; and vi) a mild downward trend in the pattern of allocative inefficiency in the Indian sugar industry has been observed.

Neogi and Ghosh (1994) made an attempt to investigate the inter-temporal efficiency movements and inter-industry efficiency variations in Indian manufacturing sector. They utilised panel data culled out from Annual Survey of
Industries over the period 1974-75 to 1987-88. Using two basic approaches for measuring technical efficiency it has been found that most of the industries are concentrated below 50 percent level of efficiency and there is an overall declining trend across industries with some exceptions where efficiency has been rising or has remained stagnant.

**Gajanan (1995)** measured the technical efficiency of the industrial groups affiliated under the 3-digit classification of Food and Tobacco, Cotton Textiles, and Nonmetallic Metals, Machinery and Electrical Equipment industries. Using the stochastic production frontier approach, the findings revealed that average technical inefficiency measures increased for each industry during the year 1985 in comparison to the year 1976. Moreover, the analysis of relative measure of inefficiency reveals that each industry has become more inefficient over time.

**Kumar (2001)** endeavoured to analyse regional variations in technical efficiency of Indian manufacturing sector using the method of SFA. The results revealed wide variations in the technical efficiency of manufacturing sectors of different states. The highest level of technical efficiency has been observed in the manufacturing sector of Maharashtra. The states of Maharashtra, Karnataka, Gujarat and Haryana operate close to maximum technically feasible production levels since their manufacturing sectors realised more than 90 percent of their technical potentials. In the remaining 11 states including the industrially developed states of West Bengal and Tamil Nadu, the level of technical efficiency has been observed to be less than 80 percent. It has been found that the mean technical efficiency for 15 states was 77 percent.

**Parmeswarn (2002)** explored the impact of economic reforms on technical efficiency using firm level data from selected industries in India. Using the technique of SFA, the study revealed that all the industries considered have registered a higher rate of technical progress in the post reform period. The effect of change in the policy environment on technical efficiency was found to be
varying among industries. The study also found that firms’ involved in the international trade through export and import of raw materials and technology had a positive effect on technical efficiency.

**Mahambare and Balasubramanyam (2005)** analysed the impact of trade liberalisation on Indian manufacturing sector. The study evaluated the firm level technical efficiency in India since 1991 reforms by estimating Cobb-Douglas production function for thirteen manufacturing sectors. The study revealed the mixed impact of 1991 reforms on the selected manufacturing sector. Average technical efficiency of firms increased in eight out of thirteen sectors studied. Improved access to imported technology in the post-reform period seems to have had a positive impact on the efficiency. Although foreign owned firms continue to be the most-efficient, yet their advantage in technical efficiency seems to have declined in the late 1990s. Technology acquisition, efficient utilisation of resources and infrastructure development were considered some of the factors which possibly contributed to the increase in total factor productivity growth.

**Kambhampati (2006)**, analysed the impact of financial liberalisation, corporate governance on the efficiency of firms in Indian manufacturing using the technique of SFA. The study found that the government and Indian financial institutions have a similar impact on the firm efficiency. It has also been confirmed that the difference between the pre-reforms and post-reforms impact of different sources of funds on the technical efficiency is insignificant.

**Kumar and Arora (2007)** endeavoured to observe technical and scale efficiency in Indian manufacturing sector using a cross-sectional analysis of 127 manufacturing industrial groups classified at 4-digit level for the year 2003-04. Using the technique of Data Envelope Analysis (DEA), the study concluded that the average Overall Technical Inefficiency (OTIE) is to the tune of 39.7 percent in Indian manufacturing. Only, nine industrial groups are identified to be globally efficient along with 17 locally efficient industrial groups. However, the observed
OTIE is dominated by improper management practices i.e., pure technical inefficiency, whereas scale inefficiency is relatively a scant source of OTIE. Further, decreasing returns-to-scale was found to be prevailing in Indian manufacturing sector and the environmental variables such as capital deepening, profitability and labour skill are positively affecting technical efficiency.

Section – II

Banerjee (1975) examined the relationship between capital intensity and productivity in the context of Indian manufacturing industry. The analysis has been carried out for manufacturing sector as a whole and five individual industries (viz. cotton textiles, Jute textiles, sugar, paper and bicycle) by using CMI and ASI data for the period 1946-64. The study highlighted that the performance of the manufacturing sector was sluggish over the period 1946-64. While labour productivity showed a significant upward trend during this period, but this sector did not indicate the presence of any ‘technical progress’. The hypothesis of constant returns to scale was not rejected. It has been found that elasticity of substitution between capital and labour is near unity in almost all the industries.

Qommen and Evenson (1977) attempted to measure scale economies, elasticity of substitution and total factor productivity growth using various forms of Cobb-Douglas and CES production functions (viz. CD (conventional), CD (scale version), CES (Kmenta approximation), SMAC relation, Scale modified SMAC relation) in the seven major agro-based industries with thirty-one sub-industries in India using ASI data. The data for three-digit level industries covered a period of three years. However, the four digit and five digit level industrial data covered only eight years, i.e. up to the year ending March 31, 1967. The estimates of elasticity of substitution between capital and labour were found to be low, that
is below one. This result varied from industry to industry. The study concluded that the Indian manufacturing sector appeared to be relatively inefficient though the TFP measures did show some improvement over time. However, significant inter-industry differences in TFP have been noticed. The tobacco industry was the best performer with an exceptionally good score on the productivity front.

Mehta (1980) attempted to analyse productivity trends for 27 Indian industries by using adjusted CMI and ASI data for the period 1953-65. The results revealed that there was a considerable diversity in the experience of different industries regarding trends of labour and capital productivity. Labour productivity was found to have increased significantly in industries like vegetable oil, chemical, tanning, glass and glassware and insignificantly in matches, iron and steel and cement industries. However, capital productivity has not increased appreciably, rather the reverse was true in most industries. The TFP of Indian manufacturing sector was found to have declined. The study noticed that most industries exhibited the presence of constant returns to scale and diseconomies of scale had not set in. The study demonstrated that there were inter industry differences with respect to ease of capital-labour substitution which primarily explained the inter industry growth differentials. The elasticity of substitution was found to be significantly different from zero and one in many industries.

Goldar (1983) examined productivity trends in Indian manufacturing sector and estimated Total Factor Productivity (TFP) by applying Solow index and Translog index using firstly 1951-65 data covering all Census of Indian manufacturing (CMI) industries except “general engineering and electrical engineering” industry for 1951-58 and Annual Survey of Industries (ASI) data for 1959-65 and secondly, during the period of 1959-78 based on ASI data. This analysis shows a rising trend in labour productivity and capital intensity and a falling trend in capital productivity during this period. Growth in TFP seems to have been rather sluggish and its contribution to output growth is quite small. The
observed rise in labour productivity and fall in capital productivity may accordingly be attributed to increasing capital intensity. Substitution of labour by capital seems to be the main feature of industrial growth. The result of Cobb-Douglas function estimation favours the assumption of constant returns to scale implicit in the TFP indices which is in broad agreement with the results of TFP indices especially in terms of the direction of TFP growth. The study has pointed out that the general industrial situation was not conducive to productivity growth. Under-utilisation of capacity, shortage of fuels, power and transport facilities and deteriorating industrial relations had a significant depressing effect on productivity growth. Moreover, gestation lags in the basic and capital goods industries, which accounted for a dominant part of investment in post 1956 period, must have had a depressing effect on productivity growth. A pronounced rising trend in capital intensity was found, which implied that the growth in industrial employment has seriously lagged behind the growth in industrial investment and output. To some extent this is a result of the changing industrial structure in favour of basic and capital goods industries. It has been observed that metals, chemicals, rubber, petroleum and machinery industries are among the lowest ranked in terms of TFP growth, since these are the industries in which import substitution has been attempted on a considerable scale. Though the policy of import substitution contributed much to the objective of self reliance, yet it has been inimical to productivity growth.

Ahluwalia (1991) analysed the TFPG performance of Indian manufacturing sector at a detailed level of disaggregation (for 63 industry groups of manufacturing at one level and for used-based sectors, i.e. intermediate goods, consumer non-durables, consumer durables and capital goods, at another level) by using ASI data for the period 1959-60 to 1985-86. The analysis of translog index of TFPG clearly brought out the poor performance with respect to TFPG up to the end of the seventies. She found a structural break in the TFPG in early eighties,
which she called a ‘turnaround’ in TFPG behaviour. An important feature of the improvement in TFPG in the first half of the eighties was that it largely reflected improvements in labour productivity. Capital productivity showed neither an increase nor a decrease. The consumer goods sector was the leader in the turnaround in TFPG after 1979-80. The intermediate goods sector, which was worse performer in the seventies, showed a significant improvement later although its TFPG continued to be relatively low, i.e. 1.4 percent per annum. The capital goods sector showed a considerable improvement from 1.7 percent per annum to 3.4 percent per annum, but the improvement was not statistically significant. The production function analysis based on Translog production function using pooled cross-section and time-series data showed that there has been negligible and insignificant growth in TFP in the manufacturing sector over the period from 1959-60 to 1982-83 and there was a distinct upward shift after 1982-83. The estimates for the sector as a whole also suggested that the returns to scale are not constant and the technical progress had a capital saving bias. Among the used based sectors, the hierarchy of TFPG remained nearly the same as the two larger use-based sectors (i.e., intermediate goods and consumer non-durables) performed badly compared to the other two sectors. The upward shift in TFPG was established for all the sectors except capital goods. Technical progress was found to be Hicks-neutral in intermediate goods and capital saving in consumer non-durables and capital goods. In consumer durables, however, there was evidence of the emergence of a capital using bias in the eighties. Ahluwalia found that improvement in the infrastructure sectors and reorientation in the policy frame are the two significant factors behind the turnaround in the productivity growth in the eighties.

Ray (1997) used the non-parametric method of Data Envelopment Analysis to measure Malmquist productivity indices for manufacturing in the different states of India during 1969-84. The measured Malmquist index was used to
decompose the contribution of technical change, change in technical efficiency, and change in scale efficiency. The analysis shows an overall average decline at the rate of 2.89 percent per annum. At the individual level, although most states experienced productivity decline, considerable regional variations were evident. A non-parametric decomposition revealed that regressive technical change accounts for most of decline in productivity. A multivariate regression analysis has been carried out with average annual productivity growth rate in a state as dependent variable and a number of socio-political and economic variables as regressors. The results of regression analysis showed that while an increase in degree of urbanisation and the capital labour ratio increased productivity growth, while a higher proportion of non-production employees to production employees hindered the productivity increase. Worsening industrial relations scenario resulted in a higher number of man days lost per worker also deterred productivity growth. The study did not confirm to the popular notion that in the communist parties dominated states the productivity growth is generally slow ceteris peribus.

Neogi and Ghosh (1998) assessed to see the impact of liberalisation on the performance of four-selected industry groups, namely, (1) chemical, (2) textile, (3) non-metallic mineral products and (4) electric machinery, by using firm level data for period 1989-94. The performance indicators chosen to study the impact of economic reforms on the firms were labour productivity, growth of value added, capital intensity and total factor productivity (TFP). The estimates of technical efficiencies of selected industrial groups were obtained by using frontier production model with the help of Corrected Ordinary Least Square (COLS) method. The results indicated that productivity growth and efficiency levels have not improved as per expectation during the post-reform period and the distribution of efficiency is skewed. The TFP growth has fallen very sharply during the period of reforms with the exception of chemical industry. The relationship between labour productivity and capital intensity indicated a general downfall of efficiency
of the firms during the study period. The level of technical efficiency for all the industries was found to be very low and no significant improvement was observed in this level during the post reform period.

Mitra (1999) estimated the time-variant technical efficiency and TFPG by using panel data for 15 major states and 17 two-digit industry groups. He used ‘within’ estimation procedure for capturing TFPG and its components with the help of Cornwell et al. (1990) model. A value-added and a four input-output function for each of the 17 industry groups using both Cobb-Douglas and Translog specifications have been estimated. The study reported the results of only Cobb-Douglas value-added function because: (1) output function did not yield desirable results in terms of right-signs and significance of coefficients; (2) in case of Translog specification, monotonicity and convexity properties were not satisfied. The TFPG in a large number of industries seems to have improved across most states during 1985-86 to 1992-93 as compared to the rates estimated for the period 1976-77 to 1984-85. Technology acquisition, efficient utilisation of resources and infrastructure development were considered some of the factors, which possibly contributed to increase in TFPG.

Ray (2002) examined whether India’s Economic Reforms have Improved efficiency and productivity, using Non-Parametric Analysis for the period 1986-87 to 1995-96. The study considered 22 Indian states to estimate efficiency and productivity trends. After dividing the data into two sub periods i.e. pre-reform period up to 1991 and post-reform period after 1991, the study found that the states with higher capital-labour ratio and higher percentage of the urban population experienced a greater acceleration in the productivity growth rate after the reforms. At the same time there was a tendency towards convergence in the sense that a higher pre-reform growth rate led to less scope for further improvement. The study also revealed that on the average the annual rate of productivity growth has been higher in the post-reform period than in pre-reform
period. However, some states have actually experienced a slowdown in the productivity growth or even productivity decline after the reforms.

**Goldar and Kumari (2003)** examined the impact of import liberalisation on productivity growth of Indian manufacturing industry in the 1980s and 1990s. The estimates obtained indicated that during the 1990s, a decade of major industrial and trade reforms, there was a deceleration in TFP growth in manufacturing, corroborating the findings of several earlier studies. However, a closer examination revealed: i) Capacity utilisation was a significant factor influencing productivity growth in manufacturing industries; ii) there was an increase in capacity utilisation in manufacturing sector in the 1980s and a fall in the 1990s. Multiple regression analysis was carried out to study the factors influencing TFP growth in manufacturing industries. The results showed a significant favourable effect of tariff reforms on industrial productivity. The results also indicated that slower growth of agriculture in the 1990s and gestation lags in investment project may have had an adverse effect on TFP growth of Indian manufacturing industry in this period.

**Chattopadhyay (2004)** examined the trends in TFP of manufacturing sector in West Bengal. The paper examined the overall industrial scenario of West Bengal for the past three decades. The paper studied the productivity of capital and labour for the two digit industry groups and the TFP of manufacturing sector of West Bengal as a whole *vis-à-vis* all India, and for some other selected groups of industries for West Bengal using ASI data. The study revealed that the state of West Bengal lost its earlier status of one of the highly industrialised state of the country. Its share to all India net value added, share of employment and factories has come down drastically. Profitability of total manufacturing sector has gone down. Productivity of the capital of the manufacturing sector has declined, while labour productivity has increased. However, the latter has increased mainly due to a few industry groups, which are highly capital intensive and have contributed
around 85 per cent of the profit of total manufacturing sector. The total factor productivity (TFP) of West Bengal’s manufacturing sector as a whole has been declining, while it has been increasing in case of India. The TFP of six industry groups, which played a dominant role during the early 1960s, has gone down except jute industry, which itself is a dying industry. That means no new industry groups have come up to take up the position of these industries, which have been performing badly and the industrial slowdown has not been arrested yet in the state.

Sidhu (2007) conducted a study at aggregated and disaggregated levels for manufacturing sector for the period 1973-74 to 2002-03. The study was based on the statistics of Annual Survey of Industries (ASI) using growth accounting method to measure total factor productivity. Results at the aggregated level revealed that growth in productivity was discouraging during 1973-83 period; there was some increase in the growth during 1983-93 and slump during the 1993-2003 period. However, at disaggregated level, the performance of the industry has varied widely within as well as across the states. There was a sharp decline in the growth of industrially developed state of Maharashtra after the reforms period while the state of Haryana showed improvements. Also, the state of Orissa, which was industrially backward, showed improvement in the reforms period.

Sahoo (2008) decomposed total factor productivity into technological change and efficiency change with the help of non-parametric approach on the basis of data obtained from ASI and National Accounts Statistics. The study covers the period from 1978-79 to 1992-93, which was further subdivided into two halves: the first sub-period 1978-79 to 1985-86 (pre-liberalisation period) and the second sub-period 1985-86 to 1992-93 (transition period). The study examined the performance of 28 sunrise Indian industries and also made an attempt to show that, contrary to the impression given by Fare et al. (1994) under the assumption of constant returns to scale, the two Malmquist indices are equal in the case of
technology structure involving one input one output and multi input and output technology. The findings suggested that either of the two Malmquist indices and any one of the two ratio components of technical change can be taken as the measure of productivity growth and technical change respectively. Further, the study concluded that Indian sunrise industries experienced productivity decay from pre-liberalisation period to transition period of economic liberalisation. Even though industries exhibited higher technical progress in the transition period, yet this could not contribute to higher productivity growth. It is precisely due to the fact that there has been growing inefficiency in most of the industries in this period and growing inefficiency was due to the institutional and economic environment that did not completely favour the management of new technology. The study suggested that government should take important and bold policy decisions to bring about change in institutional and environmental set up which must be properly linked with economic liberalisation to make productivity growth a sustainable phenomenon.

Kumar and Arora (2009) decomposed the output growth in Indian manufacturing sector into inspiration component (i.e., total factor productivity growth) and perspiration component (i.e., inputs growth) using growth accounting framework. Using the Malmquist Productivity Index (MPI), TFP scores have been calculated for the period 1980-81 to 2001-2002 using the Annual Survey of Industries (ASI) dataset of 16 major industrial states. The study observed that: i) in the manufacturing sector of 10 states, the output growth has been observed to be primarily driven by TFP growth and thus, inputs growth has emerged as a scant source of it; ii) the economic reforms process since 1991 failed to mark a significant dent on the growth of manufacturing sector of selected Indian states. This is supported by the fact that in 14 states, the rate of output growth has been found to be low during the post-reform period in comparison to what has been observed during the pre-reform period; and iii) the analysis of σ- and β-
convergence rules out the presence of the phenomenon of convergence in the manufacturing sector of Indian states.

Section – III

Lakdawala and Sandesara (1960) undertook a research work to study the effect of capital and employment on the productivity in small-scale industries and the problems faced by small scale units. For the purpose of study, the investigation was conducted on 1,204 units and the sample was further divided among 51 selected industries. Along with the productivity aspect, the study also discussed the marketing aspect of small scale industries. It was observed that most of the units sell their products directly to the ultimate consumers. Another notable finding of the study was that most of the units face competition from other small scale units and majority of them stated that competitors have the advantage of economy of bulk purchase of raw material.

Singh (1961) highlighted the problem of marketing besides studying the economies of small scale industries. The investigations of the report throw light on the role of wholesalers, dealers and traders, and their relationship with the manufacturing establishments and problems of credit. The study showed that dealers, wholesalers and middlemen make unauthorised deductions and small entrepreneurs have to agree to the lower prices as they run short of working capital. The study emphatically pleaded for the restricted role of middlemen and suggested that legislation should be promulgated for regulating the marketing activities. It also suggested for Central Marketing Depot to ensure fair prices for the products of small units.

Gandhi (1967) attempted to study the various marketing functions of the cotton textile companies in the state of Rajasthan, Indore and Ahmedabad, the two
important adjoining cotton textile manufacturing centers of India. It was opined that companies lean heavily on distribution channels particularly, dealers, selling agents and brokers to get marketing information and decisions are made on the basis of their experience. The study professed that marketing research is virtually absent in Rajasthan, Indore and Ahmedabad. It was observed that except in the field of selling, there is virtual absence of planning in the cotton textile companies of Rajasthan. The little planning that takes place in the field of selling was also not systematic and complete. The position of the companies at Indore and Ahmedabad is no better.

**National Council of Applied Economic Research (1972)** conducted a study to examine the economies of selected number of small industrial units operating in different parts of the country. A sample of 159 units spread over 22 industrial groups was selected. Of the selected units, 48 were manufacturing consumer products, 76 capital goods and 25 intermediate products. The study showed that besides other problems, the under-utilisation of capacity among most of the units is due to the problems of production as well as marketing. The problems of production were closely associated with scarcity of raw material and inadequate finance. The problems of marketing are by and large attributed to such factors as limited size of operation, practically little or no control over quality; price and weak financial base, restricting the scope for engaging in sustained sales promotion. The problem of sales is more acute where the area of operation is large particularly in case of consumer products or capital goods, where after-sale service is essential. In most of the cases the entrepreneurs are found to be dependent on middlemen for the marketing of their products.

**Qommen (1972)** carried out a survey on selected 45 small scale units of Kerala to investigate about the marketing assistance by the government to small scale industries along with assistance with regard to finance and services. The study undertook to examine the modernisation, industrial estates programmes and
rural industries project with regard to small scale industries in Kerala. It has been observed that 44 percent of the units sell their products throughout India, 28 percent at state level and remaining 28 percent sell their goods in the local market. Most of the units sell their products through retailers, wholesalers, commission agents, government, ancillaries, sub-contracting etc. The study also revealed that there are various marketing assistance schemes such as marketing research, quality marketing, ancillary development, export promotion and direct government purchase programme, but small units could not take desired advantage of these programmes due to ignorance and lack of communication. It has been observed that the state of Kerala faces a peculiar marketing problem of 'distant cost' in the purchase of inputs as well as sale of output and so special strategy is desirable in this regard.

Ramakrishna (1975) endeavoured to study the entrepreneurship in small scale industry of Delhi. For the purpose of study, a sample of 94 small units was chosen and further divided into 11 important industry groups. The findings of the study revealed that nearly two-third of the units have their own arrangement for marketing the products and 77 percent units stated that they have no marketing problem. The cooperative marketing has not been observed among the sample units. With regard to under utilisation of capacity, the study showed that non-availability of the raw material has been the main reason.

The Vidarbha Industries Association (1976) made an empirical survey of sick units in the region and dealt specifically with the major problem of finance, policies and procedures of credit agencies as well as the difficulties that were being faced in marketing. The study asserted that most of the difficulties of small scale sector arise from financial and administrative rigmarole, frequent interest changes and recession in demand and these tend to make the units sick. Further, the requirements of credit of small scale industries located in faraway places are greater than those located at an industrial centre because the former has to
maintain higher inventories. The study made specific observations on the low and weak equity base of the units, the unrealistic gestation period allowed by state financial corporations, inadequate loans by commercial banks and these factors emerged as the major causes of sickness in the small scale sector. The study suggested that the moment a danger of sickness appears, action should be initiated and dues of a sick unit should be converted into a long-term loan. The study revealed that financial agencies have not been able to play their role in the development of small scale sector in the under developed regions. It has, therefore, been recommended to set up a regional development corporation which may finance sick units and help them in marketing their products.

Brahma and Subas (1979) examined the development of small scale industries in India with special reference to its development in Pune region. In this regard the data was collected from 276 modern units and 98 traditional units. The main focus of the study was to find out the problems of development of small units. Along with other problems, the study indicated that the problems of raw material and marketing by small scale units are the major problems. The irregular supply and low quality of raw material are very common. With regard to marketing, delay in payment and exploitation at the hands of middlemen are the other noteworthy problems mentioned in the study.

Jain (1980) discussed the increasing role of small scale industries in industrial structure of the country along with export potential of small scale industries. The various measures taken by the government agencies such as guidance formation, financial support, export house scheme etc. to develop the formation of the consortia for the benefit of the small industries have also been expressed. It has been observed that the operational results of existing consortia may not be very substantial but encouraging. Therefore, a potential of growth of such consortia look immensely favourable.
Papola (1981) studied the impact of concessional finance on industrial development and emphasised that in order to make concessional finance effective, it will be necessary to plan and develop a minimum threshold level of industrial activity preferably with strong inter-relationship between the financial institutions, promotional institutions, state and district administration and potential industrial entrepreneurs, especially for more backward districts. He further emphasised that almost one half of the fixed and working capital requirements of the units studied have been met by institutional financing and most of the fixed capital financing has been met through concessional finance especially in the backward districts. Units availing concessional finance have experienced a higher rate of growth in output than those without it.

Mohanty (1983) conducted a study on the structure of marketing of products of small scale industries by taking a sample of 178 small units of Cuttack. The study revealed that 64 percent of the units sell their products directly to the consumers, while 36 percent sell their products through distributive agencies. It has been further observed that if marketing cost is taken into consideration, it constitutes only a small percentage of the total value of production of small units which indicates that small units do not take pains to develop market for their products. It was found that Director General Supplies and Disposal and other government stores do not purchase items from small units.

Goldar (1985) in his analysis of 2637 small scale industrial units for the year 1972 examined the relationship between unit size and economic efficiency in the small scale washing soap industry of India. Applying the technique of stochastic frontier analysis (SFA), the study estimated the mean technical efficiency to the tune of 47 percent. It has also been observed that tiny washing soap units are quite inefficient as compared to the relatively bigger units within the industry, thus indicating a significant positive relationship between unit size and efficiency.
Khan (1985) highlighted the role of non-traditional small scale industries engaged in exports from India. The export potentialities of small scale industries on the basis of various studies conducted by different government agencies and by the team of European Economic Community have also been discussed. With regard to export problems of small scale industries, it has been stated that small size of units, finances, managerial skills, technical backwardness and export marketing system are the biggest hazards in fostering the export of small scale units. To increase the exports, it has been suggested that exhibitions solely projecting the small scale industries and overseas visits of delegations of small entrepreneurs should be encouraged. It has been further suggested that State Trading Corporation, Trade Development Authority and Export Promotion Councils should provide the information to small scale industries about the demands of their products in the foreign market.

Ganpathy (1986) voiced against banks and other financial institutions for not playing effective role in the development of small scale industries and in removing the problem of sickness. Study observed that the causes behind some viable units going sick are bad management, failure to keep abreast of modern technology, political interference, general fall in discipline and apathy to work. It has therefore been suggested that for the removal of problem of sickness not only is the financial assistance required but technical and marketing facilities also need to be improved simultaneously.

Ganguly (1988) studied the performance, policies, problems and prospects of the small scale industrial sector. The study explained that despite of vigorous efforts being made to promote the small scale industries as a matter of conscious policy decision, the sector does suffer from various problems such as inadequate availability of raw materials, inadequacy of financial assistance, lack of effective marketing and encroachment of the areas reserved for small scale industries by large and medium sector. It has been suggested that accelerated development of
the small scale sector would help in a healthy, speedy and vibrant growth of medium and large scale sector resulting into further strengthening the linkages between these sectors.

**Balu (1991)** examined the overall financing of small scale industries and also the contribution of the financial institutions and banks in financing small scale units. To facilitate the study, primary data were collected through a sample survey of 150 small scale entrepreneurs spread over Madras city and its vicinage. The study gives an integrated view of various sources of initial capital available to the sample entrepreneurs and the problems involved in availing the financial help from the institutions. It has been found that the entrepreneur with non business background relied heavily on external sources like banks and other financial institutions. They face problems like delay in sanction and disbursement, inadequacy of loan, insistence for collateral security, impersonal and non cooperative attitude of the officials. A single agency approach has been recommended as a solution to these problems in the study.

**Subrahmanian and Pillai (1994)** surveyed small industries in Kerala and compared their performance with the small industries in other major States and with All-India average. On reviewing the relative growth and structural changes of small industries in Kerala, it was found that the major problems encountered by this sector included low-capacity utilisation, low-factor productivity, unfavourable usage-productivity relationship and industrial sickness which emerged due to severe financial and marketing problems. To tackle the performance crisis, a change in the growth strategies is required, which could help the units to reap economies of the scale, sectoral linkages etc. so as to create the environment required for efficiency based growth of small scale industries in Kerala. Further, in post-reform era, one strategic option for Kerala could be the promotion of small industry on organisational patterns, based on inter-sectoral linkages by building up a diversified industrial structure.
Sharma and Diwan (1994) provided a comprehensive insight into the small scale sector of India and observed that over the years, this sector has exhibited a tremendous amount of resilience and ability to diversify and improve its performance. Further, the process of liberalisation and market reforms has provided tremendous opportunities for growth of small enterprises. This will however, depend upon the ability of small scale sector to take advantage of its inherent strengths of quick response, innovation and flexibility. Further in the study, to assess the response of small scale sector and its ability to reposition itself in the changed business environment a SWOT (Strength, Weakness, Opportunity, Threat) analysis of small scale sector was carried out. It was observed that with the opening up of the economy, there is a big opportunity for small scale sector to enter into profitable relationships with large and medium units.

Chattopadhyay (1995) with the help of primary and secondary data discussed the causes and solutions of industrial sickness in India. By using various mathematical and statistical tools like financial ratios and multiple regression, it has been observed that sick industrial units have been suffering from managerial inefficiency, demand recession, obsolete plant and machinery and labour problems. Amongst these problems, it has been found that managerial inefficiency is the most serious one, followed by demand recession or market constraints. Further, study observed that causes of sickness of small scale industries are different from those of large sector. Small scale sector is being deprived of financial aid by the financial institutions. They lend them only when the security of their loan is guaranteed. Study made empirical analysis especially for textile and engineering goods industries and concluded by suggesting that mere recommendations and enactment of policies is not enough unless proper implementation is ensured. Therefore, government should take necessary steps to tackle the problem.
Jain (1996) observed that liberalisation had compelled Indian firms to improve product quality, internal productivity and reduce costs through a combination of organisational restructuring, downsizing, process re-engineering and computerisation. These measures will be inadequate in the next century as firms will face different kinds of competition in globalised era. Global firms move towards creating knowledge products by using superior human and organisational skills and state of art technology. Indian firms should use innovation, entrepreneurship and Information Technology in strategy and corporate philosophy to create competitive challenges in global success.

Nath (1996) performed inter-state comparison of relative efficiency in small scale industry of India using the data culled out from the reports in second all India census of small scale industrial units conducted in 1988-89. However, the state level data was obtained from corresponding state wise volume of the report. The study comes up with the results that in Maharashtra and Madhya Pradesh, most of the small scale industries are relatively more efficient than in other states. However, in Andhra Pradesh, Bihar, Kerala, Tamil Nadu and West Bengal they were relatively less efficient. A use based classification of industries revealed that consumer durable industries had some of the highest average efficiency indices and relatively smaller coefficient of variations whereas, the intermediate product industries and the consumer non-durable industries had wider variation in their relative efficiency indices across states.

Ramesha (1999) in his study discussed the state wise variation in credit advancement to small scale industries by scheduled commercial banks. exponential function has been used to estimate the compound growth rates while co-efficients of variation were used for measuring the disparity. The study revealed that credit advancement by commercial banks to the small scale sector has increased overtime. However, this growth is not in proportion to the growth in production of small scale sector, causing a shortage in the supply of credit to the
sector. It was further revealed that inter-state disparities regarding distribution of credit have widened over time. Such disparities would have been acceptable if these were in accordance with the state wise contribution of small scale sector in the total output. But the study showed that major contributing states of Madhya Pradesh, Bihar and Orissa are extremely credit-deficit whereas Maharashtra, West Bengal, Karnataka and Punjab enjoy a more credit supply as compared to their contributions to total output. The study confirmed that the regional pattern of small scale industries development and distribution of credit to small scale industries by scheduled commercial banks do not differ significantly. It has been observed in the study that in the long run, flow of credit will depend upon the availability of infrastructure and support services for small scale industries. The study suggested opening up of specialised branches of scheduled commercial banks in credit-deficit states with a special thrust on financing micro enterprises to improve credit flow to this sector.

Kumar (2002) attempted to look into change in the growth patterns, levels of efficiency and technological changes which textile industry observed overtime. The capital efficiency in the industry has been deteriorating overtime as is reflected by the rising capital-output ratio. The textile industry continues to bear the pains encountered during the macro-adjustment process which call for changes in product mix as well as organisation in the face of changing demand and supply factors in the domestic market in particular and international market in general.

Sahoo (2004) analysed the performance and role of small scale manufacturing industries in India in the changed liberalised economic environment of the country. The small scale sector faced problems of credit, infrastructure, technology and marketing in the liberalised regime. Accordingly, there has been a shift in focus from ‘protection’ to ‘promotion’ and number of steps especially relating to marketing assistance and incentives for quality improvement have to be taken. The study concluded that even in the changing
WTO regulations and removal of quantitative restrictions, the small scale sector has emerged as the only ray of hope on the employment front.

**Jain (2004)** analysed the growth of small scale sector, government policy towards small scale sector along with problems faced by them due to globalisation in the pre- and post-liberalisation periods. Since small scale industry constitutes a very important segment of Indian economy and has emerged as a dynamic and vibrant sector of the economy, therefore, new policy initiatives since 1991 by the government caused a shift in focus from protection to promotion. Before the introduction of economic reforms the small scale sector was overprotected and with globalisation this sector is now exposed to severe competition both from domestic and foreign firms. In the post-reform period the government took a number of steps including partial de-reservation, change in investment limits, and facilities for foreign participation, establishment of growth centers, marketing assistance and incentives for quality improvements. The study reveals that the problems of small scale sector are multi-dimensional especially in the liberalised environment which would further be intensified with the arrival of multinational companies and removal of quota restrictions in the textile sector. In this context, the study suggests that the government should give priority to the timely and adequate loans to the small scale industries along with time-bound promotional concessions, upgradation of technology, marketing assistance through vigorous research and development efforts.

**Nikaido (2004)** attempted to present some policy implications for the better development of small scale industrial sector which after the liberalisation of Indian economy in 1991, was recognised as a growth engine of the economy. The technical efficiency of this sector was measured by using a stochastic production frontier model. The impact of firm size and geographical agglomeration on the measured technical efficiency was also examined in the study. The industry state wise data for this study were drawn from the second all India census of small scale
units, published by development commissioner (SSI) in 1992. Variables such as production, employment, fixed investment, capacity utilisation and the number of units were utilised. It was observed that due to competition with large industries and foreign firms, small scale industry has not had the incentive to grow into larger units and has therefore ignored the quality of its goods. Moreover, agglomeration of firms was found to be positively affecting the measure of technical efficiency, while the firm size had a negative effect on it. Thus, the supporting policy itself might have prevented the potential capacity and innovative nature of small scale industrial sector. It was suggested that for the promotion of clusters, the government needs to support infrastructure around clusters and technological upgrading. Moreover, promotion of links with external agents like buyers and export traders can provide management know how, improved designs and new techniques for the better development of small scale industrial units.

Latha (2005) highlighted that small scale sector has acquired a prominent place in the socio-economic development of the country during the last five decades. It has been assigned an important place commensurate with its potential for employment generation, dispersal of industry in rural areas and export promotion. In this context, small scale sector can be termed as a nursery of economic development. To overcome the problems of small scale sector, government must provide additional facilities, schemes, incentives and encourage innovative activities of entrepreneurs for the development of small scale sector in the era of globalisation and competition.

Mishra (2006) in his study highlighted the working of small scale industries in Orissa during the year 1996-97 the 1998-99 and in the year 2003-04. The period witnessed policy changes at different level, which might have affected the working of manufacturing sector in general and manufacturing small scale industrial units in particular. The study is based on two benchmark studies conducted on the performance of the small scale industrial manufacturing units in
five small industrial clusters in Orissa. The performance of small scale industrial units has been assessed by fitting the Cobb-Douglas production function for four financial years. Most of the units taken were raw material intensive and a few labour intensive depending upon the type of product categories. It was observed that no significant growth took place in the factor productivity in any of the product categories over the two periods of time. The incidence of closure of these units in Orissa was found to be very high. The main reasons for the sickness and closure of small scale industries in the state were lack of demand, tax problem, competition in local markets, financial problems and attitude of the entrepreneurs. A bottom up approach is need of the hour–such approach will bring an attitudinal change among the entrepreneurs in the state and will also help in the identification, assessment and promotion of small scale units. These small scale units will use the local resources and will have strong linkages with the local and outside markets. In such a way the small units will be sustainable and would help in a positive way in their further development, in a state like Orissa.

Suresh and Shashidhar (2009) have conducted a study which highlights the importance of small industries and their role in the economy and the impact of economic reforms on the growth performance of small scale industrial sector. It has been observed that a significant contribution was made by this sector in employment generation as well as rural industrialisation. It has also been noted that under the changing economic scenario, the small scale sector has the opportunities to explore as well as challenges to face. The opportunities can be explored through cost effectiveness, improving quality of the product and diversifying the production process. However, the challenges can be confronted by enhancing competitiveness at both intra- and international levels. The intra-national competition has come from the large industrial sector whereas, the international competition is to be faced from the large multinational corporations.
It may be seen from the above reviewed studies that most of the work has been done relating to the overall Indian manufacturing sector and comparatively less attention has been paid to evaluate the efficiency and productivity levels of small scale sector during the post liberalisation period. The present study is, therefore, an attempt in this direction and incorporates the major considerations relating to the measurement of economic and technical efficiencies in Indian small scale industrial sector. Further, the productivity performance has also been evaluated for Indian small scale industrial sector to check its growth robustness in the competitive environment imposed upon this sector during post-liberalisation era. Such analysis may have an important bearing on Indian industrial development in general and small scale sector in particular especially in the liberalised regime.

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