Chapter - IX

SUMMARY AND CONCLUSIONS

The development experiences of world economies indicate that industrialisation plays an important role in their development process. The countries with rapidly growing industrial sector were able to manage the development problems particularly employment, poverty and inequality more effectively than those countries in which industrialisation lagged. Therefore, there is worldwide acceptance to have industrial development as legitimate objective to solve economic and social problems of various countries. In the developing nations like India, industrialisation is a sine-qua-non of rapid economic development as it is not only a generator of economic growth but also serves as a transformer of socio-economic and institutional set-up of the economy. It is generally believed that industrialisation would create extensive employment opportunities by absorbing the excess labour released by the rural sector and raise production and productivity along with the standard of living. However, for a labour surplus, primary sector based dualistic economy like India, it is not feasible to directly shift the structure of the economy from the primary sector to the ultra modern large scale industrial sector using advanced technology. It is, therefore, advocated that these countries should first go in for the development of small scale industrial sector which can effectively use the inputs produced by the primary sector and thereby strengthen the agriculture-industry linkages.

The small scale industrial sector occupies a place of strategic importance in the economic structure of developing economies due to its considerable contributions in terms of output, exports and employment. Also small scale
The industrial sector is a major source of raw material for some large scale industries and provides an immediate large scale employment, ensures a more equitable distribution of national income, and facilitates an effective mobilisation of resources, capital, and skills which might otherwise remain underutilised. The possibility of establishing these industries in different regions is favourable because they do not need a special infrastructure and once these industries are established will help to achieve many of the social and economic goals, such as increasing income in rural areas, controlling the migration from rural to urban areas etc. In India the small scale industrial sector has emerged as a dynamic and vibrant sector due to its contribution to achieve socio-economic objectives like employment generation, raising income levels, fostering entrepreneurship, ensuring industrial dispersal etc. It contributes almost 40 percent of the gross value added, 45 percent of the exports and is the second largest employer of human resources after the agriculture sector. Having high potential for employment at low capital cost, the labor intensity in this sector is estimated to be almost four times higher than that of the large enterprises. In this context, this sector has been accepted as an engine of economic growth in the early years of planning. Indian government has initiated various supportive measures in terms of policy of reservation, revision of investment ceilings, modernization, technological up-gradation, marketing assistance, fiscal incentives etc. to uplift the small scale industrial sector so that it can play a crucial role in attaining sustained and inclusive growth.

The government of India fully realised the socio economic significance of small scale industrial sector and initiated several policy measures from time to time for its development. Although, the policies emphasised technological upgradation of small scale industries as crucial for improving their competitive
strength, yet they remained technologically backward and unable to compete in the global market. The major problems faced by this sector relate to low factor productivity, increased capital intensity, inadequate credibility, incompetent marketing, low capacity utilisation and cheaper imports from other countries. Also rapidly changing business environment due to globalisation and liberalisation has increased the role of technology and scale in enhancing the competitive strength and these two phenomena are together posing significant challenges to the Indian small scale industrial sector. Many studies have been conducted to examine the production structure of small scale industrial sector at All India level but scant work has been done at the regional level to study the various parameters of small scale industrial sector in both pre and post reforms period.

In this context, it is imperative to study the growth performance of small scale industrial sector at the regional level. The present study is an endeavour in this direction and effectively utilises the measures of technical efficiency and total factor productivity growth to evaluate the performance of small scale industrial sector both at All India and regional level. The study concentrates on two growing states of India viz. Punjab and Haryana having good infrastructure connectivity with common agricultural base, but due to low level of the technological development, the small scale industrial sector of these two states are unable to compete in the era of globalisation. The basic objective of the study was to empirically analyse the production structure, technical efficiency and productivity growth of small scale industrial sector in Punjab, Haryana vis-a-vis All India, so that the performance of small scale industrial sector in these states can be improved upon to make this sector technically efficient and competitive in the globalised regime.
More specifically, the objectives of the study were:

1) To study the level and growth pattern of small scale industrial sector in Punjab, Haryana vis-a-vis All India in the pre and post reforms period;

2) To examine the production structure and productivity growth of small scale industrial sector in Punjab, Haryana vis-a-vis All India in pre and post reforms period;

3) To empirically examine the technical efficiencies of small scale industrial sector in Punjab, Haryana vis-a-vis All India in the pre and post reforms period;

4) To study the growth and magnitude of sickness in small scale industrial sector of Punjab, Haryana vis-a-vis All India in pre and post reforms period;

5) To study the impact of globalisation on small scale industrial sector in India, Punjab and Haryana under the WTO regime; and

6) To draw policy implications from the empirical results and suggest some suitable measures to make this sector technically efficient and globally competitive.

To pursue the aforementioned objectives, study has been divided into nine chapters. The first chapter is introductory in nature and discusses the role that small scale industrial sector plays in accelerating the tempo of economic development in Punjab, Haryana vis-a-vis All India level. The chapter also focuses on the various policies and Five Year Plans designed since independence to upgrade and protect the small scale industrial sector along with the rationale to evaluate its performance. A thorough discussion regarding the development of this sector during the plan periods depicts an urgency to restructure and reformulate
the programmes and policies dealing with small scale industrial sector to meet the emerging challenges of liberalisation and globalisation.

The second chapter explores the existing literature related to productivity analysis, technical efficiency, finance, sickness and growth performance of small scale industrial sector in India as well as at regional level. The study of empirical literature reveals that there exists scant literature to evaluate the growth performance of small scale industry at regional level using the indicators of productivity, technical efficiency, working capital gap etc. The present study is, therefore, an endeavour in this direction and incorporates the major considerations relating to the measurement of technical efficiency, productivity performance and working capital gap of small scale industrial sector of Punjab, Haryana vis-a-vis All India.

The third chapter discusses the various sources of data collection related to different variables, structure of input and output variables and techniques to measure the technical efficiency, productivity analysis, working capital gap and industrial sickness. In the present study, tabular analysis and growth rates have been used to explain the various characteristics of small scale industrial sector of Punjab, Haryana vis-a-vis All India level. The average annual growth rates of the variables under consideration have been estimated by using the linear-spline function. The application of linear-spline function helps to obtain the growth rates of more than one period in single regression estimation. The use of such a regression model becomes relevant when a significant structural break exists in the time series under evaluation. Although, the periods of estimated growth rates differ according to the availability of the data, the structural break is common in the year 1990-91. Thus, any data for the pre reforms period belongs to the period up to 1990-91, whereas figures included in the post reforms period include information after 1990-91.
The technique of Data Envelopment Analysis (DEA) has been used to bifurcate technical efficiency of the small scale industrial sector of Punjab, Haryana *vis-a-vis* All India into two mutually exclusive and non-additive components namely, managerial efficiency [Pure Technical Efficiency (PTE)] and Scale Efficiency (SE) for the period 1971-72 to 2006-07. The total factor productivity growth in small scale industrial sector in Punjab, Haryana *vis-a-vis* All India has been worked out with the help of Kendrick Productivity Index (KPI). The choice of the Kendrick index is governed by the data structure given that the panel data of the Punjab and Haryana states is not available. The application of DEA based Malmquist Productivity Index (MPI) requires panel data and thus, not utilized for evaluating productivity growth. Further, the production structure in the small scale industrial sector has been evaluated using the Cobb-Douglas and Constant Elasticity of Substitution (CES) production functions. For analysing the cause and effect relationship between working capital gap and sickness in the small scale industrial sector of Punjab, Haryana *vis-a-vis* All India, Granger causality test has been applied. The Vector Auto Regressive (VAR) model has been utilised to check the existence of Granger causality between the variables of working capital gap (WCG) and number of sick units (SICK) under small scale industrial sector of Punjab, Haryana *vis-a-vis* All India. To gauge the impact of globalisation on small scale industrial sector in Punjab, Haryana and All India, employment elasticity and export elasticity have been calculated by using the technique of multivariate log-linear regression model including dummy variables. SWOT analysis has been performed on small scale industrial sector both at national and regional level.

The fourth chapter evaluates the growth performance of small scale industrial sector in Punjab, Haryana *vis-a-vis* All India. An attempt has been made
to examine the impact of economic reforms on the growth performance of small industrial sector under study. The trends of major indicators relating to production, employment, investment and number of units operating under small scale industrial sector of Punjab, Haryana *vis-a-vis* All India have been evaluated with the help of annual compound growth rates in the selected period. The impact of economic reforms on number of units, production, employment and investment reflects that economic reforms have failed to make a dent towards the growth of small scale industrial sector in Punjab, Haryana *vis-a-vis* All India. The analysis reveals that though in terms of absolute number of units there has been an increase, yet in terms of growth rate, deceleration has been noticed in the post reforms period as compared to the pre reforms period. This may partly be attributed to the emergence of highly competitive environment in the wake of liberal entry of multinationals, phasing out of quantitative restrictions on imports, and lowering of tariff rates on imports.

The comparison of the growth rates of number of small scale industrial sector units in Punjab, Haryana *vis-a-vis* All India, showed that at All India level it grew at the rate of 11.81 percent per annum in comparison to 8.43 percent per annum in Punjab and 6.51 percent per annum in Haryana in the entire period. Further, in the pre reforms period it grew by 11.10 percent at All India level and 14.41 percent, 14.16 percent in Punjab and Haryana respectively. However, in the post reforms period it declined to 3.99 percent at All India level, 0.78 percent in Punjab and (-) 4.42 percent in Haryana. The growth rate of production in the post reforms period at All India level increased by 11.88 percent per annum in comparison to growth rate of 9.15 percent in the pre reforms period, whereas, in Punjab and Haryana in post reform period, it increased by 9.53 percent and 4.83 percent per annum respectively in comparison to growth rate of 16.62 percent
and 14.84 percent per annum respectively in the pre-reforms period. Further, the analysis reveals that there exist 6.53 percent, 13.77 percent and 8.60 percent, annual growth rate of production at All India, Punjab and Haryana respectively during the entire period. It has been observed that growth rate of output in Punjab in the two sub periods and in the entire period under study is higher than that of Haryana.

With regard to employment, the study reveals that though there has been an increase in the absolute number of employed in small scale industrial sector of India, yet in terms of growth of employment, a decelerating trend in employment generation has been observed since 1991. The results showed that annual growth rate of employment increased at the rate of 6.53 percent, 7.46 percent and 4.15 percent per annum during the entire period, pre reforms and post reforms period respectively at All India level. However, in Punjab and Haryana, a decelerating trend in employment has been exhibited since 1991. The annual growth rate of employment in Punjab during the entire period was 7 percent per annum in comparison to 11.47 percent and 1.96 percent per annum during pre reforms and post reforms period. In case of Haryana, reforms process adversely affected the employment scenario. The results showed that employment increased at the rate of 4.80 percent and 9.51 percent during the entire period and pre reforms period, however, a negative growth rate of employment has been observed to the tune of (-)3.53 percent during the post reforms period. Thus, on employment front the reforms process has failed to augment employment opportunities in the small scale industrial sector both at national and regional level.

The comparison of the growth rates of investment in small scale industrial sector of Punjab, Haryana vis-a-vis All India, showed that at All India level it grew at the rate of 15.65 percent per annum in comparison to 12.42 percent per annum
in Punjab and 7.91 percent per annum in Haryana in the entire period. Further, it has been observed that investment growth rate in pre reforms period were 15.20 percent per annum, 16.81 percent per annum and 14.55 percent per annum, respectively in Punjab, Haryana and at All India level whereas, in post reforms period it declined to 9.27 percent per annum, (-) 2.22 percent per annum and 4.03 percent per annum respectively in Punjab, Haryana and at All India level. Hence, economic reforms and liberalisation process failed to bring significant improvement in the performance of small scale industrial sector in terms of number of units, employment, production and fixed investment. Therefore, technologically vibrant and internationally competitive small scale industrial sector needs to be encouraged to make it sustainable both at the national and regional level in the liberalised regime.

The fifth chapter examines the production structure and productivity performance in small scale industrial sector of Punjab, Haryana vis-a-vis All India by using both partial and Total Factor Productivity (TFP) indices. The analysis regarding the TFP growth in small scale industry in India reveals that the total factor productivity in small scale industrial sector is growing at an average annual growth rate of 1.11 percent per annum. The inter-temporal analysis of TFP growth showed a huge variation in TFP growth rate during the entire study period. The comparison of the growth rates of three measures of productivity viz. labour productivity, capital productivity and total factor productivity growth over two different sub-periods reveals a sharp and statistically significant decline in the trends of these measures of productivity during the post reforms period in comparison to the pre reforms period.

The decomposition of the TFP growth in the partial productivity measures viz. labour productivity and capital productivity reflects that the labour
productivity growth is the major contributor of the TFP growth in Indian small scale industrial sector. The labour productivity is contributing about 83 percent of TFP growth and the remaining portion is contributed by the capital productivity. Moreover, decline in capital productivity is the major source of TFP regress during the post reforms period. The empirical results regarding the production structure showed a negative growth of technology in Indian small scale industrial sector, however, this technical regress coefficient is statistically insignificant. The estimates of the parameters of CES production function, support the existence of increasing returns to scale and limited substitutability of two factors of production. The efficiency parameter reflects that Indian small scale industrial sector is operating with a high level of production inefficiency which can be mitigated with the introduction of advance and upgraded technology given the increasing returns to scale.

The comparative analysis of productivity growth trends in Punjab, Haryana reveals a decline in productivity growth rate during the post reforms period. The capital productivity growth is the major source of TFP growth in the small scale industrial sector of Punjab, whereas, labour productivity growth is the major source of TFP growth in the small scale industrial sector of Haryana. The observation regarding production elasticity and returns to scale parameters of Cobb-Douglas production function confirms that in both the States labour elasticity dominates the capital elasticity and their exist increasing return to scale. Hence, there is an ample scope for modernisation and development of small scale industrial sector in both the states under consideration. In sum, the analysis portrays a gloomy picture of small scale industrial sector both at national and regional level as the opening up of the economy seems to have adversely affected the performance of the small scale industrial sector.
The sixth chapter empirically examines the technical efficiencies of small scale industrial sectors in Punjab, Haryana *vis-a-vis* All India using the time series data over the period 1971-72 to 2006-07. The technical efficiency scores have been calculated using the technique of Data Envelopment Analysis (DEA). The analysis reveals that there exists 82 percent, 53 percent and 55 percent technical efficiency in the small scale industrial sectors of Punjab, Haryana and at All India level respectively in the entire period. Therefore, the results showed that the small scale industrial sector of Punjab is comparatively more efficient than small industrial sector of Haryana and All India during the entire period. The comparison of overall technical efficiency over the two sub period in Punjab, Haryana *vis-a-vis* All India showed that the technical efficiency in Punjab has improved by about five percent during the post reforms period, however, in case of Haryana and All India level the results are totally inverse of the trends in Punjab.

Further, the technical efficiency was bifurcated into two components viz. managerial and scale efficiencies. The analysis reveals that the reformed process has adversely affected both managerial and scale efficiencies of Haryana whereas, an improvement in managerial efficiency has been observed in the small scale industrial sector of Punjab and All India during post reforms period. The empirical analysis showed that in the post reforms period both at All India level and in Haryana the technical inefficiency score is increasing, whereas, in Punjab it is decreasing. The analysis of returns to scale confirms the existence of decreasing returns to scale in small scale industrial sector of All India, whereas, increasing returns to scale has been observed for both of the States under consideration. Thus, a policy of downsizing is recommended for small scale industrial sector of India, whereas, in the states of Punjab and Haryana with increasing returns to scale, an
increase in the production scale is recommended for the small scale industrial sector to be technically efficient in the reformed era.

The seventh chapter analyses the phenomenon of sickness and its major causes in the small scale industrial sector of Punjab, Haryana vis-a-vis All India. The financial, infrastructural and various supportive measures undertaken by the government for the development of this sector have also been discussed in this chapter. The data showed that in the small scale industrial sector, the figures of sickness were quite alarming as 114132 units at All India level, 1146 units in Punjab and 650 units in Haryana were sick in 2006-07. Out of these sick units, 4287 were potentially viable and 109011 were potentially non viable at All India level. However, the corresponding figures for Punjab were 127 units and 1015 units and for Haryana were 10 units and 630 units respectively. For the remaining units both at State level and All India level the viability has not been decided as yet. Further, the analysis showed a negative annual growth rate of sick small scale industrial units to the tune of (-) 4.52 percent in Punjab, (-) 6.21 percent in Haryana and (-) 2.41 percent at All India level during 1986-87 to 2006-07, but it still remains a cause of serious concern to meet the challenges of globalisation.

Furthermore, it was also observed that the annual growth rate of the amount outstanding against small scale industrial sector at All India level was 5.50 percent per annum, while for potentially viable units and potentially non-viable units it were (-)1.37 percent and 6.65 percent respectively. In case of Punjab and Haryana, the growth rate of the amount outstanding against this sector was 3.29 percent and 0.85 percent respectively. While for the potentially viable units it was (-) 6.90 percent in Punjab and (-) 7.91 percent in Haryana and for potentially non-viable units the growth rates was 3.90 percent and (-) 2.07 percent.
respectively. Therefore, high indebtedness of small scale industrial units and potentially non-viable units hampers the development of this sector and increases the non performing assets of the financial institutions.

To assess the working capital requirements and its availability in the small scale industrial sector of Punjab, Haryana vis-a-vis All India during the period 1981-82 to 2006-07, the methodology suggested by the Nayak Committee (1992) has been used to work out the working capital gap. A shortfall of the working capital to the tune of Rs.42567.66 crore has been observed for the year 2006-07 in small scale industrial sector of India, whereas in Punjab and Haryana it was Rs. 707.91 crore and Rs. (-)1964.85 crore respectively. The comparison of growth rates of working capital gap in Punjab, Haryana vis-a-vis All India, showed that at All India level it grew at the rate of 5.5 percent per annum in comparison to 15 percent per annum in Punjab and (-)7.3 per cent per annum in Haryana in the entire period. Further, in the pre reforms period it grew by 8.5 percent at All India level (-) 13.1 per cent and 0.4 per cent in Punjab and Haryana respectively. However, in the post reforms period the working capital gap increased to 24.7 percent at All India level, 10.3 percent in Punjab and declined to (-) 15.2 per cent in Haryana. Hence, during the post reforms period, working capital gap has been observed to be rising in Punjab and All India, thereby reflecting a shortfall in the availability of working capital to small scale industrial sector from the financial institutions in the reformed era. In Haryana, during the post reforms period, the working capital gap observed to be declining relative to the pre reforms period, thereby reflecting the availability of working capital to small scale industrial sector of Haryana from the financial institutions.

Furthermore, the application of Granger Causality Test and F-statistics proved that in case of India and Punjab, working capital gap significantly caused
sickness in small scale industrial sector, whereas, the impact is not so strong in Haryana. On the other hand, causality from sickness to working capital gap is missing and a unidirectional causality has been observed, thereby showing that the gap in working capital is a significant driver of sickness in small scale industrial sector. Hence, on the basis of the actual availability and projected requirements of credit, the situation is critical as the financial institutions have still a long way to travel to meet the genuine credit requirements of the small scale industrial sector. Therefore, Indian financial system must ensure cheap availability and continuous flow of credit to ensure the sustained growth of small scale industrial sector both at regional and national level in the post reforms period. Though, the government of India framed an elaborate financial infrastructure comprising of banking and non-banking financial institutions to meet the credit requirements of small scale industrial sector but over the years, the organisational framework failed to render the desired financial services for small scale industrial sector to meet the challenges of globalisation at national and regional level.

The eighth chapter discusses the impact of globalisation on Indian manufacturing sector in general and small scale industrial sector of Punjab, Haryana vis-a-vis All India in particular. The globalisation and liberalisation policy has posed certain challenges as well as opportunities to the small scale industrial sector. The challenges are in the form of increased competition arising out of reduced protection due to removal of restrictions on imports and lowering of tariffs. Opportunities have come in the form of access to better technology, availability of a variety of raw materials and components, impetus to quality, efficiency and opportunity to restructure and to diversify. The emergence of multilateral trade regime, WTO conditionalities have added urgency to the task of enhancing competitiveness. It is essential to remove the constraints which limit the
competitive strength of small scale industrial sector of Punjab, Haryana *vis-a-vis* All India. Further, the provisions/agreements which are likely to affect the small scale industrial sector under the WTO regime are: Quantitative Restrictions (QRs), tariff reductions, anti-dumping practices, subsidies and countervailing measures, Technical Barriers to Trade (TBT), Trade Related Investment Measures (TRIMs) and Trade Related Intellectual Property Rights (TRIPs). With the removal of quantitative restrictions, all reserved items have become freely importable, therefore, the small scale industrial sector will have to be safeguarded by the government both at national and regional level.

To analyse the impact of globalisation, employment elasticity and export elasticity of small scale industrial sector have been calculated by using the technique of multivariate log-linear regression model including dummy variables. The comparison of employment elasticity showed that during the entire period it worked out to be 0.84, 0.51 and 0.57 for All India, Punjab and Haryana respectively, whereas, during pre reforms period it worked out to be 0.72, 0.85 and 0.60 and in post reforms period 0.34, 0.15 and 0.02 respectively, implying thereby capital intensive nature of small scale industrial sector in the post reforms period both at national and regional level. On the other hand the comparison of the export elasticity of small scale industrial sector in Punjab, Haryana *vis-a-vis* All India, showed that at All India level it was found to the tune of 2.42 in comparison to 1.21 in Punjab and 1.09 in Haryana in the entire period. Further, in the pre reforms period it worked out to be 1.67 at All India level, 0.96 in Punjab and 0.89 in Haryana, however, in the post reforms period it worked out to be 1.25, 1.30 and 1.24 at All India level, Punjab and Haryana respectively, which showed that during the post reforms period the exports from the small scale industrial sector is declining at national level.
On the basis of empirical findings, the study has brought out the following policy implications to improve the performance of small scale industrial sector at All India level in general and Punjab and Haryana in particular:

- Firstly, though consistent efforts have been made by the Central as well State governments to safeguards the interest of small scale industrial sector, yet the growth of this sector is dismal especially in the post reforms period. Therefore, technologically vibrant and internationally competitive small scale industrial sector needs to be encouraged to make it sustainable in the post reforms period.

- Secondly, to improve the total factor productivity growth in both the states, indigenous technological capabilities matching with international standard be developed to improve the productivity level in the post reforms period.

- Thirdly, in order to improve the technical efficiency, learning by doing process needs to be speeded up at All India level as well as at regional level. Therefore, government needs to encourage the setting up of consultancy houses which can provide expert advice to small scale industrial units to improve their managerial and scale efficiency in the post reforms period.

- Fourthly, better marketing and industrial infrastructure facilities be provided to small scale industrial units in both the states to improve their competitiveness in the post reforms period.

- Fifthly, in order to give new impetus to small scale industrial sector in Punjab and Haryana, the flow of institutional finance for meeting term credit and working capital requirements of small scale industrial enterprises needs to be rationalised and improved in the post reforms period.
Sixthly, the impact of competition provided through the opening up of trade boundaries seems to be trickling down to the small scale industrial sector both at national and regional level, therefore, the policy be implemented with some safety guards in the post reforms period.

Hence, the small scale industrial sector will play a more dynamic role both at national and regional level only if the process of modernisation and technology upgradation is implemented with vigour along with improved flow of working capital requirements and better marketing facilities. Moreover, the learning-by-doing process needs to be hastened to enhance the efficiency and competitiveness of small scale industrial sector so that this sector acts as an engine of inclusive growth in the post reforms period.