GROWTH STRATEGY FOR PUNJAB’S MANUFACTURING SECTOR BASED ON SWOT ANALYSIS

As has been discussed in the previous chapters, Punjab’s manufacturing sector is in a decelerating condition. So, it is pertinent to evolve a strategy for revival of industrial sector in Punjab. In this chapter, an attempt has been made to identify the strengths, weaknesses, opportunities and threats in Punjab’s manufacturing sector. Based on this SWOT analysis, a growth strategy has been formulated to rejuvenate the sick industrial sector of Punjab. The present chapter has been divided into 2 sections. Section- 8.1 discusses the SWOT analysis. This section is further divided into four sub-sections. Section-8.1.1 throws light on the strengths; Section- 8.1.2 highlights the weaknesses; Section-8.1.3 explains the opportunities; and section-8.1.4 discusses threats to Punjab’s manufacturing. Further, Section- 8.2 explains the growth strategy for the revival of Punjab’s manufacturing sector.

8.1. SWOT Analysis

8.1.1. Strengths

- Though manufacturing sector’s growth recorded a decelerating trend, but still its contribution to GSDP increased consistently over the last four decades. It improved from 10.18 percent in 1980-81 to 20.31 percent in 2010-11. Thus, there is a scope for the revival of industrial sector in Punjab.
- Punjab state is shifting from unregistered manufacturing to registered manufacturing. The share of registered sector in Punjab’s manufacturing GSDP increased from 55.57 percent in 1980-81 to 61.49 percent in 2011-12 while that of unregistered sector declined from 44.43 percent in 1980-81 to 38.51 percent in 2011-12.
- Service sector grew at a higher rate in the post reform period compared to the pre-reform period. It improved from 4.70 percent per annum in pre-reform period (1980-81 to 1990-91) to 6.48 percent per annum in the post reform period (1991-92 to 2011-12). Also its percentage share in GSDP increased
from 38.98 percent in 1980-81 to 44.98 percent in 2010-11. Service sector’s growth will attract new investments and hence will act as a source of promoting industrialisation in Punjab.

- Due to lack of finances with the government, it has introduced Public Private Partnership (PPP) in areas like roads, medical and health care, education, tourism, transportation and in other areas also. Some projects have been started and many are in pipeline in Punjab. Hence, the quality of services will improve which in turn will attract new investments and boost industrial growth.

- Green revolution of 1960’s pulled the industrial sector of Punjab out of the distress that it suffered from the partition that took place on linguistic basis in 1966. So, agricultural sector of Punjab fostered the industrial development and hence provided ample opportunities for promoting industrialisation in the state.

- Ludhiana has been recognised as the biggest and most industrialised city in the state by ‘Doing Business Study’ of IFC/ World Bank. Of the 17 Indian cities examined in the study, Ludhiana (Punjab) is at the top position in doing business series. Cities of industrialised states lagged behind. Ahmedabad (Gujarat) is at fifth position, Mumbai (Maharashtra) at tenth while Chennai (Tamil Nadu) at 15th position (Debroy et. al., 2013).

- Punjab shares its border with Pakistan. So, there is a great scope for enhancing Indo-Pak trade. Starting Integrated Check Post (ICP) at Attari will increase the demand for both the industrial and agricultural products and will promote employment opportunities for the youth in the border belt, who are falling prey to drugs (Singh, 2012).

- Punjab’s per capita income is above the national level and is among the highest per-capita income states in India. As the Statistical Abstract of Punjab 2012-13 would reveal, per capita income of Punjab was Rs 46422 in 2011-12, much higher than national figure of Rs 38037.

- Punjab is among the highest road density states i.e.1672 km per 1000 sq km in 2011. This is higher than that in industrially developed states like Gujarat.
(797 km per 1000 sq km), Haryana (944 km per 1000 sq km) and Maharashtra (1334 km per 1000 sq km). It is even higher than the national figure of 1153 km per 1000 sq km. Not only this, 100 percent of the villages in all the districts of Punjab are connected with roads (Statistical Abstract of Punjab, 2011-12).

- Punjab has high credit deposit (CD) ratio i.e. 85 percent as in March 2012. It is much higher than the national figure which is 78 percent. It is also more than Gujarat where it is just 67 percent (Computed from Statistical Appendix of Economic Survey, 2012-13). Higher CD ratio means that the demand for credit from the available stock of deposits is high to further boost the production activity.

8.1.2. Weaknesses

While comparing Punjab with the selected states, it was found that Punjab’s manufacturing sector has been a poor performer. Punjab is among the least contributors to India’s manufacturing production, employment and capital among all the selected states. In 2009-10, it contributed just 2.5 percent to Indian manufacturing production, 4.8 percent to employment, and 2.6 percent to fixed capital. Maximum decline in growth rates of above mentioned variables took place in Punjab in the post reform period. In Punjab, partial productivities and TFPG also declined in post reform period. Considering the whole period, its manufacturing sector is one amongst the least productive states. Punjab has never acted as an innovator state in the sampled period. Thus, Punjab’s manufacturing sector is in a decelerating condition when compared with other states. Following are some of the reasons that resulted in deceleration of growth in Punjab’s manufacturing sector:

- Dominant Small Scale Industries: Punjab’s industrial sector is dominated by small scale industries. More than 99 percent of the industries in Punjab are small scale units. The industrial sector dominated by SSIs causes low productivity in the industrial sector, rules out growth of ancillary units and reduces the competitive advantage due to higher costs. SSIs are unable to compete with large scale units. SSIs due to lack of finances cannot undertake
the R&D activities and technological changes. Lack of large scale units acts as a constraint on ancillary development and therefore leads to slow growth.

- **Power Shortage:** Power is one of the major inputs for industrial production. Punjab is suffering from the problem of huge power shortage. The demand for power in Punjab outstripped the supply, thus resulting in long power cuts especially in the summer season. Firms in Punjab suffered an average of 25 power outrages per month which is almost double the national average of 14. Firms in Punjab lose 9 percent of their output due to power shortage compared to the national average of 6.5 percent (World Bank Report, 2004). Industrialists hesitate to accept any new export orders since they are not sure as to whether they would be able to supply the finished products in time or not (Zutshi, 2010). During the Kharif sowing season, power is available for 12 hours a day, but for only three to four days a week. As a result, production has been adversely affected, and the burden of labour cost and fixed cost is borne by the industry.

- **Unskilled Labour:** Unskilled labour force is the root cause of inefficiency in Punjab’s manufacturing sector. The quality of pass-outs from Punjab colleges is no way near the skill requirements of the industry. The professional and applied courses are imparted on traditional methods of teaching i.e. emphasising on classroom teaching only. The syllabi of various engineering courses have not been revised for many years. No practical knowledge is imparted to the students. Most of the professional colleges in Punjab are just degree-distributing institutions. Not only at higher education level, the quality of education in public schools is also miserable. No doubt the Punjab government has opened a school in each village, but the education being imparted in these schools is not up to the mark. Infrastructure in these schools is of poor quality. There is single teacher in each school or sometimes a single teacher looks after two schools. Schools sometimes remain closed for many days without any reason. All this produces degree literate and not skill literate Punjabi youth (Ghuman, 2012).
Fiscal Deficit: Punjab has been suffering from the problem of fiscal crisis since liberalisation. The fiscal deficit in Punjab has increased many folds. Fiscal deficit in Punjab is highest among all the states, i.e. 3.8 percent of GDP in 2011-12. Runaway subsidies as free electricity to the farm sector has caused the revenue deficit to increase. In fact, it increased from 1.8 percent of GDP in 2010-11 to 2.75 percent in 2011-12. Interest payments and debt servicing further deteriorated fiscal position of the state, leaving little for developmental activities (Debroy et al., 2013). No doubt that total budgetary expenditure as share of NSDP has been rising consistently, but the share of development expenditure\textsuperscript{14} in it though increased till 1990’s but started declining thereafter. It is now even below the national average. Development expenditure has declined from 48 percent of the total expenditure in 2006-07 to 45 percent in 2010-11. On average, in other states, it is 64.42 percent. Thus, budgetary expenditure is shifting from development to non-development expenditure. Even capital expenditure has been declining steadily. Capital expenditure\textsuperscript{15} has decreased from 12 percent in 2006-07 to just 6.74 percent in 2010-11. The falling capital expenditure will discourage private, local and foreign investors to invest in Punjab. All these factors i.e. fiscal deficit, shift of budgetary expenditure from development to non-development expenditure, falling capital expenditure have made Punjab a low priority state as regards direct foreign investments and industrial investments of the Indian private corporate sector. Punjab was accorded 12\textsuperscript{th} rank in the priority by foreign investors, and 8\textsuperscript{th} rank in the priority accorded by the Indian private corporate in the post reform period (Singh, 2010).

High Land Prices: Land being more fertile than other states, its price is exorbitant. In addition, Government of Punjab under the present situation can’t afford to provide subsidies on land. It constrains the big MNC’s and other industrialists to set up industries in Punjab. Recently, Tata Group

\textsuperscript{14} Development expenditure is the expenditure on social and economic services.

\textsuperscript{15} Capital expenditure boosts the social and economic infrastructural facilities for the use of productive sectors of the economy. It increases the asset creation which in turn generates opportunities for higher growth.
planned to set up Tata Nano plant in Punjab. But due to sky high land prices and no subsidies and tax breaks from Punjab, it cancelled its plan. Later, it got excellent terms from the Gujarat government and set it up in Gujarat instead of Punjab. Even in deep rural areas, the price of land is Rs 50 lakh per acre. It is too costly to attract most industries (Debroy et. al., 2013). The average cost of land per acre in Punjab is approximately Rs 10 million (1 crore), whereas in Himachal Pradesh it’s Rs 4-5 million and in Gujarat it is Rs 5 million per acre (Hiteshkatyal and Singh, 2013).

- Geographical Location: Punjab is a landlocked state. It is located away from ports. It is due to its remote location also that it cannot take full advantage of the liberalisation policy. When the economy was liberalised in 1991, the coastal states boomed with flourishing exports and imports. Punjab was unable to register similar boom because of its location (Debroy et. al., 2013). It is highly dependent on air transport, railways and road networks as compared to other states.

- Weak Linkage between Industrial and Agricultural sector: Punjab being an agrarian state has a lot of scope for the agro-based industries. But the linkage between industrial sector and agricultural sector is very weak. Industrialists are importing raw material from other states while the agriculturalists are exporting their products in raw form like cotton etc. to other states.

- Failure to Take Advantage of Central Government Schemes: Punjab’s record in utilising Central funds for social and economic infrastructure development is deplorable. Utilization rate has been about one-third. Since the allotted funds are not effectively utilized, so central government does not allocate these funds in the next year (Sawhney, 2012). The state is not able to use more than 50 percent of the funds available through the central schemes. About one third of Punjab’s revenue goes into debt servicing and meeting the subsidy bill. Less is left for the development purpose (Thukral, 2010). Failure of the state to take full advantage of the Central Government Schemes, like Scheme for Integrated Textile Parks (SITP), is also responsible for the decelerating industrial growth in Punjab. Textile Park at
Tripura and Tamil Nadu under SITP has produced tremendous results. In Punjab, the Punjab Apparel Park at Doraha near Ludhiana the plan for which was made in 2005 and was to be completed within 2 years, has not yet been completed. It is near completion now (after 5 years) and only one unit has started operations. Of the 56 Food Parks sanctioned for the country as a whole, only one food park was sanctioned for Punjab in Fatehgarh district in 2000-01. Foundation stone was laid on March 27, 2006 i.e. after 5 years of its sanction. The Government of India has promised an interest-free loan of Rs.2.5 crore per IIT for the upgradation of infrastructure provided a proposal is within a PPP framework. But the progress of Punjab is very slow (Ahluwalia et. al., 2007).

Discriminatory Policy of the Central Government: Discriminatory policy by the Central Government of providing tax holiday to industrial units in neighbouring hill states has resulted in shifting industry from Punjab to these states. These fiscal incentives include exemption from excise duty and income tax on earnings to industries in Himachal Pradesh and J&K. In case of yarn, tax concessions are given to Chandigarh and Haryana. Central sales tax charged in Chandigarh and Haryana is one percent while, in Punjab, it is two percent. Moreover, Punjab has only two SEZ’s out of 207 SEZ’s notified in different states of India as on March 27, 2008 (Ibid).

Unfair Treatment of Punjab Government towards Industry: Since decades, Punjab is just concentrating on agricultural development keeping aside the industrial sector. Among the various unfair treatments, the most worrisome is in the power sector. Free power to the agriculture sector is the main threat to the industrial sector. Due to free power supply to the agriculture sector, the cross subsidy burden on industry has grown consistently in the last few years. It has increased from 17.68 percent to 22.97 percent which is more than the limit of 20 percent set by National Tariff policy. This problem is becoming worse. As per new regulations by Punjab State Power Corporation Limited (PSPCL), the average hike of 9.06 percent in power tariff was
announced across all categories for 2013-14. Maximum hike was awarded for industry i.e. 12.83 percent while in case of agriculture, increase was only 1.67 percent. This partially is done by the state government to woo farmers vote bank for SAD-BJP led Punjab government. It planned to provide free power to 10 lakh farmers amounting to subsidy of Rs 4778.13 crore for 2013-14. Besides it, the state government also planned to pay power subsidy for supplying free power upto 200 units for a month to SC domestic consumers and non-SC BPL domestic consumers amounting to Rs 829.29 crore (Dhaliwal, 2012). On the other hand, Punjab industrialists demanding subsidy for generators is long being ignored by the state government. Though industrial zones are developed, but making an industrial unit operational is a cumbersome procedure. Getting a plot in industrial zone, getting permission from Special Economic Zone (SEZ) authority, securing electricity connection and No Objection Certificate (NOC) from Punjab Pollution Control Board (PPCB) are very complex and exhaustive (Randhawa 2013). Industrial policies in Punjab are announced after every five years which left lesser incubation time for the beneficiaries. While in other states, industrial policies are announced every 10 years and hence each policy gets enough time to yield productive results (Khanna, 2013). Also, the Industrial Development Boards have failed to promote industrialisation in the state despite the fact that the Chairman and Vice Chairman of the boards are Cabinet Minister or State Minister. All the major Industrial Development Corporations of the state are bankrupt (Chawla, 2010). Its ignorance can further be identified from significant delays for securing approvals from its various government departments. For example, some well known large firms have been waiting to start operations in Mohali for a long time, but have not yet been allotted land by GMADA (Greater Mohali Area Development Authority). Even though it is mentioned in the industrial policy that electricity connection would be provided within 10 days to IT/BPO sector, electricity department causes long delays. Four percent entry tax on raw material (steel, yarn, sugar and chemicals) entering Punjab and octroi on
electricity discourages industrial development in Punjab. The practice of zero rating of exports (exemption from paying VAT) is not followed in Punjab. Input tax credit is not given to exporters in Punjab. Long delays of 6 to 9 months in getting VAT refunds from the state government make the industrial situation more worse. Charging of purchase tax and mandi fees by the state government of Punjab which is not being charged in J&K and Himachal Pradesh has resulted in shifting of industry to these states (Ahuwalia et. al., 2007). This all has resulted in shifting of the industrial units to neighbouring states. Steel industry in Mandi Gobindgarh is also in a bad condition. Huge import duty on steel scrap and five percent VAT has resulted in the closure of more than 30 percent of the steel and furnace industries in Mandi Gobindgarh. Around 15 to 20 percent of the manufacturers are ready to sell their furnaces because of huge losses. Those operating have cut their production by 50 percent to minimise losses. Shortage of labour is another problem faced by this industry as flow of migrant labour from Bihar has reduced (Bumbroo, 2013). Many of the textiles making units are ready to shift to Himachal as it provides power at Rs 4.05 per unit. In addition, it offers one percent relief from central sales tax, and the facility of single window clearance system. Also, Himachal has set up common effluent treatment plant, hazardous water management unit and a technical upgradation centre. All these factors induced the industrial units to shift their business to Himachal Pradesh (Khanna, 2013).

Other Weaknesses: ‘Inspector Raj’ is still prevalent in Punjab. Agricultural Produce Market Committee (APMC) Act is not amended. India has long offered Pakistan ‘Most Favoured Nation’ treatment under WTO rules, but Pakistan has not yet reciprocated. South Asian regions are least integrated in trade. War, terrorism and political suspicion have resulted in poor trade relations in these regions. The same has happened between Punjab (India) and Pakistan. Of 2000 items, only 137 items are exported through land and the remaining through sea to the Karachi port. Around 55 percent of
Pakistan’s population is in Pakistan Punjab which is far away from sea but very near to Indo-Pak land border (Debroy et. al., 2013).

8.1.3. Opportunities

- Since Punjab is an agrarian state, so there is a great scope of development of agro-processing industrial units. It is also seen from our analysis that though Food Products (20-21) is a major player in Punjab’s manufacturing sector, but it registered a deceleration in its growth as well as in partial and TFPG in the post reforms period. Diversification of agriculture is the need of hour. It will transfer the agrarian economy to industrialised economy through forward linkages. Farmers’ cooperatives can be developed wherein farmers associate to control all the economic activities, i.e. from credit to production, processing and marketing. Just like ‘Amul’, many such cooperatives can be developed which will enhance the progress of both the industrial sector and the agriculture sector. Punjab government should also come forward for developing industrial parks as agro-processing zones for farmers’ cooperatives (Singh, 2010).

- Since Punjab is a major grower of cotton, so there is a great scope for the development of cotton textiles industry. Also, our results revealed that Cotton, Wool, Silk and Jute textiles (23+24+25) is among the major players in Punjab’s industrial sector. It is also among the industrial groups that recorded highest partial and TFP growth. So, it can be said that Punjab has comparative advantage in this industrial group. Development of textile parks and textile clusters in Punjab can further attract new investors in this sector and hence will boost growth of this industrial group.

- Chemical and Chemical Products (30) acted as an innovator industrial group for maximum number of years, meaning thereby that it shifted the Punjab’s manufacturing frontier for most of the sampled period. Punjab has one of the largest Pharmaceutical Co., i.e. Ranbaxy. Since Punjab is an agrarian state, so there is a scope for the development of pesticides and fertilizers industry
also. Government should come forward towards developing this industrial group as it is the major innovator industrial group.

- Since Punjab shares its border with Pakistan, so there is a great scope for Indo-Pak trade. In order to promote trade through Attari-Wagah border, Integrated Check Post (ICP) became operational in Punjab on April 13, 2012. This ICP is superior to earlier ICP and will give major impetus to trade and industry in Punjab. The trade timings will be 7 AM to 7 PM against the earlier 8 AM to 4 PM. The old ICP is spread over 8 acres while the new ICP will be over 120 acres. The number of trucks crossing border will increase many fold, compared to a mere 100-150 trucks at present. The storage capacity for imports is 20 times more and for exports is 10 times more than the old infrastructure. All this will provide huge benefits to traders on both sides of the border (Singh, 2012).

- Malwa belt of Punjab is one of the major growers of cotton in India. So there is a great scope for the development of cotton spinning, cotton weaving, and textile products manufacturing units in Punjab.

- Indian machine tools and parts, hand tools and light engineering industry found its origin in Punjab during the British period. People belonging to Ramgarhia caste were known to be skilled by nature. So, Britishers found majority of Ramgarhias in Punjab due to which they chose Punjab for these skill requiring industries. These industries have the advantage of early start and can prosper in Punjab.

- Model Industrial Park (which is a joint effort of Apha G. Corp and Veer Colonisers and Builders Pvt. Ltd.) received approval in terms of Change of Land Use (CLU) and master plan in Februaury, 2013. This Rs 300 crore plan will provide direct employment to 5000 persons in Amritsar region. It will act as a boon for small and medium scale industrial enterprises by providing high quality industrial infrastructure for operational efficiency and growth (Tribune News Service, February 15, 2013).

- Under the welfare schemes of various states regarding distributing cycles to the students, the demand for bicycles from Punjab increased. Various states
like Tamil Nadu, Madhya Pradesh, Rajasthan, Karnataka, Chattisgarh and Bihar are demanding cycles from Punjab which doubled the production of these units. Along with it, allied industry such as cycle parts have also benefitted (Mander, 2011).

- Three Thermal Power Plant projects are in progress. These projects are coming up at Talwandi Sabo, Rajpura and Goindwal Sahib. As per Economic Survey of Punjab, Talwandi Sabo will produce 1980 MW and is expected to start in 2013-14. Rajpura Thermal power plant will produce 1400 MW and is expected to commence its operations in 2014-15. Goindwal Sahib project producing 540 MW of energy will become operational in 2013-14. Thus, these will fill the gap between demand and supply of electricity in Punjab.

- Rail freight corridor is extended from Son Nagar in Bihar to Delhi, upto Ludhiana in Punjab. State government must make endeavours to extend it to Amritsar and to link it to Western Freight corridor. It will provide new opportunities for exports of goods from Punjab, whether it be of agricultural or of industrial nature.

8.1.4. Threats

- Various fiscal incentives have been provided by the neighbouring states for their industry that induced industrialists to move out of Punjab. On the other hand, industrial sector in the state remains in a state of neglect. Recently Bihar government so as to boost industrial development has provided cheap land, i.e. at Rs 10 per square yard. Industrialists from Ludhiana have purchased 100 acres in Bihar. Also, many of the textiles making units are ready to shift to Himachal Pradesh as it provides cheap electricity, one percent relief from central sales tax, single window clearance system etc. Also, Himachal Pradesh has set up common effluent treatment plant, hazardous water management unit and a technical upgradation centre. All these factors forced the industrial units to shift their businesses to Himachal Pradesh (Randhawa, 2013).
Imposition of import duty on steel scrap and 5 percent VAT have left the steel industry in Punjab in a deteriorating condition. Mandi Gobindgarh which was once developed as a ‘steel hub’ in Punjab is in worse condition. Atleast 30 percent of the steel and furnance industries in Mandi Gobindgarh have already been shut down. About 15 to 20 percent of the manufacturers are in search of the buyers for their furnances and the remaining have decided to cut down their production by 50 percent to minimise losses (Bumbroo, 2013).

The State government spends more than 80 percent of its net borrowings to meet the revenue deficit, and only 20 percent for capital expenditure. In other words, major part of the borrowed money is used to meet committed liabilities and not for purposes of production or capital formation. Outstanding debt of the state was 32.0 percent of GSDP in 2012-13 (Dhaliwal, 2012).

‘Chief Minister Balik- Balika Yojana’ of Bihar wherein 12 lakh bicycles were proposed to be distributed in 2011 acted as a stimulus for developing bicycle manufacturing units in Bihar. In all, demand factor, cheap land, availability of labour and metal forced the bicycle units to shift their plants to Bihar. Punjab government should come forward with schemes so as to retain these units in Punjab (Mander, 2011).

8.2. Growth Strategy for the Revival of Industrial Sector in Punjab

Based on our empirical results and SWOT analysis, following points need to be considered while formulating the growth strategy:

(i) Since incentive based industrial policies significantly impact the production and employment of Punjab’s manufacturing when compared with the competition based policies, so Punjab government should prefer announcing and implementing incentive based industrial policies. Government in its industrial policies should emphasise on providing subsidies and incentives like capital subsidies, land subsidies, sales tax concession, electricity duty exemption and others. Thrust areas should be identified and special set of
incentives should be provided for promoting these thrust areas. Backward areas should be given extra incentives to promote industrialisation in these areas. All this will not only attract new investments but will also increase production and employment of Punjab’s manufacturing and hence will promote industrialisation in the state.

(ii) It has been observed from our results that almost 99 percent of units in Punjab are of small scale nature. These units are labour intensive units as these employ more than 80 percent of labour force and brings in just 16 percent of fixed investment to produce around 43 percent of total production. Majority of units being of small scale nature in Punjab cannot make technological changes to compete in the global world. There is a need to develop industrial parks, SEZs so that the SSIs can avail technical know-how and can grow along large scale units. R&D activities need to be initiated in these SEZs and industrial parks so as to technologically upgrade SSIs. Punjab government should come forward to develop industrial climate and to attract large MNCs to invest in Punjab.

(iii) It has been observed from our empirical results that labour productivity registered a decelerating trend. There is a need to improve labour productivity in all the industrial groups of Punjab’s manufacturing sector. It can be improved by enhancing the labour skills. Labour productivity can be improved by adopting the below measures:-

- It can be done by giving access to education and vocational training to the unemployed. Coordination of state’s engineering colleges, management institutes and technical institutions with industry is necessary to enhance the skill in manufacturing sector. The syllabus of these institutes needs to be updated from time to time so as to match it with the current requirements of industry and the market. More emphasis needs to be placed on imparting practical knowledge to the students. In
all, there is a need to bridge the gap between the skill formation in
institutions and skill requirements in industry.
- The state should encourage educated unemployed youth to form
  cooperatives for self-employment. Subsidies and soft loans can motivate
  youth to form cooperatives.
- Government should come forward to enhance the employability of the
  youth by imparting job specific vocational skills. Skill development
  programmes need to be organised from time to time so that workers are
  efficiently able to adopt the latest technology.
- State government must invest massively in social sector i.e. in education,
  health etc. so as to improve the labour skills (Singh and Singh, 2002).

(iv) Apart from labour productivity, there is a need to work on enhancing the
capital productivity of Punjab’s manufacturing sector. It is evident from our
empirical findings that capital productivity recorded a negative trend in the
post reform period in almost all the industrial groups. So there is a need to
improve the productivity of capital. Also capital intensity registered a falling
trend in its growth in the post reform period in almost all the industrial
groups. Apart from it, technological deterioration took place in all the
industrial groups and on aggregate terms in Punjab’s manufacturing sector.
Efforts need to be made by the government in this regard. For this, following
measures can be taken:

- Government should as far as possible shift its budgetory expenditure
  from non-developmental to the developmental expenditure so that much
  can be done for enhancing the technology of industry.
- In industrial sector, an Integrated Model patterned on the Japanese model
  of industrialisation should be adopted. Under this model, the SSI units
  act as ancilliary to large scale parent units. The large scale units using the
  semi-processed inputs or parts from SSI units produce final products
  through their assembly, and sell them in the market. In this way, the
parent units help the SSI units with cutting edge technology, upgradation of skills of workers and finance (Ghuman, 2012).

- Government should come forward to grow and groom the SSIs by providing incentives and subsidies for capital investment in the areas of comparative advantage.
- Government should extend support to the industry in areas like R&D, marketing and infrastructure. Punjab Industrial Facilitation Act needs to be enacted.

(v) Total factor productivity deteriorated in almost all the industrial groups and in aggregate manufacturing sector of Punjab. There is a need to improve the productivity of industrial groups. Following efforts can enhance the manufacturing productivity in Punjab:

- As indicated in our panel data results, total factor productivity is positively influenced by real emoluments, scale size, skilled labour force and output growth. So, there is a need to work on improving these variables. Labour force should be paid satisfactory wage. It will allow the worker to live in hygienic conditions and hence will improve his health and will reduce absenteeism which in turn will increase output and productivity. Further, government should come forward in encouraging large scale units to establish their ventures in Punjab. Apart from it, Punjab government should also work to motivate the existing small scale units to expand their scale of operation by providing a set of incentives and subsidies. All this will allow the firms to enjoy the scale economies which will improve the productivity of industrial groups and also of aggregate Punjab’s manufacturing sector.
- Output growth also enhances the productivity of manufacturing sector in Punjab. Firms in the selected industrial groups need to work in increasing their output level either by utilising the existing resources efficiently or by adopting the latest technology.
(vi) Punjab Government should learn from the experiences of innovator states and should use their industrial policies as a base while formulating the industrial policy of Punjab. Since Maharashtra and Himachal Pradesh shifted the frontier for maximum number of times during the sampled period, so Punjab government should specially go through the industrial policies of these states and should formulate the industrial policy of Punjab on the similar ground.

(vii) Efforts need to be made to rejuvenate the backward districts. The districts of Faridkot, Tarn Taran and Mansa in Punjab are industrially least developed districts. For industrialising these backward districts, a special set of incentives and subsidies need to be provided to the existing and new units in these districts.

(viii) Chemical and Chemical Products (30) is the most consistent innovator industrial group of Punjab’s manufacturing sector. It shifted the manufacturing frontier for maximum number of years during the entire study period. It remained technically efficient and brought in new technology. Among all the industrial groups, it has the firms of largest size and hence enjoys scale economies. Efforts should be made by the government to encourage development of chemical and chemical products manufacturing units in Punjab.

(ix) As is evident from our results, manufacturing sector’s share in Punjab’s GSDP has declined over the study period. Manufacturing sector is loosing its importance in Punjab economy. There is a need to rejuvenate the industry in Punjab. For this, efforts need to be made to make Punjab a high priority state. Following measures can be taken in this regard:

- Government of Punjab should set up a High Powered Supervisory Committee to ensure that the Central Government funds are properly utilised and also to review the working of various projects in Punjab.
under Central Government schemes like Special Economic Zones, Food Parks, and Industrial Cluster Development etc.

- Industrial department should not merely a talk of developing sound industrial policies, but the state should also come forward to implement these policies. New industrial policies should be announced after 8-10 years so that each industrial policy can be implemented properly and should have sufficient incubation period for benefits to accrue. Further, while making the industrial policy, Industries Department should minutely examine the industrial policies of other industrially developed states and should develop policy for Punjab on that basis.

- As discussed in SWOT analysis, Punjab’s fiscal health is deteriorating day by day. Fiscal deficit is mounting up. Government should take initiatives to improve the fiscal health of the state. Some of the initiatives that can be taken are searching for new tax sources, improving tax compliance, optimal utilisation of Central Government funds, restructuring of public enterprises for internal resource generation, controlling the unproductive expenditure and strict adoption of the Fiscal Responsibility and Budget Management Act, 2003 (Ghuman, 2012).

- Central Government should give tax concessions on par with that given to the neighbouring states of Punjab like Jammu and Kashmir, and Himachal Pradesh.

- Though the union government has launched the ICP at Attari to encourage the Bilateral trade, but the list of items being traded includes just 137 items. The expansion of the list will usher in a new era of growth and prosperity to the industrial sector of Punjab. For this, there is a need to include tractors, auto components, bicycle and bicycle parts, chemical products, food products, light engineering goods, metal and alloy products, pharmaceuticals, paper and paper products, sports goods, textiles, and petroleum products in the export list. This will promote industrialisation in Punjab (Singh, 2010).
• Air connectivity needs to be strengthened so as to encourage industrialisation. Projects for Mohali, Ludhiana and Bathinda which are under process need to be hastened and airlines encouraged increasing these services.

• In order to solve the problem of high land prices, the state can create its own multi-product SEZs wherein land is provided at concessional rates and provision of regular power supply is made, or subsidised diesel for captive generation be provided. Government can also develop land banks to solve this problem of high land prices.

• There is a need to introduce Single Window Clearance System.

• The tariff rates of power should be made rational for all the sectors of the economy. Moreover, the policy of free power to farmers and domestic consumers of Scheduled Castes should be re-considered. By doing so, burden on Punjab government’s finance will be reduced. Further, it will reduce the burden of cross subsidy on industrial sector. This will cut the unproductive utilisation of power in drawing ground water to feed paddy by the farmers and hence will prevent the declining groundwater in Punjab.

• The need of the hour is that the state administration puts in place a healthy, congenial and investor friendly policy, and also a regulatory framework so that SSIs in general can flourish in the fast changing competitive and globalised business environment (Kumar, 2010).

• Agro-industries need to be set up in the state. There is a need for the intervention of farmers associations and the government as that in Taiwan where farmers associations integrate agricultural production with industrial production and marketing. This change in organisational pattern has a capacity to absorb local labour (Singh and Singh, 2002).

• The need of the hour is to build bridge between agriculture and industry. Most of the agricultural produce in raw form is exported to other states and inputs required for agriculture are imported from other states. This trade puts Punjab in a disadvantageous condition. The Punjab
government should make efforts to develop agro-processing industries as well as the industries that will supply inputs for agriculture. These agro-processing industries will meet the employment needs of the state and will also solve the problem of food grain storage in the state (Ghuman, 2012). Government of Punjab should not only concentrate on encouraging wheat-paddy crops in Punjab but should focus on crop diversification. This will provide more opportunities for the development of agro-processing units in Punjab.

- In order to protect the industries from foreign competition especially China which is replacing the Indian products at faster pace, there is a need to impose the anti-dumping (import) duty on imports especially from China.

Thus, in all, it can be said that Punjab Government has a great role to play for reviving the sick industrial sector of Punjab. Investment need to be made in education sector, R&D activities, infrastructure development, power sector, for developing industrial parks, SEZs etc. By undertaking the above said measures, Punjab’s industrial sector can be taken out of the distress that it is suffering from.