

Though the growth of the industrial sector started to slowdown in the first half of 2007-08, the overall growth during the year remained as high as 8.5 per cent. The industrial sector witnessed a sharp slowdown during 2008-09 as a consequence of successive shocks, the most important being the knock-on effects of the global financial crisis. The pace of slowdown accelerated in the second half of 2008-09 with the sudden worsening of the international financial situation and the global economic outlook. The year 2008-09 thus closed with the industrial growth at only 2.4 per cent as per the Index of Industrial Production (IIP).

8.2 The slowdown in manufacturing over successive quarters started from Q1 of 2007-08. This was more or less replicated by the mining sector and closely followed by electricity. However, in the third quarter of 2008-09, the manufacturing sector witnessed a *sharp drop* in growth which turned negative in the fourth quarter. Growth of the mining sector declined over successive quarters of 2008-09 to reach a zero rate in the fourth quarter.

DEVELOPMENTS THAT IMPACTED THE INDUSTRIAL SECTOR

8.3 In view of the fact that industrial growth started to moderate from the first quarter of 2007-08, its growth performance needs to be viewed in light of the developments during that year and during the preceding year (Table 8.1 and Figure 8.1).

Raw material costs

8.4 The period January 2006 to July 2008 witnessed persistent increase in the price of crude oil. The fiscal 2008-09 began with the price of crude oil (Indian basket) at US\$ 105.77 per barrel (April 2008 average). By July 2008, Indian crude oil basket was priced at US\$ 132.47 per barrel. The increase in the price of imported crude was passed on into the domestic market in June 2008, but, in a very limited way through a hike in the price of motor spirit, HSD and LPG. However, the persistent rise in the

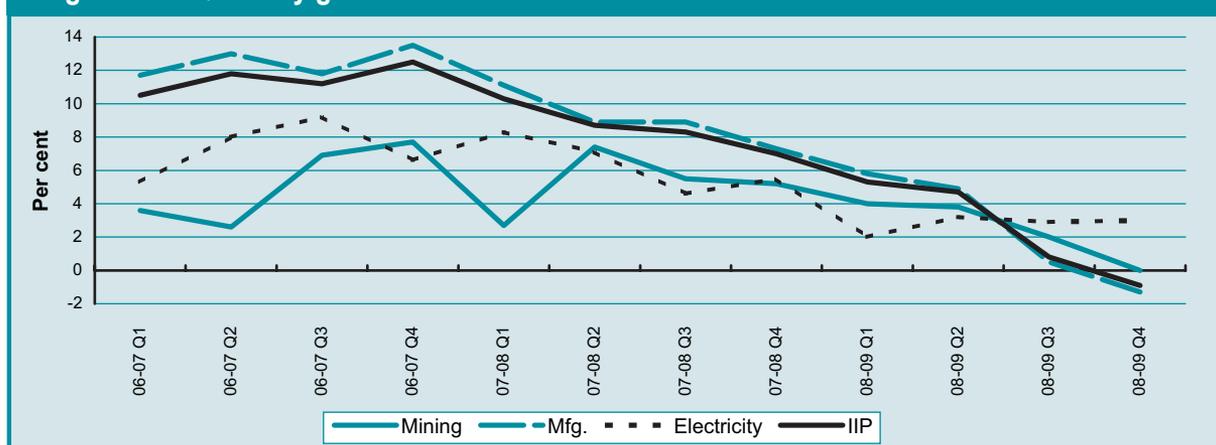
price of crude had started to impact petro-based industrial inputs adding to fuel costs. That apart, the rise in the price of other commodities, particularly metals and ores from the latter half of 2006-07 to the second half of 2008-09 also had its effect on the cost side of the manufacturing sector. Though some units engaged in the extraction or exports of commodities (like iron ore) realized higher profit margins, the commodity price inflation had an adverse impact on the profit margins for the manufacturing sector in general.

Table 8.1 : Growth of IIP. March 2009

| Industry Group | Weight | (per cent) | |
|--|-------------|------------|------------|
| | | 2007-08 | 2008-09 |
| Mining | 104.7 | 5.1 | 2.3 |
| Manufacturing | 793.6 | 9.0 | 2.3 |
| Electricity | 101.7 | 6.4 | 2.8 |
| Growth by use-based industrial groups | | | |
| Basic goods | 355.7 | 7.0 | 2.5 |
| Capital goods | 92.6 | 18.0 | 7.0 |
| Intermediate goods | 265.1 | 9.0 | -2.8 |
| Consumer goods | 286.6 | 6.1 | 4.4 |
| Durables | 53.7 | -1.0 | 4.4 |
| Non-durables | 233.0 | 8.6 | 4.4 |
| General Index | 1000 | 8.5 | 2.4 |

Source : Central Statistical Organisation

Figure 8.1 : Quarterly growth of IIP - %



8.5 A comparison of the major components of expenditure (based on data from abridged financial results) for a sample of manufacturing companies suggests that even by the second half of 2007-08, the cost structure had worsened despite robust growth in sales. This got accentuated in the first two quarters of 2008-09, suggesting that high commodity prices, during the first half of 2008-09 had strongly affected the input costs of manufacturing companies. Cost on account of consumption of raw materials rose by as much as 38 and 44 per cent during Q1 and Q2 of 2008-09 as compared to 16 and 12 per cent during the corresponding quarters of 2007-08. Similarly, power and fuel costs showed a significant increase during the first two quarters of 2008-09. The build-up in the cost structure during the first half of 2008-09 as compared to the corresponding period of 2007-08 in turn led to a shrinkage of margins (Table 8.2).

Interest expenditure

8.6 Another key component on the cost side, namely interest costs, also increased due to higher interest rates. From the third quarter of 2007-08, there was a sharp rise in interest costs.

Flow of finance

8.7 In recent years, especially from 2004-05, the Indian private corporate sector started to raise external capital (i.e. other than internal resources) mainly to fund its investment and this included foreign institutional sources. Data on sources and uses of funds for a sample of non-financial public limited companies available till 2006-07 (in a study by the RBI) shows that the share of external finance was as much as 64.1 per cent of the total source of funds. In an earlier study (by RBI), the share was estimated to be 44.5 per cent in 2004-05.

Table 8.2 : Growth in sales and expenditure of public limited manufacturing companies in the private sector

| Items | Growth rates in per cent | | | | | | | |
|--------------------------|--------------------------|-------|------|-------|---------|-------|--------|--------|
| | 2007-08 | | | | 2008-09 | | | |
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4* |
| No. of companies** | 1811 | 1716 | 1780 | 1803 | 1926 | 1837 | 1849 | 676 |
| Growth rates | | | | | | | | |
| Sales | 17.0 | 12.7 | 15.4 | 18.7 | 30.1 | 32.1 | 6.3 | -3.5 |
| Change in stock-in-trade | -18.2 | -13.2 | -0.8 | 151.6 | 131.9 | 230.1 | -377.2 | -135.6 |
| Expenditure | 16.0 | 12.0 | 15.9 | 21.0 | 34.3 | 38.8 | 9.3 | -6.3 |
| Raw material | 17.9 | 10.1 | 15.3 | 20.3 | 38.1 | 44.0 | 4.0 | -18.3 |
| Staff cost | 19.0 | 16.8 | 18.3 | 16.6 | 19.3 | 17.0 | 12.4 | 6.2 |
| Power & fuel | 9.6 | 6.6 | 13.7 | 25.8 | 28.8 | 37.8 | 21.7 | 9.2 |
| Interest costs | 7.8 | 15.1 | 35.6 | 30.8 | 52.0 | 69.9 | 60.5 | 44.7 |

Source : Reserve Bank of India

* Figures are provisional and subject to change.

** The data is based on a sample of public limited listed companies.

8.8 Table 8.3 presents an overview of the major components of flow of finance from different sources mainly to the non-financial companies (in the public and private sector) during 2008-09. It is evident that the mobilization of resources through the equity route saw a precipitous decline during 2008-09. On the external front, resource mobilization from American/ Global Depository Receipts almost collapsed during the year and the flow of external commercial borrowings also suffered a sharp decline. However, the inflow of foreign direct investment (FDI) recorded an impressive growth during H1 2008-09. While FDI flow remained subdued during Q3 2008-09, it recorded a modest recovery in Q4 2008-09.

8.9 The sudden freezing of trade credit especially by foreign banks that took place in mid-September 2008 was accompanied by a sharp depreciation in the nominal exchange rates within a short span of time. These developments made it difficult for manufactures to hedge their positions and to finance their ongoing operations.

8.10 Among the domestic sources, while private placement by non-financial institutions grew on the strength of the resource mobilization by public sector non-financial institutions, the private sector resource mobilization on this count declined sharply. Of all the sources of industrial financing, bank credit remained the biggest which recorded an impressive growth during 2008-09 and in some ways had to fill the gap due to the sudden shrinkage of other sources. The sharp slowdown in financing, especially the foreign capital, from mid-September 2008

accentuated the industrial slowdown that had already set in from the previous year.

Trade channel

8.11 With the opening up of the economy, the trade orientation of Indian manufacturing increased over the years. The exports to sales ratio of the private corporate sector increased over time (Table 8.4). While these changes were more pronounced in certain specific export-oriented industries, the overall increase in terms of trade orientation implied that assured availability of trade credit had become important for day to day business operations.

Table 8.4 : Exports to sales ratio of the private sector

| Year | Public Ltd. companies | Pvt. Ltd. companies |
|---------|-----------------------|---------------------|
| 1994-95 | 9.7 | 8.8 |
| 2004-05 | 17.6 | 18.5 |
| 2006-07 | 18.9 | 16.4 |

Source : Reserve Bank of India

8.12 The shrinkage in demand for exports that followed in the ensuing months (September 2008 to March 2009) sharply dented the performance of industries with high export intensity. The growth in exports from India declined from 28.9 per cent (in US dollar terms) in 2007-08 to 3.6 per cent in 2008-09. The impact of the export slowdown has been particularly pronounced in sectors like textiles, leather and fur products and transport equipment.

Table 8.3 : Financial flows through domestic and foreign sources

| Instrument | 2006-07 | 2007-08 | 2008-09 ^P | change (per cent) | |
|----------------------------------|---------|---------|----------------------|-------------------|---------|
| | | | | 2007-08 | 2008-09 |
| Domestic sources (in Rs. crore) | | | | | |
| Pvt. Placement- Pvt. Sector NFIs | 33426 | 30223 | 20422 | 19.7 | -32.4 |
| Pvt. Placement-Pub sector NFIs | 11908 | 17196 | 30832 | 87.1 | 73.3 |
| Total Private placement NFIs | 45334 | 47419 | 51254 | 37.7 | 8.1 |
| Public & rights issues | 33508 | 87029 | 14720 | 159.7 | -83.1 |
| Industrial credit | 146890 | 167819* | 213621* | 25.9 | 25.8 |
| External sources (\$ million) | | | | | |
| FDI | 22826 | 34362 | 33613 | 50.5 | -2.2 |
| ADRs/GDRs | 3776 | 8769 | 1162 | 132.2 | -86.7 |
| ECB (Gross) | 20883 | 30376 | 17549 | 45.5 | -42.2 |

Sources : SEBI for Public & rights issues and the rest from RBI.

^P Provisional;

NFIs: Non financial Institutions

* Annual variation in February.

Figures for private placement relate to April-December.

Price reversal and demand slowdown

8.13 The sharp reversal in commodity prices from the third quarter of 2008 has adversely affected such units that were left holding inventories, though it can be argued that the decline in inflation would also reduce costs for many industries. The manufacturing sector also suffered because of a decline in the construction and real estate affecting non-metallic minerals, wood and wood products and basic metals. These developments fed into the domestic economy, setting off what may be termed as second round effects that seem to have continued to the end of fiscal year 2008-09. The manufacturing demand, therefore, witnessed double squeeze, a decline in the demand originating from exports and a decline in domestic demand.

Profits and profitability

8.14 The foregoing developments thus impacted the input costs, flow of finance and its cost, demand and revenue growth and finally the growth of profits of the manufacturing sector. From the abridged results of a sample of manufacturing companies, it is seen that while profitability (PAT / sales) was under strain since the third quarter of 2007-08, it came down sharply in the third quarter of 2008-09 accompanied by a sharp dip in the growth in sales. (Figure 8.2)

Micro, small and medium enterprises

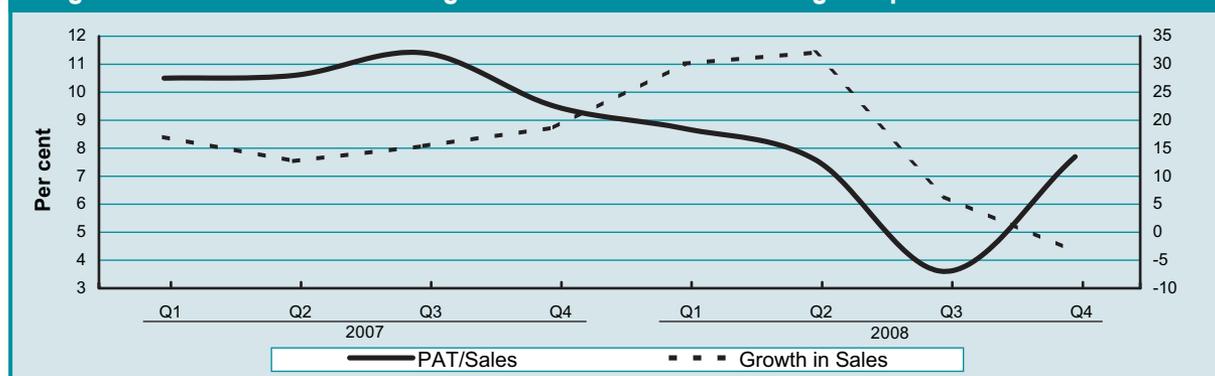
8.15 While the picture presented above is for the manufacturing corporate sector, the general course of developments for rest of the industrial sector may not be very different. (Given the better availability of data with shorter lags on the financial performance for the corporate sector, the impact on this segment can be readily gauged in terms of some of the key

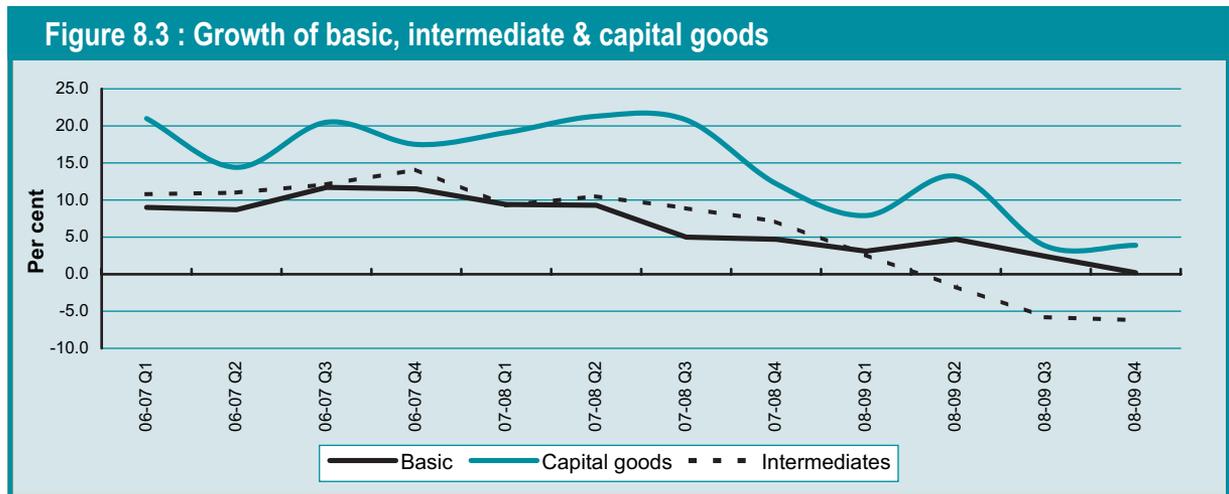
financial parameters). However, it needs to be recognized that the industrial sector comprises different segments, namely, the non-financial public sector companies, the non-financial manufacturing companies in the private corporate sector, and unincorporated household enterprises. Even within the corporate sector, there is a wide variation in size as also access to capital markets and international funds. While large public limited companies that are listed on the capital markets are able to access domestic and in some cases international capital markets, the dependence of smaller companies and micro, small and medium enterprises (MSMEs) on institutional credit is known to be higher.

8.16 The MSME sector has been contributing significantly to the manufacturing output, employment and exports. Between 2003-04 and 2007-08, the MSME sector registered average annual growth in the number of units and employment of around 4.1 per cent and 4.0 per cent respectively.

8.17 Since the transmission of global shocks came predominantly through the financing channel, it is not surprising that the private corporate sector was the first to be directly affected. However, it is understood that MSMEs that undertook manufacturing as subcontracts or as suppliers / ancillaries to larger units and those predominantly in export-oriented sectors stand affected due to the slowdown. While it is desirable to assess performance of the MSMEs against the backdrop of the recent developments, limitations of data may not permit doing so. The Fourth All India Census of MSMEs, being conducted, will perhaps create a database for the sector and provide a frame for tracking the future growth and development of the sector.

Figure 8.2 : PAT / sales ratio & growth of sales manufacturing companies





INDUSTRIAL GROWTH BY SECTORS

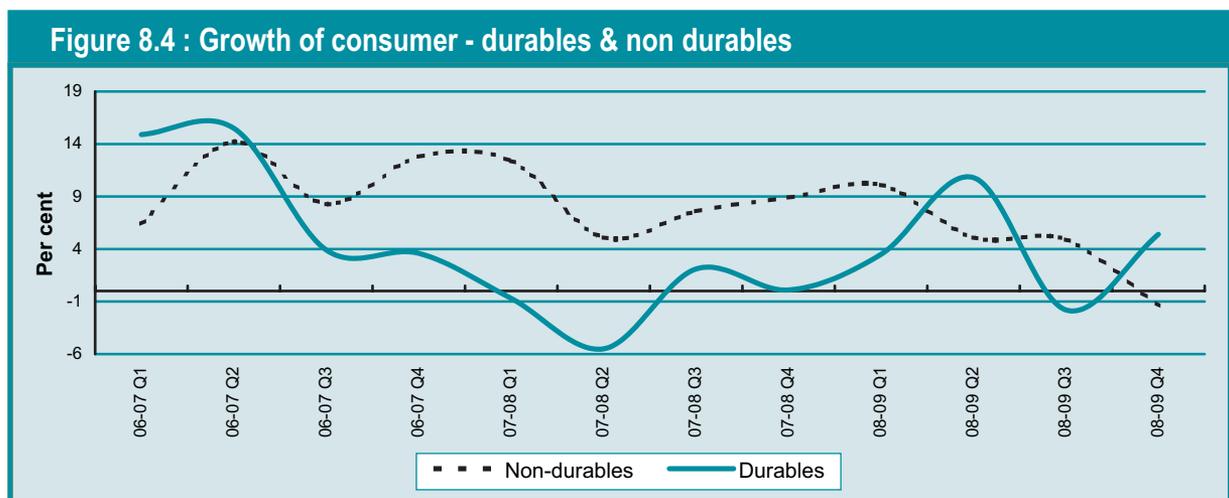
8.18 The performance of the industrial sector at the aggregate level needs to be viewed in light of the contribution made by a diverse range of products. In terms of the use-based categories, it is seen that the slowdown perhaps started with consumer durables even in the second quarter of 2007-08 but the overall growth in IIP was well supported by other use-based categories including intermediates and even consumer non-durables, albeit at lower rates of growth. Growth in production of capital goods continued at a robust pace reflecting perhaps the high investment rates. However, with the decline in the growth of intermediate goods (with a weight of 26.5 per cent) from Q1 of 2008-09, the growth in overall IIP showed a sharp dip that got accentuated in Q3 of 2008-09 when the remaining groups also showed a sharp drop in growth (Figures 8.3 and 8.4)

8.19 The broad growth correspondence between the two-digit level industrial groups and the use-based industry groups can be established by juxtaposing

the former against the latter. The growth in consumer non-durables has been boosted by the high growth in beverages and tobacco products, while the other major components—food products, chemicals and leather products showed sluggish/negative growth. The growth in basic goods is closely aligned to that in electricity and mining that constitute substantial part of the weight of basic goods; the most of the rest are chemical products, rubber, plastic and petroleum products and steel. Intermediate goods are a more dispersed group dominated by chemical, textile, rubber, metal product intermediates, most of which experienced negative growth in 2008-09. While the high growth of machinery and equipments bolstered the growth of capital goods, the poor to average performance of transport equipments dampened the overall growth of capital goods.

GROWTH BY PRODUCT GROUPS

8.20 The growth in any industrial group is determined by the level of production during the current period



and the base level. A simple classification of IIP groups in terms of their growth rates reveals that only two out of 17 industrial groups — beverages and tobacco and machinery — grew at robust rates during 2008-09 despite a high base. Seven of the 17 groups showed low growth ranging between 5 per cent to Nil. Of these, three groups (miscellaneous manufacturing, basic metals and alloys and chemicals and chemical products) had a high base in the previous year. Of the eight industrial groups that witnessed a decline in production during 2008-09, the high-base factor was significant only for three items — leather products, wood products and jute textiles. In general, it can therefore be said that 2008-09 was characterized by a decline in growth largely on account of a slowdown rather than due to a high base in the previous year (2007-08) (Table 8.5).

Contribution of product groups to IIP growth

8.21 The contribution to the growth by an industry group to the IIP in manufacturing in any given period is based on its weight, the level of index and the current growth. Broadly, industry groups that

experienced positive growth would have made a positive contribution to manufacturing growth and vice versa (Figure 8.5)

SECTOR-WISE GROWTH PROFILE

8.22 The following analysis highlights the growth performance of industrial groups at the two-digit level with emphasis on the high-weighted items that have driven growth or declined within each group. In addition, sectoral production data have been used to supplement the analysis.

Food products

8.23 As per the IIP data, the index of production of food products declined by 9.6 per cent in 2008-09 compared to a growth of 7.0 per cent in the previous year. This has been largely due to steep decline in the production of sugar, which has the highest weight in the “food product” group. Sugar had recorded robust production growth in 2007-08. The other important items like mustard oil/rapeseed oil and malted food also witnessed significant reduction in

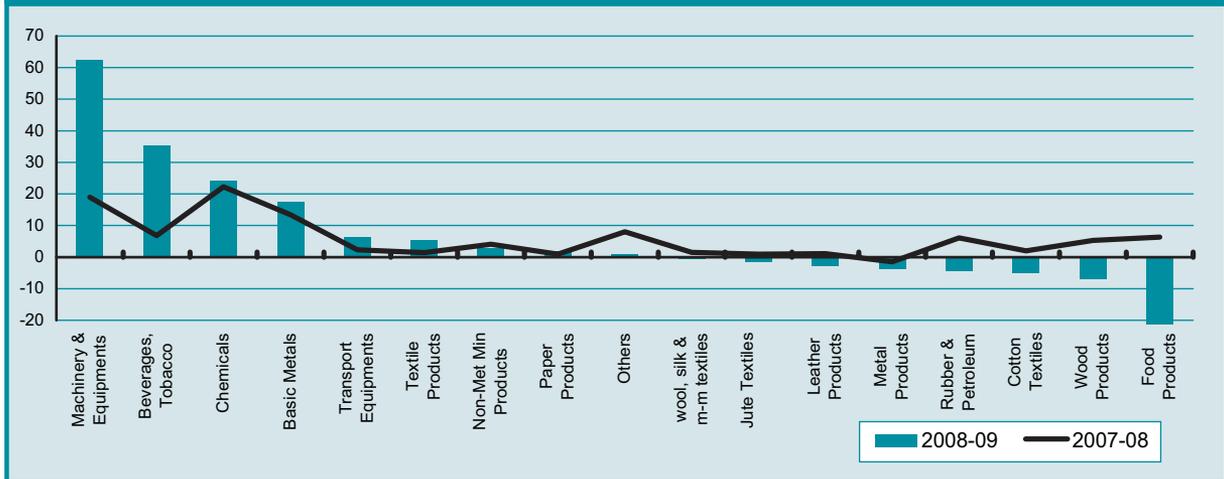
Table 8.5 : Industrial growth by industry groups

Figures in per cent based on the IIP-(Base: 1993-94 = 100)

| Two digit level groups | Weight | 2007-08 | 2008-09 | | |
|---|--------|---------|---------|-------|-----------|
| | | | H1 | H2 | Full year |
| Overall Manufacturing | 100.0 | 9.0 | 5.3 | -0.5 | 2.3 |
| High growth in 2008-09 | | | | | |
| Beverages, tobacco | 3.0 | 12.0 | 20.3 | 11.3 | 15.6 |
| Machinery & equipment | 12.1 | 10.4 | 10.1 | 7.4 | 8.7 |
| Growth between Nil and 5% in 2008-09 | | | | | |
| Basic metals and alloys | 9.4 | 12.1 | 6.7 | 1.4 | 4.0 |
| Textile products | 3.2 | 3.7 | 5.2 | 2.2 | 3.7 |
| Chemicals & products | 17.6 | 10.6 | 6.1 | -0.3 | 2.9 |
| Transport equipments | 5.0 | 2.9 | 12.2 | -6.8 | 2.2 |
| Paper & paper products | 3.3 | 2.7 | 4.6 | -1.8 | 1.3 |
| Non-Met mineral products | 5.5 | 5.7 | 0.6 | 1.4 | 1.0 |
| Miscellaneous manufacture | 3.2 | 19.8 | -1.1 | 1.8 | 0.5 |
| Negative growth in 2008-09 | | | | | |
| Wool, silk & man-made textiles | 2.8 | 4.8 | -0.9 | 0.3 | -0.3 |
| Rubber, plastic, petroleum | 7.2 | 8.9 | -4.0 | 0.9 | -1.5 |
| Cotton textiles | 7.0 | 4.3 | 0.1 | -5.7 | -2.8 |
| Metal products | 3.5 | -5.6 | 1.9 | -9.3 | -4.0 |
| Leather products | 1.4 | 11.7 | -1.8 | -12.0 | -7.0 |
| Food products | 11.4 | 7.0 | -1.0 | -14.8 | -9.6 |
| Jute textiles | 0.7 | 33.1 | -5.4 | -14.6 | -10.0 |
| Wood products | 3.4 | 40.5 | -6.1 | -14.7 | -10.3 |

Source : Central Statistical Organisation

Figure 8.5 : Percentage contribution of product groups to manufacturing growth



production during 2008-09. The high-weighted wheat flour/maida, milk powder and tea recorded slack production growth during the year. In contrast, edible oils like groundnut oil, cotton seed oil and hydrogenated oil recoded high production growth.

Beverages, tobacco & related products

8.24 The IIP data indicate that the beverages and tobacco group recorded the highest growth (15.6 per cent) among all the two-digit level industrial groups during 2008-09; that too on top of a strong base. Among the industries subsumed under this product group, cigarette production marginally declined during 2008-09. Most of the growth in the sector during the year was on account of high growth in production of country liquor, Indian-made foreign liquor and beer. The production of rectified spirit fell considerably during 2008-09.

Textiles

8.25 The IIP data show that during 2008-09, cotton textiles declined by 2.8 per cent, wool, silk and man-made fibre textiles by 0.3 per cent and jute textiles by 10 per cent while textile products increased by 3.7 per cent, compared to 2007-08.

8.26 The production of textile fabrics that increased by 4.96 per cent during 2007-08 (provisional), declined by 1.9 per cent during 2008-09. Despite modest increase in the production in hosiery and mill sectors, the decline in the production in power looms and handlooms resulted in the decline in the overall production of fabrics (Table 8.6). Factors such as higher price of cotton, high interest rates, problems in credit availability, high cost of power

and power cuts and demand slowdown in major importing countries led to the decline in cotton textiles.

8.27 The textile sector had gathered momentum consequent to the termination of the quota regime in December 2004. During 2007-08, textile exports recorded an increase of 15.6 per cent in US dollar terms and 2.8 per cent in rupee terms. During April 2008–February 2009, however, exports of textiles and clothing stood at US\$ 18.52 billion, recording a decline of 5.3 per cent growth (Table 8.7). Total textile exports amounted to US \$ 1,602.05 million during February 2009, which meant a decline of 24.4 per cent from February 2008. However, it declined to 6.3 per cent in rupee terms during the same period over February 2008.

Table 8.6 : Production of fabrics

(in million square metres and per cent*)

| Sector | 2005-06 | 2006-07 | 2007-08 | 2008-09 ^P |
|-------------|-----------------|-----------------|----------------|----------------------|
| Mill sector | 1656 (8.5) | 1746 (5.4) | 1781 (2.0) | 1796 (0.8) |
| Handloom | 6108 (6.8) | 6536 (7.0) | 6947 (6.3) | 6677 (-3.9) |
| Power loom | 30626 (8.1) | 32879 (7.4) | 34736 (5.6) | 33648 (-3.1) |
| Hosiery | 10418 (14.3) | 11504 (10.4) | 11804 (2.6) | 12077 (2.3) |
| Others | 769 (11.0) | 724 (-5.9) | 768 (6.1) | 768 (0.0) |
| Total | 49577 (9.2) | 53389 (7.7) | 56036 (4.9) | 54966 (-1.9) |

Source : O/o Textiles Commissioner, Mumbai;

* Figures in parenthesis depict per cent growth

Table 8.7 : Export of textiles

Figures in US\$ million

| Item | 2006-07 | 2007-08 | April'08-Feb.'09 (P) | |
|--------------------------|----------------|----------------|----------------------|-------------------|
| | | | Export | Growth (per cent) |
| Readymade Garments | 8282.3 | 9065.4 | 8597.3 | 4.9 |
| Cotton Textiles | 5564.2 | 6851.8 | 4423.1 | -22.8 |
| Wool & Woolen Textiles | 423.8 | 442.9 | 447.1 | 21.5 |
| Manmade Textiles | 2398.9 | 3175.6 | 3007.1 | 4.7 |
| Silk | 706.0 | 657.4 | 627.4 | 9.1 |
| Handicrafts * | 1364.9 | 1451.0 | 1005.0 | -26.6 |
| Coir & Coir Manufactures | 145.8 | 160.2 | 133.8 | -6.8 |
| Jute Goods | 260.2 | 326.1 | 279.2 | -7.1 |
| Grand Total | 19146.0 | 22130.3 | 18520.0 | -5.3 |

Source : DGCI&S, Kolkata

P Provisional;

* Includes only textile-based handicrafts such as hand-made carpets excluding silk, silk carpets, handicrafts excluding hand-made carpets).

Wood and wood products

8.28 Wood products, comprising particle boards and commercial plywood in the IIP, that had the highest rate of growth of over 40 per cent in 2007-08 slumped to 10.3 per cent in 2008-09. Most of these products are closely linked to demand from the commercial and housing construction. While the production of particle boards declined during the year, the production of commercial plywood increased substantially during 2008-09.

Paper products

8.29 Paper and paper products have been subject to wide annual fluctuations in growth. After growing at 15.6 per cent and 10.5 per cent respectively during 2003-04 and 2004-05, their growth came down to (-) 0.9 per cent in 2005-06 and increased to 8.7 per cent in 2006-07. The rate of growth of the sector during 2007-08 and 2008-09 were 2.7 per cent and 1.3 per cent (provisional) respectively. As per the IIP data, most items in this product group including machine-made pulp, paper and paper boards showed indifferent growth/decline during 2008-09. Despite the fact that India is self-sufficient in most forms of paper, the industry is affected by difficulties like high production cost, problems related to handling pollution, less than acceptable quality and shortage of raw materials.

Leather and leather products

8.30 Leather products contribute significantly to employment generation and export earnings. The IIP data show that after robust growth of 11.7 per cent in 2007-08, this sector registered a sharp fall of

(-) 7 per cent during 2008-09. Being export-oriented, leather has also been one of the sectors that has borne the brunt of the shrinkage in demand in foreign markets.

Chemicals, petrochemicals, pharmaceuticals and fertilizers

8.31 The IIP data show that during 2008-09, chemicals & chemical products grew by 2.9 per cent in 2008-09 as compared to 10.6 per cent in 2007-08.

Chemical industry

8.32 Major chemicals undergo several processing stages to be converted into downstream chemicals. These are used by agriculture sector, industry and direct use by the consumers. Agriculture and industrial usages of chemicals include auxiliary materials such as adhesives, unprocessed plastics, dyes and fertilizers, while direct usage by the consumers include pharmaceuticals, cosmetics, household products, paints, etc (Table 8.8).

Table 8.8 : Production of major chemicals

(in 000' MT)

| Years | Alkali chem- icals | Other inor- ganic chem- icals | Or- ganic chem- icals | Pest- icides (Tech.) | Dyes & dyes | Total major chemicals |
|---------|--------------------|-------------------------------|-----------------------|----------------------|-------------|-----------------------|
| 2005-06 | 5475 | 544 | 1545 | 82 | 30 | 7676 |
| 2006-07 | 5269 | 602 | 1545 | 85 | 33 | 7534 |
| 2007-08 | 5443 | 609 | 1546 | 83 | 44 | 7725 |
| 2008-09 | 5430 | 504 | 1212 | 74 | 31 | 7251 |

Source: Department of Chemicals & Petrochemicals

8.33 The petrochemical industry mainly comprises synthetic fibres, polymers, elastomers, synthetic detergents intermediates and performance plastics. The main sources of feedstock and fuel for petrochemicals are natural gas and naphtha. Petrochemical products permeate the entire spectrum of daily use items and cover almost every sphere of life, ranging from clothing, housing, construction, furniture, automobiles, household items, toys, agriculture, horticulture, irrigation, packaging to medical appliances etc. There are three naphtha-based and three gas-based cracker complexes in the country with a combined ethylene annual capacity of 2.9 million MT. Besides, there are four aromatic complexes also with a combined Xylenes capacity of 2.9 million MT (Table 8.9).

8.34 The production of polymers accounted for almost 62 per cent of the total production of major petrochemicals during 2008-09. The domestic capacity of polymers was 5.72 million MT during 2008-09. With 88.5 per cent capacity utilization, production of polymers during 2008-09 at the level of 5.06 million MT was attained. The domestic production capacity of synthetic fibres was 3.46 million MT during 2008-09. With capacity utilization of about 73 per cent, production at the level of 2.52 million MT was achieved.

8.35 The share of imports of chemicals and petrochemicals in the total national imports ebbed from 9.0 per cent to 6.7 per cent during the period 2002-03 to 2008-09 (upto February) whereas the share of exports declined marginally from 11.2 per cent to 10.0 per cent during the corresponding period (Table 8.10).

8.36 The Assam Gas Cracker Project, approved by the Government in April 2006 at a fixed cost of Rs. 5,460.61 crore and scheduled for commissioning in April 2012, is expected to attract substantial investment by way of setting up of downstream plastic

Table 8.10 : Exports and imports—Chemicals and petrochemicals

| (Rs. crore) | | | |
|----------------------------|--------------|--------------|------------------------|
| Items | 2006-07 | 2007-08 | 2008-09 (upto Feb.) |
| Exports: | | | |
| (a) Chemicals | 39351 | 43482 | 64796 |
| (b) Petrochemicals | 21801 | 22199 | 12338 |
| (c) Sub-Total (a+b) | 61152 | 65681 | 77134 |
| Imports: | | | |
| (a) Chemicals | 47914 | 54422 | 66169 |
| (b) Petrochemicals | 16339 | 18677 | 15895 |
| (c) Sub-Total (a+b) | 64253 | 73099 | 82064 |

Source: Department of Chemicals & Petrochemicals

processing industry. GAIL (India) Ltd. is the main promoter of the project.

Pharmaceuticals

8.37 The Indian pharma industry has grown from a mere Rs. 1,500 crore turnover in 1980 to over Rs. 78,000 crore in 2008 with about 10 per cent of share volume of global production (Table 8.11). High growth has been achieved through; the creation of required infrastructure, capacity building in complex manufacturing technologies of active ingredients

Table 8.11 : Value of production of bulk drugs and formulations

| (Rs. crore) | | | | |
|-------------|------------|----------|--------------|----------|
| Year | Bulk drugs | Growth % | Formulations | Growth % |
| 2006-07 | 12125 | 14.0 | 45626 | 20.0 |
| 2007-08 | 13822 | 14.0 | 54751 | 20.0 |
| 2008-09 | 15204* | 10.0* | 66796* | 22.0* |

Source: IDMA Data Bank; *Estimated

Table 8.9 : Production of major petrochemicals

| (000' MT) | | | | | | |
|-----------|------------------|----------|------------|-----------------------------------|----------------------|----------------------------|
| Years | Synthetic fibers | Polymers | Elastomers | Synthetic detergent intermediates | Performance plastics | Total major petrochemicals |
| 2005-06 | 1906 | 4768 | 110 | 555 | 127 | 7466 |
| 2006-07 | 2250 | 5183 | 101 | 556 | 133 | 8223 |
| 2007-08 | 2524 | 5304 | 105 | 585 | 157 | 8675 |
| 2008-09 | 2343 | 5060 | 96 | 552 | 141 | 8192 |

Source : Department of Chemicals & Petrochemicals

(APIs) and formulations, entering into drug discovery through original and contract research and manufacturing (CRAM) and clinical trials and product specific strategies of acquisition and mergers. The domestic sector had a production turnover of Rs. 47,241 crore from about 10,000 small-scale and 300 large and medium manufacturing units in 2008.

8.38 Pharmaceutical exports have grown from Rs. 6,256 crore in 1998-99 to Rs. 30,759 crore in 2008. Exports of pharmaceuticals have been consistently outstripping the value of corresponding Imports in the period 1996-97 up to 2007-08. Exports registered a growth rate of 25 per cent in 2007-08 over 2006-07. The sector attracted FDI amounting to US\$ 1,401.60 million during 2000-01 to September 2008, of which, US\$ 125.30 million occurred during April-September 2008.

8.39 Investments in pharmaceutical sector are now expanding into areas of innovative R&D focused outsourcing opportunities like clinical trials, data management services, pharmaceutical informatics, lead discovery and optimization, pharmaco-kinetics and pharmaco-dynamics and pre-clinical drug discovery in combinatorial chemistry, chiral chemistry, new drug delivery systems, bioinformatics and phyto-medicines. The Indian pharma industry is taking leaping strides in innovative drug discovery with clinical trials underway in 34 molecules. Consequently, the Indian drug discovery market has grown from US\$ 470 million in 2005 to US\$ 800 million in 2007.

Fertilizers

8.40 While the shift from DAP to complexes production affected the production growth of DAP, inadequate availability of raw materials and intermediates has also been a major bottleneck. There is no domestic production of MOP, the requirement of which is met fully by imports (Table 8.12).

8.41 Despite manifold increase in international prices of fertilizers and domestic cost of production, the prices of fertilizers have been kept at 2002 levels for major fertilizers. The increased burden of cost is borne by the government in the form of increased subsidy/concessions paid to manufacturers. The subsidy bill, which was Rs. 11,835 crore during 2003-04, increased to Rs. 40,338 crore during 2007-08.

8.42 An Empowered Committee of Secretaries has been formed to look into all options for revival of closed units. The Government has decided in principle to examine the feasibility of revival of HFCL and FCIL, subject to confirmed availability of gas. The Government has decided to revive Barauni unit of HFCL through a Special Purpose Vehicle (SPV) promoted by NFL, RCF and KRIBHCO namely Urvarak Videsh Ltd. FACT has been provided a one-time grant of Rs. 200 crore to meet the working capital requirement. Suitable packages to help MFL and BVFCL are also being prepared.

Rubber and plastic products

8.43 As per the IIP production data, this product group declined by 1.5 per cent during 2008-09, compared to their growth of 8.9 per cent during 2007-08. The growth of tyre industry is linked to the growth of the auto industry and the replacement market. Two-wheeler production had a modest growth during 2008-09, so did the two-wheeler tyres. The production of rubber footwear grew by 3.9 per cent while sheets (PVC/rubber) fell by 4.7 per cent. PVC pipes and tubes, which have the highest weight in the product group, witnessed a decline of 7.2 per cent during 2008-09, on top of an impressive growth during the previous two years.

Non-metallic mineral products including cement

8.44 As per the IIP production data, the growth of non-metallic mineral products as a group was 1.0

Table 8.12 : Production of fertilizers

(Lakh MT)

| Year | Production | | | Imports | | |
|---------------------|------------|---------|---------|---------|---------|---------|
| | 2006-07 | 2007-08 | 2008-09 | 2006-07 | 2007-08 | 2008-09 |
| Urea | 203.08 | 198.58 | 199.22 | 47.18 | 69.28 | 56.67 |
| DAP | 48.51 | 42.12 | 29.33 | 28.75 | 29.9 | 61.91 |
| Complex fertilizers | 74.64 | 58.50 | 68.48 | | | |
| MOP | Nil | Nil | Nil | 34.48 | 44.2 | 56.72 |

Source : Department of Fertilizers

per cent during 2008-09 as compared to 5.7 per cent in 2007-08. Important products like glazed/ceramic tiles and bottles and bottle glass wares recorded indifferent growth/decline during 2008-09, while the production of polished granite/stone chips and graphite electrodes and anodes declined significantly. The industry was saved from an overall decline in output by the 8.2 per cent increase in cement production during 2008-09. The cement industry added a record capacity of 30 million tonnes (MTs) during 2007-08 to the capacity of 167.83 MTs that existed at the end of 2006-07. The cement capacity as on November 30, 2008 was 206.46 MTs. Cement and clinker exports grew by about 5.40 per cent and 5.60 per cent respectively in April-November 2008.

Steel

8.45 India ranks as the fifth largest producer of steel in the world. The crude steel production grew at an annual rate of 9.2 per cent during 2003-04 to 2007-08. The increase in production came on the back of capacity expansion, mainly in the private sector plants, and higher utilization rates. The Indian steel industry has diversified its product mix to include sophisticated value-added steel used in the automotive sector, heavy machinery and physical infrastructure. The industry, however, suffers from the high ash content of locally available metallurgical coal and growing dependence on imported coal and delays in getting iron ore mining lease has created uncertainties and constraints in the areas of land acquisition and transport infrastructure.

8.46 The three years, 2005-06 through 2007-08, witnessed double-digit steel consumption growth. As consumption grew at almost double the rate of

growth in domestic steel production during 2007-08, import of steel rose sharply while exports stagnated (Table 8.13). Domestic steel prices started rising steeply from December 2007 and reached a peak in March/April 2008 on account of rising international price of steel led by increased global demand, mismatch between the rate of growth in domestic demand and supply and steep increase in raw material prices in the domestic and global markets. The rising domestic prices were sought to be countered with measures like imposition of export duty, reduction of customs duty from 5 per cent to "Nil" on iron and steel products, met coke, ferro-alloys and zinc, reduction in countervailing excise duty from 14 per cent to "Nil" on imported TMT bars & structurals used for construction of houses and ad valorem export tax of 15 per cent on iron ore in place of earlier specific lump-sum tax.

8.47 The year 2008-09 has been a watershed year for the Indian iron and steel industry. The industry has been hit hard by the spiraling cost of imported coking coal/met coke. The first half 2008-09 witnessed rapid rise in consumption, prices and profits of steel producers. Spurred by the high growth in steel demand and the availability of key factors of production within India, huge investments were planned for capacity expansion.

8.48 The onset of the global economic crisis since September 2008 led to stagnation and subsequent fall in the international steel prices. Domestic demand for steel was adversely impacted by economic sluggishness and, in particular, by the sharp reduction in demand in some of the leading end-user segments of steel which depend on credit financing. As a result, steel prices started moving

Table 8.13 : Production, consumption, import and export of steel

| | | (million tonnes) | | | | | |
|--------------------------------|------|------------------|---------|---------|----------------------|----------------------|--|
| | Item | 2005-06 | 2006-07 | 2007-08 | 2008-09 ^P | Growth (per cent) | |
| Production for sale | TFS | 46.56 | 52.53 | 56.07 | 56.42 | 0.6 | |
| | PI | 4.69 | 4.93 | 5.28 | 5.28 | 0.0 | |
| Imports | TFS | 4.31 | 4.93 | 7.03 | 5.72 | -18.7 | |
| | PI | 0.03 | 0.03 | 0.11 | 0.08 | -27.0 | |
| Exports | TFS | 4.80 | 5.24 | 5.08 | 3.66 | -27.9 | |
| | PI | 0.44 | 0.71 | 0.56 | 0.35 | -37.5 | |
| Consumption¹ | TFS | 41.43 | 46.78 | 52.12 | 52.05 | -0.1 | |
| | PI | 4.13 | 4.33 | 4.62 | 4.91 | 6.2 | |

Source : JPC;

TFS = Total finished steel, both alloy and carbon; PI: Pig iron

^P Provisional estimates; 1- adjusted for stock changes and double-counting.

Table 8.14 : Growth in production, consumption, imports and export of steel (alloy + carbon)

| (per cent) * | | | | |
|-----------------|---------------------|------------------|---------|----------|
| 2008-09 | Production for sale | Real consumption | Imports | Exports |
| April-June | 4.9 | 11.0 | 18.3 | (-) 29.6 |
| April-August | 4.2 | 10.1 | 33.1 | (-) 31.4 |
| April-September | 5.4 | 4.9 | (-)12.6 | (-) 30.2 |
| April-March | 0.6 | (-)0.1 | (-)18.7 | (-) 27.9 |

Source : JPC; * Data are provisional

down sharply from September 2008. On the supply side, the liquidity crunch has negatively impacted steel investors' sentiments (Table 8.14).

Metal products

8.49 This industry suffered from the second consecutive year of decline; its index of production declined by 5.6 per cent in 2007-08 and further by 4 per cent in 2008-09. Five per cent plus growth was recorded by only two products, ie, LPG cylinders and pressure cookers, while important items like well/offshore platforms, tin metal containers, agricultural implements and bolts and nuts recorded sluggish growth/decline during 2008-09.

Machinery and equipment

8.50 The machinery sector (except the transport equipments), grew at 8.7 per cent during 2008-09, on top of five consecutive years of growth in excess of 10 per cent. The important items in the machinery group showed significant variations in the growth of production. In terms of contribution to the growth of the sector, the bulk was accounted for by insulated cables and wires, the production of which more than doubled, as per IIP during 2008-09. The other important items that recorded significant growth during the year included TV receivers, diesel engines, industrial machinery, turbines, hydraulic machines and cylinders, boilers, power-driven pumps, electric generators, cooling towers, cutting tools and dumpers. On the other extreme, items like computer system and its peripherals, telephone instruments, switch gear, control panels/boards/disks, electric motors phase one, material handling equipment, telecommunication cables, valves, furnaces, etc suffered decline in their production indices.

8.51 The Indian capital goods industry is currently facing a surge in imports from China. The import of capital goods from China rose from Rs. 5,120 crore in 2002-03 to Rs. 54,200 crore in 2007-08. The share of China in India's total import of capital goods has gone up from 38 per cent in 2002-03 to 50 per cent in 2007-08. The trend reflects high import dependency of India for capital goods from China. Of particular concern is the zero-duty imports, relating to import of power generation equipment, construction equipment and import of textile machinery under TUFs.

Electronics and information technology

8.52 The year 2007-08 was marked by substantial growth in the revenue of IT-ITeS industry, BPO, software and services exports and software and services employment. However, the expected growth in 2008-09 is significantly lower when compared to 2007-08 (Table 8.15).

Table 8.15: Growth in IT-ITeS industries

| (US\$ billion) | | | |
|---|-------------|-------------|--------------------|
| Item | 2006-07 | 2007-08 | 2008-09 (expected) |
| (IT-ITeS) revenue (including hardware) | 47.8 | 64.0 | 71.7 |
| Software & services industry (excluding hardware) | 39.3 | 52.0 | 60.0 |
| The total software and services exports | 31.1 | 40.4 | 47.0 |
| IT-BPO revenue from domestic market | 8.2 | 11.7 | 12.5 |
| IT software and services employment | 1.6 million | 2.0 million | 2.2 million |

Source: Department of Information Technology

8.53 By December 2007, over 498 India-based centres (both Indian firms as well as MNC-owned captives) had acquired quality certifications, with 85 companies certified SEI CMM Level-5. Production of electronic items such as consumer, industrial electronics, computers, communication and broadcasting equipment, strategic electronics and components registered steady growth over a period of three years, from 2005-06 to 2007-08. Similarly export earnings of the electronics hardware and computer

Table 8.16 : Electronics production & exports

| (Rs. crore) | | | |
|--|----------------|----------------|----------------|
| Items | 2005-06 | 2006-07 | 2007-08* |
| 1. Consumer electronics | 18,000 | 20,000 | 22,500 |
| 2. Industrial electronics | 8,800 | 10,400 | 11,950 |
| 3. Computers | 10,800 | 12,800 | 16,400 |
| 4. Comm. & broadcasting equipments | 7,000 | 9,500 | 14,350 |
| 5. Strategic electronics | 3,200 | 4,500 | 6,100 |
| 6. Components | 8,800 | 8,800 | 9,500 |
| Sub-Total | 56,600 | 66,000 | 80,800 |
| 7. Software for exports | 104,100 | 141,000 | 163,000 |
| 8. Domestic software | 29,600 | 37,000 | 47,300 |
| Total | 190,300 | 244,000 | 291,100 |
| Electronics exports (Rs. crore) | | | |
| 1. Electronics hardware | 9,625 | 12,500 | 12,700 |
| 2. Computer software | 104,100 | 141,000 | 163,000 |
| Total | 113,725 | 153,500 | 175,700 |

Source : Department of Information Technology

* Estimated

software have gone up from Rs. 1,13,725 crore in 2005-06 to Rs. 1,75,700 in 2007-08 (Table 8.16).

Automobile sector

8.54 Production of the automotive industry grew at a CAGR of 11.5 per cent over last five years. The industry has a strong multiplier effect on the economy due to its deep forward and backward linkages with several key segments of the economy. While the industry has been witnessing impressive growth during the last two decades, the performance after 2006-07 has not been encouraging. The automobile sector recorded growth of 13.6 per cent in 2006-07. In 2007-08, the industry registered negative growth rate of (-) 2.3 per cent. However, in 2008-09, the industry has witnessed a modest growth of 3.0 per cent. While passenger vehicle, two-wheeler and three-wheeler registered a growth of 3.4 per cent, 4.9 per cent and

Table 8.17 : Automobile production

| (in thousands) | | | | |
|---------------------|-------------|--------------|--------------|--------------|
| Segment | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
| Passenger vehicles | 1046 | 1323 | 1426 | 1517 |
| Commercial vehicles | 263 | 222 | 246 | 218 |
| Total CVs | 391 | 520 | 549 | 417 |
| Three-wheelers | 7609 | 8444 | 8027 | 8419 |
| Two-wheelers | 434 | 556 | 501 | 501 |
| Total | 9743 | 11065 | 10854 | 11175 |
| Percentage growth | 15.4 | 13.6 | (-) 2.3 | 3.0 |

Source: SIAM

0.1 per cent respectively, the utility vehicles and commercial vehicles segment registered negative growth of (-)11.9 per cent and (-)24 per cent respectively (Table 8.17).

8.55 The turnover of the automobile sector in 2008-09 was Rs 2,18,966 crore and exports were at Rs 31,782 crore. The turnover and the exports of the automobile vehicle industry in 2008-09 was at Rs 1,42,646 crore and Rs 16,782 crore whereas for the automobile component industry this was at Rs 76,320 crore and Rs 15,000 crore. The percentage of exports to the total turnover for the automobile industry and the automobile components sector in value terms was 12 per cent and 19.7 per cent respectively. It is estimated that the automobile industry generates direct and indirect employment for 10.5 million people (Table 8.18).

Table 8.18 : Automobile exports

| (in thousands) | | | | |
|---------------------|------------|-------------|-------------|-------------|
| Segment | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
| Passenger vehicles | 170 | 194 | 218 | 336 |
| Commercial vehicles | 5 | 4 | 6 | 5 |
| Total CVs | 41 | 50 | 53 | 37 |
| Three-wheelers | 513 | 619 | 141 | 148 |
| Two-wheelers | 77 | 144 | 819 | 1004 |
| Total | 806 | 1011 | 1238 | 1530 |
| Percentage growth | 27.7 | 25.4 | 22.4 | 23.6 |

Source : SIAM

CENTRAL PUBLIC SECTOR ENTERPRISES

8.56 There were 242 Central Public Sector Enterprises (CPSEs) under the administrative control of various Ministries/ Departments as on 31.3.2008. The cumulative investment (paid-up capital plus long terms loans) in all the CPSEs stood at Rs. 4,55,409 crore as on 31.3.2008. The largest share in this investment belonged to the service sector (40.40 per cent) followed by electricity (27.95 per cent), manufacturing (22.23 per cent), mining sector (8.83 per cent) and agriculture (0.04 per cent). The remaining 0.55 per cent belonged to CPSEs under construction. While 'investment' in all the CPSEs grew by 8.31 per cent in 2007-08 over 2006-07, "capital employed" in all the CPSEs went up by 15.63 per cent during the same period (Table 8.19). A great deal of investment in CPSEs is being made through internal resources rather than through investment from outside.

Table 8.19 : Performance of CPSEs during 2007-08

| (Rs. in crore) | | | |
|--|---------|---------|----------------------|
| Particulars | 2007-08 | 2006-07 | Change (per cent) |
| Investment(long term loan + equity) | 455409 | 420476 | 8.3 |
| Capital employed (net fixed assets + working capital) | 763127 | 659959 | 15.6 |
| Total turnover | 1081925 | 964896 | 12.1 |
| Profit of Profit Making CPSEs | 91083 | 89578 | 1.7 |
| Loss of Loss Making CPSEs | 11274 | 8457 | 33.3 |
| Net worth | 518417 | 452753 | 14.5 |
| Dividend declared | 28081 | 26819 | 4.7 |
| Corporate tax | 42013 | 34352 | 22.3 |
| Interest paid | 32240 | 27455 | 17.4 |
| Contribution to Central Exchequer | 165994 | 148789 | 11.6 |
| Foreign Exchange Earnings | 74283 | 70906 | 4.8 |
| a) Oil companies | 47203 | 43777 | 7.8 |
| b) Other companies | 27080 | 27129 | 0.2 |
| Foreign Exchange Outgo | 368196 | 316161 | 16.5 |
| a) Oil companies | 278992 | 241736 | 15.4 |
| b) Other companies | 89204 | 74425 | 19.9 |

Source : Department of Public Enterprises

* Loss of loss making CPSEs increased mainly due to loss incurred by NACIL (Rs. 2,226 crore) during 2007-08 as compared to Rs. 688 crore loss incurred by Air India and Indian Airlines (put together) during 2006-07.

8.57 The net profit of profit making CPSEs (160) stood at Rs. 91,083 crore in 2007-08. The net loss of loss making enterprises (53) on the other hand, stood at Rs. 11,274 crore ; this includes accounting losses of closed units like the Fertilizers Corporation of India (Rs.1,504 crore) and Hindustan Fertilizers Corporation (Rs.1,102 crore). The Food Corporation of India (FCI) and Artificial Limbs Manufacturing Corporation of India (ALIMCO) etc. are CPSEs that have been laying greater emphasis on non-financial /social objectives. The year also witnessed severe financial under-recoveries by public sector oil marketing companies (OMCs) as they had to keep the prices low in the domestic market on sale of petroleum products.

8.58 The major highlights of the performance of CPSEs during 2007-08 are given in Table 8.19.

8.59 The CPSEs earned foreign exchange amounting to Rs. 74,283 crore during 2007-08. The total foreign exchange outgo (Rs. 3,68,196 crore) clearly exceeded the foreign exchange earnings.

Tourism

8.60 In line with the National Tourism Policy formulated in 2002, aimed, inter alia, at positioning tourism as an engine of growth and development and employment generation, many initiatives have

been taken. They include; Central assistance to states/UTs for integrated development of tourist destinations and circuits, assistance for large revenue generating projects, projects for developing rural tourism, assistance for eco-tourism projects, assistance for infrastructure development for cruise tourism, initiatives for promoting adventure tourism (inter-ministerial consultations, water skiing courses, financial assistance for mountain biking expeditions, etc.) and initiatives for encouraging MICE (meetings, incentives, conferences and exhibitions) tourism (Table 8.20).

Table 8.20 : Number of foreign and domestic tourists (2005-06 to 2008-09)

| Year | Foreign tourist arrivals (lakhs) | *Foreign exchange earnings (million US\$) | *Domestic tourist visits (lakhs)** |
|---------------------|----------------------------------|---|------------------------------------|
| 2005-06 | 41.0 (13.8) | 7853 (17.8) | 3919.5 |
| 2006-07 | 46.7 (13.8) | 9123 (16.2) | 4623.1 |
| 2007-08 | 52.7 (12.8) | 11666 (27.9) | 5265.6 |
| 2008-09 (April-Jan) | 41.6 (-0.1) | 8753 (-3.9) | |

Source : Ministry of Tourism

* Figures in parenthesis are growth rates (per cent)

** Domestic tourist visits for calendar years.

8.61 During 2008-09, the Ministry of Tourism launched seven international campaigns for promoting Indian tourism in international markets. For domestic tourists, the “Sare Jahan Se Achcha” campaign through TV channels and cinema halls and thematic domestic campaigns, both launched in 2007-08, spilt over to 2008-09. Market development assistance (MDA) is being given to tourism service providers for sales-cum-study tours, participation in fairs and exhibitions and publicity through printed materials. 10 per cent of the plan allocation of the Ministry of Tourism has been earmarked for promotion of North Eastern region. The Ministry has also launched “Visit India 2009” scheme whereby attractive incentives would be offered to foreign tourists. For identified destinations/circuits covered by the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), convergence of resources is being ensured so that tourism-related infrastructure and urban civic infrastructure complement each other.

8.62 Nonetheless, the global economic crisis is seen to have affected tourism growth in 2008-09 (Table 8.20). In order to counter the adverse impact, initiatives like enhanced benefits under MDA scheme, increased subsidy in participation fee at international travel fares and exhibitions and familiarization tours for trade and media representatives to different parts of the country have been taken.

FINANCING AND INVESTMENT BY SECTORS

8.63 The industrial sector comprising mining, manufacturing, electricity and construction accounted for about 54 per cent of the gross capital formation in 2007-08 as per the National Accounts Statistics. Of this, the manufacturing sector alone accounted for as much as 76.9 per cent. Mining, electricity and construction accounted for 4.1, 11.5 and 7.6 per cent respectively (Table 8.21). Over 73

Table 8.21 : Gross capital formation in Industry (figure in per cent)

| | GCF/GDP | Share |
|----------------|---------|-------|
| Mining | 0.8 | 4.1 |
| Manufacturing | 15.7 | 76.9 |
| Electricity | 2.4 | 11.5 |
| Construction | 1.5 | 7.6 |
| Industry total | 20.7 | 100.0 |

Source : Central Statistical Organisation

per cent of the gross capital formation in the manufacturing sector is in the registered manufacturing (which can be considered as a proxy for the organized manufacturing) and the balance is in the unregistered manufacturing. Therefore, the industrial sector is a key driver of growth in terms of investment demand that in turn goes to augment the supply side. The financing of industrial investment of which credit remains a major component is critical to achieving higher rates of investment

Industrial credit

8.64 The annual variation in overall industrial credit in February 2009 was 25.8 per cent as compared to 25.9 per cent during February 2008 (Figure 8.6). During 2008-09, some sectors like petroleum showed a large spike in the growth of credit arising largely due to increase in the working capital requirements of companies in that sector due to a rise in crude prices. The other sectors recording higher rate of growth in credit include mining and quarrying, beverages and tobacco products and infrastructure. Corresponding trends are visible in the sectoral shares of industrial credit too. The sectors that experienced comparatively lower credit growth on year-on-year basis included food processing, textiles and leather products. The gems and jewellery sector

Figure 8.6 : Growth in bank credit by sectors

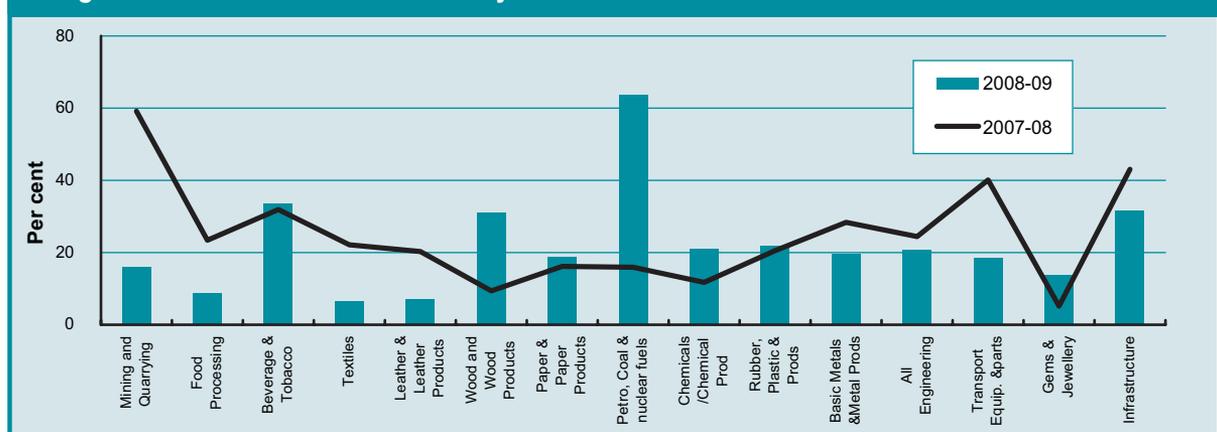


Table 8.22: Sectors attracting highest FDI flows

| Sector | (Rs. crore) | | |
|----------------------------------|-------------|---------|------------------------------|
| | 2007-08 | 2008-09 | Change (per cent) in 2008-09 |
| Services | 26589.3 | 28410.7 | 6.9 |
| Housing & real estate | 8749.3 | 12621.2 | 44.3 |
| Telecommunications | 5102.6 | 11726.9 | 129.8 |
| Construction | 6989.3 | 8791.9 | 25.8 |
| Computer software & hardware | 5623.3 | 7328.5 | 30.3 |
| Automobiles | 2697.0 | 5211.7 | 93.2 |
| Power | 3877.5 | 4381.8 | 13.0 |
| Metallurgical industries | 4686.0 | 4156.7 | -11.3 |
| Information & broadcasting | 1290.3 | 3492.4 | 170.7 |
| Chemicals (except fertilizers) | 917.6 | 3427.1 | 273.5 |
| Grand total all FDI equity flows | 98664 | 122919 | 24.6 |

Source : Department of Industrial Policy and Promotion

that experienced a significant setback in exports also experienced lower credit growth.

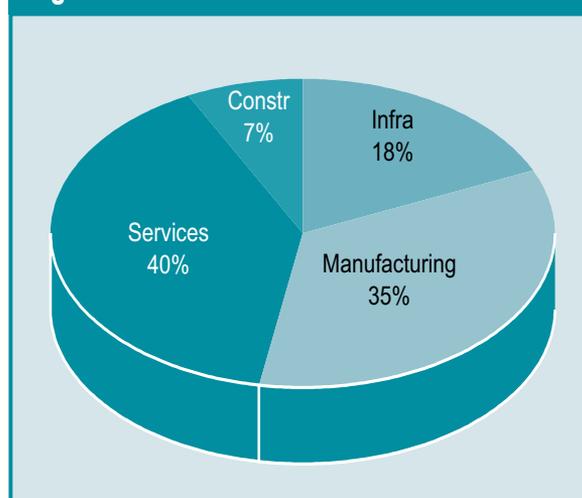
Foreign direct investment

8.65 During 2008-09, the total FDI equity inflows stood at Rs. 1,22,919 crore (US\$ 27,309 million) against Rs. 98,664 crore (US\$ 24,579 million) during 2007-08 signifying a growth of 25 per cent in terms of rupee and 11 per cent in terms of US dollar. The distribution of FDI within the industrial sector between mining, manufacturing, electricity and construction is given in Figure 8.7, based on a classification of FDI receiving sectors.

Distribution of FDI inflows (only equity capital components)

8.66 The sectoral shares of FDI inflows have fluctuated significantly in the recent years. Apart from financial and non-financial services, telecommunications, housing and real estate, and construction have emerged as the most significant recipients of FDI inflows. The shares of petroleum and natural gas and power sector have been on the increase while that of metallurgical industries came down sharply (Table 8.22).

8.67 Investment indicated in the IEMs continue to witness an upsurge. However, there has been structural shift over time taking place. While basic goods industries which include among others, metallurgical industries accounted for 37.74 per cent in 2003-04, the same came down in its place, the share of capital goods witnessed an increase, particularly electrical equipment. The share of consumer goods, on the other hand, has declined (Table 8.23).

Figure 8.7 : Sector-wise FDI inflow**Table 8.23 : Sectoral share of investments in the IEMs**

| Sectors | (per cent) | |
|---|---------------|---------------|
| | 2003-04 | 2008-09 |
| Basic goods (of which metallurgical industries) | 37.74 (22.77) | 30.96 (23.51) |
| Capital goods (of which electrical equipment) | 26.04 (22.91) | 47.95 (43.29) |
| Intermediate goods | 7.91 | 8.00 |
| Consumer goods | 3.29 | 1.05 |
| (i) Consumer durables | 0.09 | 0.01 |
| (ii) Consumer non-durables | 3.20 | 1.04 |
| Others | 21.70 | 10.90 |

Source : Department of Industrial Policy and Promotion

POLICY DEVELOPMENTS AND PROGRAMMES

8.68 The developments in terms of policy responses during 2008-09 were to an extent shaped by the situation that emerged from the effects of the global financial crisis on the Indian industry. The measures that were taken specifically for the industrial sector included, fiscal measures, measures to ensure availability of credit. Broadly, the effort in this regard was to mitigate its sharp impact on the industry, especially on the export oriented sectors that were the most directly affected. A list of measures taken by the Government and the Reserve Bank of India to mitigate the impact on exports is provided in Box 6.11 (Chapter 6).

8.69 Apart from the aforesaid measures sector-specific measures and other programmes taken on an ongoing basis are outlined below:

Textiles and garments

8.70 The Government announced several incentives during 2008-09 to support the textiles and garments industry, which include the following:

- Payment of only excise duty on DTA sale for textile and granite sector EOUs, in case the use of duty paid imported inputs is up to 3 per cent of the FOB value of exports.
- 10 more countries were included within the ambit of Focus Market Scheme.
- With reduction of 4 per cent in CENVAT, the textile machinery will have CENVAT of 10 per cent and non-cotton textile will have 4 per cent CENVAT.
- Rate of duty on cotton textile and the textile articles were reduced from 4 per cent to Nil;
- Pre- and post-shipment export credit for sectors including textiles was provided an interest subvention of 2 per cent up to 31.03.2009 subject to minimum rate of interest 7 per cent per annum;
- All items of handicrafts will be included under "Vishesh Krishi & Gram Udyog Yojana".

8.71 The two flagship schemes of the textile sector include Technology Upgradation Fund Scheme (TUFS) and Scheme for Integrated Textile Parks (SITP). TUFS, aimed at facilitating modernization and upgradation of the textile industry by providing credit at reduced rate to both organized and unorganized sectors, has been fine-tuned to induce rapid investments. Under the scheme, an amount of Rs. 69,828 crore was sanctioned against the project cost of Rs. 1,55,704 crore and loans worth Rs. 57,878 crore were disbursed to 23,448 applicants

up to 31.12.2008. An additional allocation of Rs. 1,400 crore has been made to clear the entire backlog in TUFS during 2008-09. Under SITP, 40 integrated textiles parks of international standards, covering weaving, knitting, processing and garmenting sectors with project proposals worth Rs. 4,199.35 crore (of which assistance from the Government is Rs. 1,438.03 crore) have been sanctioned. Four textile parks were inaugurated during 2008-09.

Steel

8.72 Responding to the changed scenario, Government of India removed the export duty on pig iron, iron & steel ingots, bars & rods, angles and sections, reintroduced import duty of 5 per cent on steel, restored DEPB benefits partially, reduced excise duty to 8 per cent, placed HR imports on the restricted list making it available to direct users only and not to traders and withdrew the exemption from countervailing duty on import of TMT bars and structurals. An Inter-Ministerial Group (IMG) was set up to facilitate interaction between investors and the various agencies in the matters of acquisition of land, mining rights, power and transportation including rail, road and port sectors.

Pharmaceuticals

8.73 The Department of Pharmaceuticals (DoP) was set up in July 2008. Pharmaceutical industry has various environmental issues; hence an Environmental Cell has been created in the department to collect, disseminate information on environmental matters, identify issues and solutions, create awareness and to synergize efforts for an environment-friendly pharma industry. Under the Jan Aushadhi Campaign launched by the Government along with Central Public Sector Undertakings to provide quality medicines at affordable prices to the masses, "Jan Aushadhi" stores would be set up in every district, where generic drugs, unbranded but equivalent in quality to branded drugs, are being sold. The first such "Jan Aushadhi" store was opened in Amristar in November 2008 and the campaign is on its way to opening more than 45 stores in different places by end-March 2009. A national toll-free helpline has been set up to provide information on this.

8.74 To promote excellence in pharmaceutical education & research, six new National Institutes of Pharmaceutical Education & Research (NIPERs) have been set up, in addition to the existing one at Mohali. NIPERs would award masters & doctoral

degrees in pharmaceutical sciences and would give emphasis on R&D activities. The NIPERs are being set up in collaboration with mentor institutes.

8.75 Under various rehabilitation programmes, the CPSUs have made remarkable progress in the year 2008-09.

Petrochemicals

8.76 The National Policy on Petrochemicals, approved by the Government, aims at increasing investments, catering to the demand in polymers and downstream processing, increasing domestic consumption of plastics, synthetic fibres and petrochemicals, increasing polymer absorption and value addition in downstream plastic processing, achieving environmentally sustainable growth and promoting R&D in petrochemicals. A sector-specific investment region, "Petroleum, Chemicals and Petrochemicals Investment Region" (PCPIR) has been set up to ensure adoption of a holistic approach to promote petroleum, chemical and petrochemical sectors. Industrial estates would be set up to achieve synergies. This would be supplemented with green belt and social infrastructure. PCPIR region would be a combination of production projects, public utilities, logistics, environmental protection, residential areas and administrative services.

8.77 PCPIR would have an area of around 250 sq. km with a minimum processing area of about 40 per cent of the total designated area. Each PCPIR would have a refinery/petrochemical feedstock company as an anchor tenant. The internal infrastructure of PCPIR would be managed by developers. Availability of external physical infrastructure linkages would be ensured. The proposals of Andhra Pradesh, Gujarat and West Bengal were approved in February 2009.

Fertilizers

8.78 New Pricing Scheme-III (NPS-III) for indigenous urea seeks to rationalize distribution and movement and lay down a definite plan for conversion of all non-gas based urea units to gas. The Government has announced a new investment policy for urea sector to attract investment, based on import parity price bench-marking. Government decided to fix the farm-gate prices of nutrient at the level of existing price in straight fertilizers viz. urea, DAP, MOP and SSP. Selling price of subsidized fertilizers will be determined on the basis of the nutrient contained therein.

8.79 A policy for encouraging production and availability of fortified and coated fertilizers was

notified. A uniform freight subsidy policy was announced under which the rail freight will be paid on actuals and road freights will be paid on a normative average district lead. Revised Concession Scheme for decontrolled phosphatic and potassic fertilizers was announced, according to which final rates for concession to be worked out on monthly basis for indigenous DAP would be the same as that of imported DAP. Mono ammonium phosphate (MAP), triple super phosphate (TSP) and ammonium sulphate (AS) have been included in the concession scheme. Also a uniform all-India maximum retail price of Rs. 3,400 per tonne for single super phosphate (SSP) was announced.

8.80 Possibilities for setting up of joint venture ammonia/urea projects in countries like Iran, Turkmenistan, Ukraine, Egypt, Kuwait, Saudi Arabia, Australia, Nigeria, Mozambique and Azarbaijan are being explored. Indian entities are in dialogue for joint venture in phosphatic and potassic fertilizers in countries such as Jordan, Moracco, Tunisia, Australia, Syria and Canada. A special purpose vehicle namely Urvarak Videsh Ltd. has been incorporated to take consultancy study for projects abroad.

Electronics

8.81 Under the ongoing National e-Governance Plan (NeGP), the Government had approved a scheme for facilitating establishment of more than 100,000 broadband Internet-enabled common service centres (CSCs) in rural areas of the country at a total cost of Rs. 5,742 crore. It is being implemented under the public-private partnership mode. As of March 31, 2009, the number of CSCs commissioned in 20 states is 36,485. Likewise, implementation of State Wide Area Networks (SWANs), envisaged to provide secured network from state headquarters up to the block level, has been completed in seven states/UTs (Delhi, Haryana, Himachal Pradesh, Tamil Nadu, Chandigarh, Tripura and Punjab), while it is at advance stage in 12 states /UTs, as of March 31, 2009. Under the Scheme of e-District, a State Mission Mode Project under NeGP, pilot projects have been extended to 14 states covering 36 districts. During 2008-09, a significant ground was covered in Uttar Pradesh, Bihar, Assam and Maharashtra.

8.82 The scheme of State Data Centre (SDC), an important element of infrastructure for e-Governance under NeGP, was approved in January 2008 at an estimated outlay of Rs. 1,623.20 crore to cover 28 states and 6 UTs. SDC Proposals of 27 states/UTs

have already been approved with a total outlay of Rs. 1,237 crore.

8.83 A Capacity Building Scheme for end-user, which envisions an institutional framework for state level strategic decision-making including setting up of State e-Governance Mission Team (SeMTs), at an outlay of Rs. 313 crore, was approved in January 2008. A Capacity Building Management Cell (CBMC) has been set up in DIT for its overall coordination and implementation. Unique Identity (UID) scheme was initiated to create a central database and generate UID for residents primarily for effective reach of social sector benefits. A UID Authority has been set up under aegis of the Planning Commission. Under the Special Incentive Package Scheme (SIPS), which encourages investments in semiconductor fabrication and other micro and nano technology manufacture industries, 17 proposals involving an investment of the order of Rs. 1,57,000 crore, over a period of next 10 years have been received.

8.84 A policy resolution for setting up of Information Technology Investment Regions (ITIRs) was approved in May 2008. This will promote investment in Information Technology (IT), Information Technology Enabled Services (ITeS) and Electronic Hardware Manufacturing (EHM). The Information Technology (Amendment) Act, 2008 was enacted considering the need to strengthen legislation pertaining to information security. The Act, inter alia, adds provisions to the existing Information Technology Act, 2000 to deal with new forms of cyber crimes. Software tools & fonts for Gujarati, Sanskrit, Bodo, Dogri, Maithili and Nepali were released in public domain, in addition to software tools and fonts for 10 constitutionally recognized Indian languages which are already available in public domain. Around 7 lakh free software tools and fonts CDs have been freely distributed to the masses, besides about 26 lakh downloads from the website.

8.85 It has been decided to establish a National Knowledge Network with scalable multi-gigabit capabilities which will connect 1,000 nodes covering all universities, research institutions, libraries, laboratories, hospitals and agricultural institutions across the country. The initial phase of the network was inaugurated in April 2009. The Indian Computer Emergency Response Team (CERT-In) has been set up for providing early security warning and effective incident response. Further, nationwide efforts are being made to increase cyber security education, awareness and skills with special training programmes.

Public sector

8.86 To provide level playing field with the private corporate sector, the Government has delegated enhanced financial and operational powers to the Navratna, Miniratna and other profit making CPSEs. National Aluminium Company Limited (NALCO), National Mineral Development Corporation Limited (NMDC), Power Grid Corporation of India Limited (PGCIL), Rural Electrification Corporation (REC), Coal India Limited (CIL) and the Shipping Corporation of India Limited (SCI) have been granted Navratna status in 2007-08 raising the total number of Navratna companies to 18. Eight more CPSEs, namely, the Airports Authority of India, Broadcast Engineering Consultants of India Limited, Cochin Shipyard Limited, Hindustan Copper Limited, Indian Railway Catering and Tourism Corporation Limited, Mishra Dhatu Nigam Limited, National Hydroelectric Power Corporation Limited and Satluj Jal Vidyut Nigam Limited have been granted Miniratna status, raising the total number of Miniratna CPSEs to 56.

8.87 Besides emphasizing on professionalization of the Board of Directors in these enterprises, the Government has issued Guidelines on Corporate Governance further CPSEs. The Government, furthermore, established the Board for Reconstruction of Public Sector Enterprises (BRPSE) in December 2004 to advise the Government, inter alia, on revival / restructuring of sick and loss-making CPSEs. The BRPSE has made recommendations in respect of 56 cases of CPSEs until 31.03.2009. The Government, in turn, has approved the proposals for revival of 35 CPSEs and closure of two. The total assistance approved by the Government in this regard up to 31.03.2009 has been Rs. 15,129 crore, which comprises Rs. 2,932 crore as cash assistance and Rs. 12,197 crore as non-cash assistance.

8.88 Nearly one-fourth of employees in CPSEs are in the managerial and supervisory cadres. The total number of employees in all CPSEs came down to 15.70 lakh (excluding casual labour and contract labour) as on 31.3.2008 compared to 16.14 lakh employees as on 31.3.2007. As per the unrevised scales, the average per capita emoluments in CPSEs stood at about Rs. 4,09,608 per annum.

8.89 The Government had set up a Pay Revision Committee headed by Justice M. Jagannadha Rao, (Retired Judge of the Supreme Court of India) for considering pay revision of executives and non-unionized supervisors under IDA pattern in CPSEs. Based on the recommendations of this Committee

which submitted its report on 30.5.2008, the Government issued guidelines dated 26.11.2008 for the pay revision of executives and non-unionized supervisors drawing pay under IDA scales of pay. The effective date of pay revision will be 1.1.2007. This decision of the Government would greatly benefit the executives and non-unionized supervisors of CPSEs and help the CPSEs to attract and retain talent.

MSMEs

8.90 The Prime Minister's Employment Generation Programme (PMEGP) has been launched by merging the erstwhile Rural Employment Generation Programme and Prime Minister's Rozgar Yojana. Its objectives are to generate employment opportunities in rural and urban areas by setting up new self-employment ventures/projects/micro enterprises, bring together dispersed traditional artisans and unemployed youth and give them self-employment opportunities, provide continuous and sustainable employment to traditional and prospective artisans and unemployed youth to arrest rural-urban migration and increase the wage earning capacity of artisans. Khadi and Village Industries Commission (KVIC) is the national nodal agency. At the state level, the scheme is implemented through State KVIC Directorates, State Khadi and Village Industries Boards (KVIBs) and District Industries Centres (DICs) and Banks. The upper limit of the project cost that can be set up in the manufacturing sector and the business/services sector is Rs. 25 lakh and Rs.10 lakh respectively. The subsidy for setting up micro enterprises is 15 per cent and 25 per cent respectively in urban areas and 25 per cent and 35 per cent respectively in rural areas for general category and special category. Under the scheme, Rs. 4,735 crore, in addition to Rs. 250 crore towards forward and backward linkages, has been earmarked to generate around 37.38 lakh employment opportunities during four years.

8.91 Under the National Manufacturing Competitiveness Programme (NMCP), five components have been made operational. These include quality management systems and quality technology tools, building awareness on intellectual property rights, support for entrepreneurial and managerial development through incubators, setting up of new mini tool rooms and marketing assistance/support to MSEs. The Credit Guarantee Scheme has been modified with reduction in one-time guarantee fee and annual service fee to 1 per cent and 0.5 per cent respectively for loans up to

Rs. 5 lakh, increase in loan limit from Rs.50 lakh to Rs.1 crore with a guarantee cover of 50 per cent, increase in guarantee cover from 80 per cent to 85 per cent for loans up to Rs. 5 lakh and reduction in lock in period for preferring claims from 24 to 18 months.

8.92 To provide handholding assistance to potential first generation entrepreneurs through lead agencies or Udyami Mitra, the Rajiv Gandhi Udyami Mitra Yojana has been launched, offering guidance and help to them in completing the formalities for establishment of enterprises.

8.93 To support the khadi sector, two new schemes have been launched. Under Workshed Scheme for Khadi artisans, it has been targeted to provide 38,000 worksheds to khadi spinners/artisans. The 'Scheme for Enhancing Productivity and Competitiveness of Khadi Industries and Artisans' aims at increasing productivity of khadi artisans through 200 selected khadi institutions by assisting them with quality raw material, capacity building, value addition and marketing linkages. A scheme to rejuvenate, modernize and technologically upgrade spinners and tiny household sector in coir production has been launched. Under the scheme, outdated ratts/looms would be replaced and worksheds would be provided. Financial aid has been tied up from the Asian Development Bank amounting to US\$ 150 million over a period of three years for implementing a comprehensive Khadi Reform Programme. Under this, the khadi sector would be revitalized with increased incomes, employment, sustainability and artisans' welfare and KVIC would be enabled to reduce dependence on government grants. Initially, programme will be initiated in 300 khadi institutions.

8.94 The phased deletion of products from the list of items reserved for the exclusive manufacture by micro and small enterprises is being continued. In October 2008, the government deleted 14 items from this list. There are now only 21 items that are reserved for this sector. These include bread, pickles, wooden furniture, wax candles, exercise books and registers, safety matches, incense sticks, fireworks, and stainless steel and aluminium utensils.

Foreign direct investment

8.95 The consolidated press note released in June 2008 by the Department of Industrial Policy and Promotion (DIPP) specified the sectors in which FDI is prohibited as: retail trading (except single brand product retailing), atomic energy, lottery business, gambling and betting, business of chit fund, Nidhi

Box 8.1 : FDI - Major policy decisions during 2008-09

- 49 per cent FDI in credit information companies has been allowed.
- FDI up to 26 per cent and FII up to 23 per cent in commodity exchanges, subject to no single investor holding more than 5 per cent, has been allowed.
- FDI up to 100 per cent under the automatic route has been allowed both in setting up and in established industrial parks.
- FDI cap in the civil aviation sector, which includes 74 per cent FDI in non-scheduled airlines, chartered airlines and cargo airlines, has been relaxed. 100 per cent FDI in maintenance and repair organizations, flying training institutes, technical training institutions, and helicopter services/seaplane services has been allowed.
- FDI policy in the petroleum and natural gas sector has been rationalized.
- FDI up to 100 per cent (with prior government approval) in mining and mineral separation of titanium-bearing minerals and ores, its value addition, and integrated activities has been allowed.

companies, trading in transferable development rights (TDRs) and activities/sectors not opened to private sector investment (Box 8.1). Except these sectors, FDI is allowed in all the other sectors of the economy, at varying specified degrees, either through the Government approval route or the automatic route of the Reserve Bank of India.

Box 8.2 : Calculation of total foreign investment

The salient features of guidelines for calculation of total foreign investment – direct and indirect – in Indian companies:

- All investment directly by a non-resident entity into the Indian company would be counted towards foreign investment.
- The foreign investment through the investing Indian company would not be considered for calculation of the indirect foreign investment in case of Indian companies which are “owned and controlled” by resident Indian citizens and Indian companies which are “owned and controlled” ultimately by resident Indian citizens.
- For cases where this condition is not satisfied or if the investing company is owned or controlled by “non-resident entities,” the entire investment by the investing company into the subject of Indian company would be considered as indirect foreign investment.
- As an exception, the indirect foreign investment in only the 100 per cent owned subsidiaries of operating-cum-investing/investing companies, will be limited to the foreign investment in the operating-cum-investing/investing company. It is clarified that this exception has been made since the downstream investment of a 100 per cent owned subsidiary of the holding company is akin to investment made by the holding company and the downstream investment should be a mirror image of the holding company.

8.96 A comprehensive review of the FDI policy was undertaken in 2008-09, relating to guidelines on (i) calculation of total foreign investment in Indian companies, (ii) transfer of ownership or control of Indian companies in sectors with caps from resident Indian citizens to non-resident entities, and (iii) policy for downstream investment by investing Indian companies (Box 8.2).

SOME CRITICAL DIMENSIONS OF INDUSTRIAL DEVELOPMENT

Productivity

8.97 Economic growth crucially depends on gains in productivity. Total factor productivity (TFP), defined as the ratio of a volume measure of output to a volume measure of total input use, measures the efficiency with which labour, capital and other inputs are combined to produce output. There are vast differences in approaches of measurement of manufacturing productivity with regard to the method of estimation, measurement of outputs and inputs, resulted arrived at and interpretation of results. Reflecting these differences, the studies on productivity growth in Indian manufacturing during different time periods have thrown up varied conclusions.

8.98 While many studies have pointed towards acceleration in productivity growth during the 1980s, objections have been raised about the research methodologies that led to this inference. While there is a wealth of literature on productivity growth during the post-reforms period, those studies too have not led to unambiguous conclusions. However, it is widely held that trade liberalization during the 1980s and the 1990s have had a positive impact on productivity growth. It is also observed that in a scenario of steadily increasing labour compensation in manufacturing, the growth of labour productivity is important.

8.99 As an approximation of the efficiency in resource use, productivity is affected by many factors, one of the most important being technological progress. Increased application of information and communication technology (ICT) in manufacturing, accompanied with commensurate upgradation of labour skills and knowledge, is observed to have multi-dimensional effects on productivity growth. In this context, it is observed that the penetration of ICT in Indian manufacturing and business is very low, compared to advanced countries.

R&D in Indian industry

8.100 Though spending on R&D in relation to the GDP in the case of India has increased over the years, the difference between the spending in R&D between India and the developed world remains considerably high. India spends approximately 0.88 per cent of its GDP on research and development. This is low compared to countries like China which spend 1.42 per cent of its GDP on R&D and most developed countries spend more than 2 per cent of their GDP (Box 8.3).

8.101 During the period 2005-06, 74.1 per cent of the total R&D expenditure was met from government sources and rest 25.9 per cent came from the private sector. The Central Government was the highest contributor to R&D expenditure with a share of 57.5 per cent, the State Government had a share of 7.7 per cent while the industrial sector contributed 30.4 per cent, and the higher education sector 4.4 per cent. It is pertinent to note that the industrial sector R&D contribution in developed countries is usually more than 50 per cent. There are about 3,690 R&D institutions in the country. Under the Central Government R&D expenditure, 86 per cent was incurred by 12 major scientific agencies. The share of Defence Research and Development Organisation (DRDO) amongst the 12 major scientific agencies was 34.4 per cent.

8.102 During 2005-06, the industrial sector R&D units spent 0.55 per cent of their sales turnover on R&D. In terms of sector-wise position, the drugs and pharmaceuticals sector occupied highest position with a share of 37.4 per cent followed by

transportation and defence with 14.7 per cent and 6.9 per cent respectively.

8.103 The study of human resource sector suggests that nearly 3.91 lakh personals were employed in the R&D establishments in the country including in-house R&D units of industries, as on April 1, 2005. Majority (63 per cent) of the total R&D personnel was employed in institutional sector and higher educational sector. Industrial sector which comprises both public and private industries deployed 37 per cent of the total R&D personnel. Out of this, public sector including joint sector industries, employed only 6 per cent on R&D activities. The number of applications filled for patents increased from 8,503 on 2000-01 to 28,940 in 2006-07. The number of patents granted stands at 7,539, out of which only 25.3 per cent were Indians.

Industrial pollution and the environment

8.104 Polluting industries have been a significant source of air and water pollution. Out of 2,982 industries identified under the 17 categories of polluting industries, 2,121 units have so far set up pollution control devices to comply with the standards, 478 units have been closed and action has been taken against 383 defaulting units. Necessary measures - both preventive and promotional - have been taken for control of industrial pollution. These, inter alia, include; notification and enforcement of emission and effluent standards, setting up of clean technology mechanisms and effluent treatment plants, establishing waste minimization circles in clusters of small scale industries, regulating siting of industries,

Box 8.3 : Report of the National Knowledge Commission on Innovation-extracts

- **Innovation intensity** (measures the percentage of revenue derived from products and services which are less than 3 years old) has increased in both large firms and SMEs, with SMEs registering greater increase. Innovation intensity is greater in firms having majority foreign ownership than with majority Indian ownership. Firms with greater R&D spending are likely to be more innovative.
- **Internal and external barriers to innovation** have been recognised. Most important internal barriers for the large firms include; lack of organisational focus on innovation, lack of competitiveness and inefficient management systems. External barriers comprise skill shortage due to lack of emphases on creativity, design, industrial innovation, etc. in education curricula.
- **Impact of Innovation:** Innovation has been critical to growth since economic liberalisation. Increase in competitiveness and market share have been the most significant effects of innovation.

The commission, inter alia, recommends that;

- **Higher education** system should be reformed in such a way as to develop required intellectual capital and lay the foundation for effective collaboration between industry and educational institutions.
- **Vocational Education and Training (VET)** should be restructured, with a focus on industry participation in fixing the imbalance between supply and demand in VET.
- **Systemic Reforms:** The reforms required for innovation involve the synergistic working of the industry, the government, the educational system, the R&D environment and the consumer. Innovation needs to be as wide spread as possible, across the economy from SMEs to large firms level. Addressing these issues will enable India to be among the global leaders in innovation.

Source : 'Innovation in India' (2007), a report by National Knowledge Commission (NKC)

Table 8.24 : Projects appraised for environmental clearance during April-February 2009

| Nature of Project | Cleared | | Pending | | Rejected/ Transferred Returned to SEIAAs | |
|-----------------------------------|-------------|-----|------------|-----|---|------------|
| | EC | TOR | EC | TOR | | |
| Industry | 604 | 460 | 68 | 218 | 74 | 65 |
| Thermal power | 53 | 92 | 26 | 218 | 17 | 22 |
| River valley and hydroelectric | 11 | 44 | 12 | 24 | Nil | 7 |
| Mining (coal and non-coal) | 241 | 413 | 102 | 142 | 137 | 86 |
| Infrastructure and miscellaneous | 133 | 513 | 30 | 24 | 3 | 7 |
| Construction & industrial estates | 367 | 22 | 60 | - | 340 | 390 |
| Total | 2953 | | 748 | | 571 | 577 |

Source: Ministry of Environment and Forests

EC – Environmental clearance; TOR - Terms of Reference

implementing the Charter of Corporate Responsibility for Environmental Protection (CREP) in highly polluting industries, Eco-mark scheme to encourage environment-friendly products, progressive emission norms and cleaner fuels for controlling vehicular pollution, economic instruments to internalize costs of pollution and fiscal incentives for pollution control equipments. Prior environmental clearance based on impact assessment is made mandatory for designated sectors/projects. Status of projects appraised in 2008-09 is given in Table 8.24.

8.105 Monitoring of designated cities/towns for air pollution reveals that while the levels of sulphur dioxide were within the standard limits, no definite trend has been observed in ambient nitrogen oxide. High level of RSPM was the more prevalent form of air pollution in almost all the metro cities. Organic and bacterial contamination, the main water pollutant, has shown gradual improvement. Fly ash, phospho-gypsum and iron & steel slags are the main solid wastes generated in India. Of the specific interest to the industrial sector was the issue of the final Notification on Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules of 2008, repealing earlier rules, for ensuring effective hazardous waste management. While, revised environmental standards were notified for petroleum oil refinery and for sulphuric acid plants, first-time standards were notified for incinerators for pesticides and common hazardous wastes, coffee industry and sponge iron plants.

Labour relations

8.106 The continued decline in the number of strikes and lockouts indicates an improvement in industrial relations in the country (Table 8.25).

**Table 8.25 : Strikes and lockouts
(Man-days lost, in million)**

| Year | Strikes | | Lockouts | |
|----------------------|---------|---------------|----------|---------------|
| | Number | Man-days lost | Number | Man-days lost |
| 2004 | 236 | 4.83 | 241 | 19.04 |
| 2005 | 227 | 10.81 | 229 | 18.86 |
| 2006 | 243 | 5.32 | 187 | 15.01 |
| 2007 | 210 | 15.06 | 179 | 12.11 |
| 2008(P) (Jan-Dec) | 201 | 2.44 | 30 | 0.96 |

Source: Labour Bureau, Shimla
P: Provisional

8.107 During 2008, as per the information available, Tamil Nadu experienced the maximum instances of strikes and lockouts followed by Kerala, Andhra Pradesh and Karnataka. Industrial unrest was concentrated mainly in financial intermediation (excluding insurance and pension), textiles, air transport, mining of coal and food products.

CHALLENGES AND OUTLOOK

8.108 The industrial sector recorded a robust rate of growth in excess of 8 per cent during 2004-05 to 2006-07. Even in 2007-08 the growth rate remained relatively high, albeit with some moderation. The year 2008-09 has, however, been marked by a very strong downturn in growth due to a multitude of factors, the most important being the global financial shock that not only impacted the financing of industries but also their domestic and external demand. Needless to

say, almost all commodity groups, barring a handful, have been affected by the downturn.

8.109 The current global and domestic scenario presents Indian industry with major challenges. At the same time, there are a number of positive factors that make the industrial outlook in the medium-term bright for India both in its own right as also in relation to most other countries.

8.110 First, on the global front, there are tendencies by some trading partners to indulge in what may possibly be termed as dumping into the Indian market. The response will have to be calibrated by balancing the need to achieve input cost advantages while protecting the legitimate interests of the Indian industry. Given the possible global restructuring of industry underway, it is critical for Indian industry to consciously build and maintain cost advantages.

8.111 Second, the size of the Indian market and the unmet demand for industrial products provide reasonable hope that demand would not be a constraining factor by itself. There is an increasing realization that the industry should make conscious efforts to reach out to the bottom of the pyramid. To be able to do so, the industry will need to deliver products that give value for money in a cost effective way.

8.112 The large pool of scientific manpower and research labs, especially in the public domain, provide a potential for innovation that could create such products which can open up new market segments. However, for innovation to become a key driver of growth, the industry and the research fraternity need to actively collaborate in a time-bound and result-oriented fashion.

8.113 Third, the inherent strength of Indian industrial corporate sector with strong entrepreneurial abilities provides a hope that they will continue to display the dynamism by adjusting to the current changes. This dynamism needs to be tempered with good corporate governance that adheres to the best standards of ethics in business and industry.

8.114 Fourth, the large investment plans made for infrastructure during the Eleventh Five Year Plan and beyond are expected to ameliorate the infrastructural constraints that bind the industry. The challenge rests in ensuring that such investments in infrastructure projects fructify quickly, for, growth in infrastructure not only alleviates supply side constraints, but also stimulates additional domestic demand required for industrial growth.

8.115 Fifth, the continuing inflow of foreign direct investment reinforces the positive view that the Indian market has the capacity to absorb investment and generate a return based on productive growth. At the same time, a balance needs to be struck between the immediate priorities for the Indian economy and the long-term concerns that include environmental and security concerns.

8.116 Sixth, India is seen as a vast pool of talent with great diversity and with a demographic advantage. However, the industrial sector faces acute shortage of skills. The swiftness with which this skill deficit is bridged will be critical in determining whether India can move up the value chain in manufacturing.

8.117 Further, there is an imperative need to facilitate the growth of labour-intensive industries, especially by reviewing labour laws and labour market regulations. This is particularly important in reversing the current, not-so-encouraging manufacturing employment trends. Besides, the growth in many industries is constrained by the acute scarcity/depleting reserves of important raw materials like coal, iron ore, natural gas and forestry resources.

8.118 There are positive signs that the Indian industry may have weathered the most severe part of the shock and is now moving towards a recovery. Some of the positive signs are the recent upturn in the generation of electricity, the improvement of cement despatches and rise in the offtake of bank credit. The sustained inflow of FDI also points to foreign investor confidence in the Indian economy, especially the Indian industry. The decline in crude prices, input prices and interest rates should help the industry to improve their profit margins that have been under pressure. Lead indicators and other soft information collected by various research analysts like the Purchasing Managers Index and investment intentions also point to an upward movement in terms of demand and supply.

8.119 There is also reasonable consensus that given the market situation, the Indian industry is unlikely to face a price deflation. The fact that India has a large domestic market with immense absorptive capacity for industrial goods as also inputs for the development of the infrastructure implies that the demand side provides scope for expansion. At this juncture, when the prospects for industrial output and prices in most industrial economies seem to be grim, the configuration of prices, output and market size makes the Indian industry one of the few attractive destinations for investment.