7

Industry

Overview

Overall industrial recovery that commenced from the second quarter of 2002-03 continued in the current year. The rate of growth of industrial sector as measured in terms of Index of Industrial Production (IIP) during April-December 2005-06 was 7.8 per cent compared to a growth of 8.6 per cent in the corresponding period of 2004-05 (Table 7.1).

Table 7.1 : Annual growth rate of industrial production in major sectors of industry

(Based on the index of industrial production)

Base: 1993-94=100

(per cent)

Period	Mining & Quarrying	Manufa-cturing	Electricity	Overall
Weights	**10.47**	**79.36**	**10.17**	**100.00**
1995-96	9.7	14.1	8.1	13.0
1996-97	-1.9	7.3	4.0	6.1
1997-98	6.9	6.7	6.6	6.7
1998-99	-0.8	4.4	6.5	4.1
1999-00	1.0	7.1	7.3	6.7
2000-01	2.8	5.3	4.0	5.0
2001-02	1.2	2.9	3.1	2.7
2002-03	5.8	6.0	3.2	5.7
2003-04	5.2	7.4	5.1	7.0
2004-05	4.4	9.2	5.2	8.4
2004-05 #	5.1	9.2	6.4	8.6
2005-06 #	0.4	8.9	4.8	7.8

 # (April-December)

Source : Central Statistical Organisation.

7.2 Impressive performance of the manufacturing sector, which grew at 8.9 per cent during this period, largely contributed to this performance. A moderate deceleration of 0.8 percentage points in the growth rates of IIP in the current year was due to a decline in the growth rates for mining and electr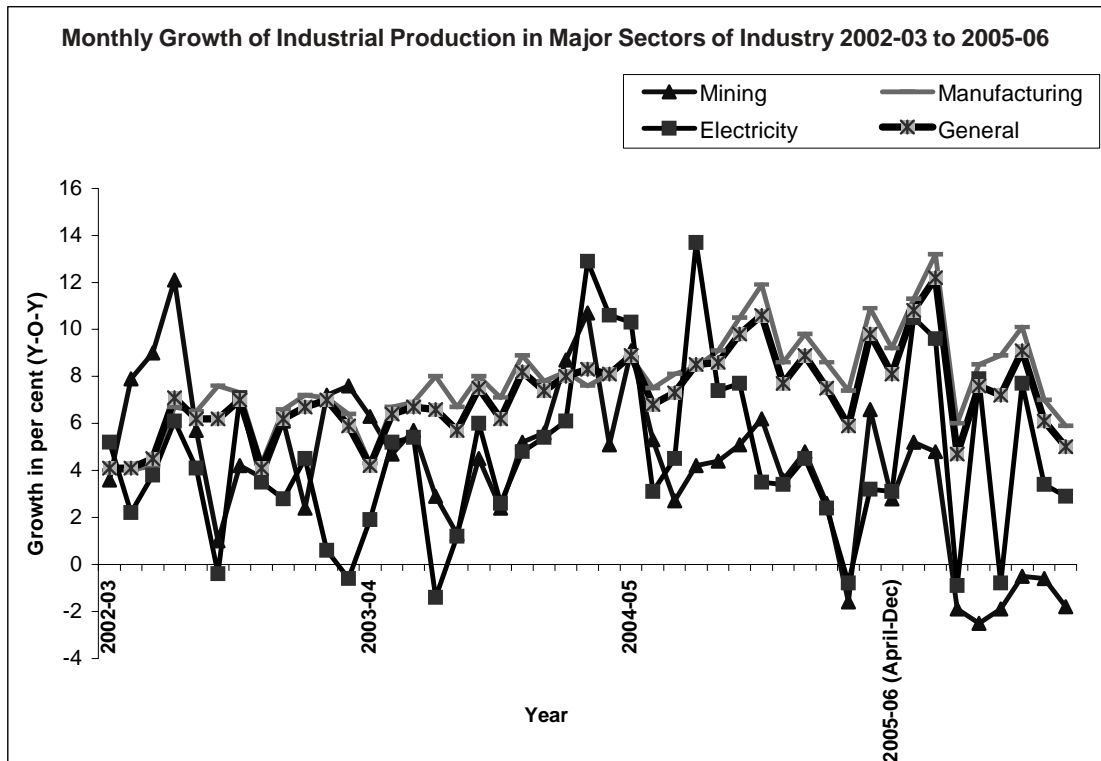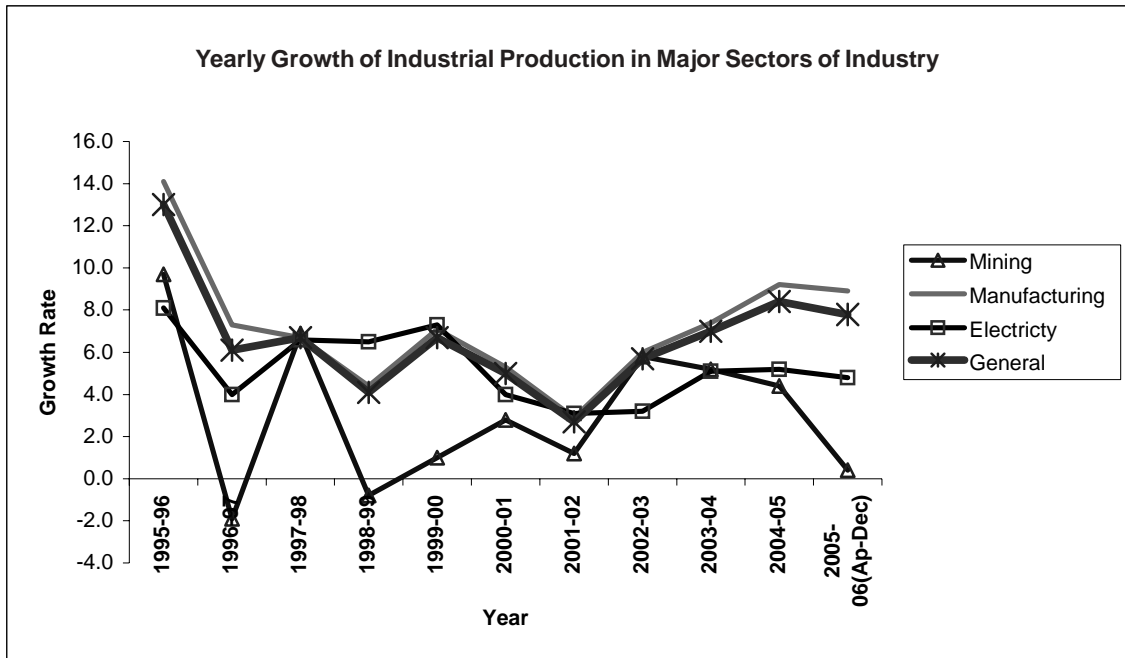icity sectors. Decline in the rate of growth in the mining sector from an average of 4.4 per cent in 2004-05 to 0.4 per cent in the current year so far was partly due to a fall in the levels of crude oil production as a result of a fire accident in July 2005 at Mumbai High North Platform. The electricity sector also witnessed a moderate slow down in the current year, which could partly be attributed to a shortage of gas and coal. Inadequate investment in these two sectors affected the capacity additions and contributed to this shortage.

7.3 The target growth of industry during the Tenth Plan (2002-07) was put at 10 per cent consistent with an overall GDP growth of 8 per cent. Notwithstanding a distinct improvement in the manufacturing growth in the last two years, overall industrial growth so far has remained well short of the target. Deceleration in the growth of mining and electricity sector in the current year may put added pressure on manufacturing sector to maintain overall industrial buoyancy.

7.4 With respect to use based classification of industries, the growth rate in the capital goods sector in April-December 2005 at 15.7 per cent indicated a substantial improvement over the growth of 13.8 per cent during the same period last year (Table 7.2). Consumer goods, both the durables and non-durables segments, also recorded improved performance with double-digit growth in the last two years. The turn-around in consumer durables since 2003-04 continued. In April-December, growth rate of basic goods remained at 6.0 per cent which is the same as that of the corresponding period in 2004-05. Intermediate goods, however, witnessed a deceleration in growth.

Fig. 7.1

Growth Rates of Industrial Production
(1993-94=100)

Yearly Growth of Industrial Production in Major Sectors of Industry

Monthly Growth of Industrial Production in Major Sectors of Industry 2002-03 to 2005-06

website: http:/indiabudget.nic.in

Table 7.2 : Growth rates of industrial production by use-based classification (Base : 1993-94 = 100)									
								(per cent)	
Sector	Weight	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	Apr.-Dec.	
								2004-05	2005-06
Basic goods	35.5	5.5	3.7	2.6	4.9	5.4	5.5	6.0	6.0
Capital goods	9.3	6.9	1.8	-3.4	10.5	13.6	13.9	13.8	15.7
Intermediate goods	26.5	8.8	4.7	1.5	3.9	6.4	6.1	6.9	2.2
Consumer goods of which	28.7	5.7	8.0	6.0	7.1	7.1	11.7	11.4	12.2
Durables	5.4	14.1	14.5	11.5	-6.3	11.6	14.3	15.3	13.6
Non-durables	23.3	3.2	5.8	4.1	12.0	5.8	10.8	10.0	11.7
IIP (Index of Industrial Production)	100	6.7	5.0	2.7	5.7	7.0	8.4	8.6	7.8

Source : Central Statistical Organisation

7.5 Within manufacturing, performance varied across the various segments (Table 7.3). At a two-digit level of disaggregation of the manufacturing sector, as many as seven sectors, with a combined weight of 34.1 per cent in IIP, grew at over 10 per cent, on an average, during the period April–December 2005. During April-December 2004, there were only four such sectors. But, as against only three sectors (food products, jute textiles and wood & wood products) accounting for a weight of 12.4 per cent in IIP in April-December

Table 7.3 : Growth rates of industrial production by broad groups of manufacturing (Base : 1993-94=100)															
														(per cent)	
Code (NIC-1987)	Industry group	Weight	2003	2004 -04	Apr 05	May	Jun	July	Aug	Sep	Oct	Nov	Dec.	Apr-Dec.	
														2004-05	2005-06
20-21	Food products	9.1	-0.5	-0.4	6.6	8.2	3.1	-25.5	-7.4	-19.6	-4.1	4.7	6.9	-0.9	-2.2
22	Beverages, tobacco and related products	2.4	8.5	10.8	7.6	13.2	29.7	25.1	11.8	18.2	23.2	12.6	9.5	9.0	16.4
23	Cotton textiles	5.5	-3.1	7.6	8.0	10.3	11.8	10.1	14.0	13.1	12.7	10.3	2.1	8.2	10.2
24	Wool, silk and man-made fibre textiles	2.3	6.8	3.5	-10.9	-5.9	16.6	-3.6	-3.6	5.5	-5.6	2.5	7.1	4.2	-0.1
25	Jute and other vegetable fibre textiles (except cotton)	0.6	-4.2	3.7	-4.0	-3.1	4.0	10.7	6.5	0.4	3.2	4.2	3.2	-1.4	2.7
26	Textile products (including wearing apparel)	2.5	-3.2	19.2	21.2	29.7	30.6	12.7	25.8	19.2	20.0	8.5	5.7	14.8	18.6
27	Wood and wood products; furniture and fixtures	2.7	6.8	-8.4	-6.0	3.4	4.5	-10.9	2.1	-11.5	-5.0	-4.6	-5.7	-8.5	-3.8
28	Paper & paper products and printing, publishing & allied industries	2.7	15.6	10.5	17.9	7.3	6.6	1.3	5.9	0.8	8.2	-4.0	-25.8	6.8	0.5
29	Leather and leather & fur products	1.1	-3.9	6.7	13.5	9.5	-0.1	2.8	-1.5	0.1	-0.6	-17.4	-16.5	4.1	-1.6
30	Basic chemicals & chemical products (except products of petroleum & coal)	14.0	8.7	14.5	11.8	14.8	19.9	9.6	8.7	12.5	10.2	3.4	-2.4	16.1	9.8
31	Rubber, plastic, petroleum and coal products	5.7	4.5	2.4	2.1	2.9	6.4	7.7	0.6	0.6	0.3	1.5	11.9	2.0	3.8
32	Non-metallic mineral products	4.4	3.7	1.5	2.5	12.9	7.6	7.7	13.3	7.7	8.3	8.3	16.2	1.4	9.4
33	Basic metal and alloy industries	7.5	9.2	5.4	18.0	14.3	15.3	15.6	20.6	11.1	16.0	13.4	11.4	3.9	15.0
34	Metal products and parts, except machinery and equipment	2.8	3.7	5.7	1.3	11.4	-1.3	-17.8	-3.9	-8.2	0.5	4.0	-5.1	6.8	-2.5
35-36	Machinery and equipment other than transport equipment	9.6	15.8	19.8	11.8	10.8	12.0	7.6	7.3	12.6	11.2	10.1	11.3	22.3	10.5
37	Transport equipment and parts	4.0	17.0	4.1	12.5	14.7	11.9	5.1	11.6	16.8	15.9	11.7	12.1	3.4	12.5
38	Other manufacturing industries	2.6	7.7	18.5	9.6	9.3	14.1	30.2	24.7	34.5	39.0	18.6	28.7	19.5	23.8

Growth rates are estimated over the corresponding period of the previous year.
Source: Central Statistical Organisation.

2004, five sectors (food products, wool, silk & man-made fibres, wood & wood products, leather and leather & fur products and metal products) with a weight of 17.9 per cent in IIP had a negative growth in April–December 2005. However, in case of food products and wood and wood products, there are some signs of growth revival in the most recent months.

7.6   Significant improvement in performance was observed in beverages & tobacco, cotton textiles, textile products, basic metal and alloy industries, non-metallic mineral products, basic metals & alloys, transport equipments and other manufacturing industries. The sectors where there has been a perceptible slow-down were machinery and equipment, (other than transport equipment); basic chemical and chemical products (except products of petroleum and coal), paper and paper products, metal products (including machinery and equipment) and wool, silk and man-made fibre textiles. Manufacturing growth was reasonably broad-based and high growth sectors were either technology-intensive or with a large export potential.

7.7   Within manufacturing, the share of registered manufacturing, after improving from an average of 58.8 per cent during 1970-1982 to 65.7 per cent during 1992-2004, has remained virtually stable in the post-reform period (Table 7.4). However, significant variations in the relative share of industry segments at the two-digit level were manifest in the post-reform period. There was an erosion in the relative share of food products; cotton textiles; jute textiles; wood & wood products; paper & printing; non-metallic mineral products; metal products and non-electric machinery. Improvement was observed in the relative share of textile products, chemical and chemical products, rubber and petroleum products and electric machinery.

7.8   While it is difficult to classify the industries at two-digit in broad groups such as local-resource-based, or largely export-dependent, or knowledge/technology-intensive, because of overlaps, domestic resource-rich segments comprising food products; all kinds of textiles & textile products; wood, paper & leather products; beverages & tobacco products; and basic metals and alloys witnessed a decline in their relative share in total value added from registered

Table 7.4 : Structural shift in industry-relative share in value added					
					(per cent)
Share of value added	1970-1982	1982-1992	1992-2004	1970-2004	Average annual rate of change (1970-2004)
Registered manufacturing in total manufacturing	58.80	62.69	65.73	63.89	0.46
in registered manufacturing of*					
Food Products	7.98	8.97	8.01	8.23	-0.03
Beverages & Tobacco Products	2.54	2.52	2.89	2.75	0.47
Cotton Textiles	9.90	7.01	3.98	5.54	-3.74
Wool, Silk &Man-made Fibres	3.42	3.97	3.97	3.89	0.69
Jute Textiles	2.31	1.27	0.62	1.01	-5.41
Textile Products	0.95	1.30	2.80	2.18	5.18
Wood & Furniture	1.16	0.76	0.35	0.56	-5.15
Paper & Printing	5.04	4.50	2.93	3.60	-2.36
Leather & Fur Products	0.64	0.66	0.79	0.74	0.65
Chemicals.	13.12	14.90	19.48	17.49	1.78
Rubber& Petroleum.	4.88	7.12	8.09	7.41	2.13
Non-Metallic Products	4.17	5.37	4.98	4.96	0.70
Basic Metal Industries	15.60	12.40	12.39	12.85	-0.92
Metal Products	3.64	2.93	2.67	2.87	-1.39
Non-Elect. Machinery & Parts	7.86	7.53	6.22	6.76	-0.94
Electrical Machinery	5.82	7.74	8.50	7.94	1.72
Transport Equipments	8.08	7.52	7.45	7.56	-0.44
Other Manufacturing	2.89	3.52	3.88	3.65	0.95
* excluding Repair services.					

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Table 7.5 : Net capital stock in industry and the share of public sector							
	1994	2000	2001	2002	2003	2004	CAGR
	in Rupees crore at 1993-94 Prices						in per cent
Mining	75,199	84,061	81,433	80,662	79,351	82,604	0.94
Manufacturing	504,658	956,510	1,001,381	1,031,305	1,070,999	1,123,391	8.33
Electricity, Gas & Water Supply	215,585	277,539	286,758	297,942	303,762	310,832	3.73
Share of the Public Sector (per cent)							
Mining	94.3	93.57	93.13	92.38	92.31	92.77	-0.16
Manufacturing	24.1	14.65	13.73	13.01	12.67	11.72	-6.95
Electricity, Gas & Water Supply	92.8	88.49	87.65	86.28	85.81	85.58	-0.81

manufacturing from 51.7 per cent in 1970-71 to 37.1 per cent in 2003-04. Notwithstanding a near stability in the share of registered manufacturing in overall value added from this sector, a structural shift across its knowledge and technology intensive segments was significant.

7.9 Capacity addition and improved productivity are the two sources of industrial growth. From 1993-94 to 2003-04, net capital stock in industries (comprising mining, manufacturing and electricity sectors), which can proxy capacity addition, increased at an average rate of 6.66 per cent per annum. The dominance of the public sector in mining and electricity continued to persist even after industrial liberalization and opening of these sectors to private sector participation. Lower addition to capital stock deprived these sectors of the buoyancy associated with capacity expansion.

7.10 Scarcity of resources has been recognized as a limiting factor for the process of economic growth. The scope for output expansion, based on increased use of resources or inputs, is restricted beyond a certain point due to non-availability and/or diminishing returns. Therefore, efficiency or productivity of resources becomes a crucial factor in the process of growth. Total Factor Productivity (TFP), which is defined as the ratio of real output (or real value added) to a weighted sum of the inputs used in the production process, is a useful measure for this purpose (Box 7.1). Most studies on TFP growth in Indian manufacturing have concluded that TFP is growing in Indian manufacturing (Table 7.6). However, most of these studies also conclude that there has been a decrease, not an increase, in the growth rate of TFP in Indian manufacturing in the post-reform period. This needs to be looked into and reversed. At the state level, various recent studies reveal that with respect to the overall manufacturing sector, the level of TFP was highest for Karnataka, Uttar Pradesh and Madhya Pradesh, whereas for Gujarat, Bihar and Rajasthan it was the lowest.

Box 7.1 : Productivity in Indian manufatcuring

There are many different productivity measures. The choice between them depends on the purpose of productivity measurement and, in many instances, on the availability of data. Broadly, productivity measures may be classified as single factor and multifactor productivity. Multifactor productivity can, further, be computed on the basis of:—

- Gross output and value added productivity measures,

- Single deflation and double deflation productivity measures, and

- Growth accounting versus production function productivity approaches.

While each of the method mentioned above has its own advantages and disadvantages, most of the studies in the Indian context has computed Total Factor Productivity (TFP), which is defined as the ratio of real output (or real value added) to a weighted sum of the inputs used in the production process, is a useful measure for this purpose. The results of these studies have varied widely, but the overall conclusions appear to be: TFP is growing, but is growing at a slower rate than the pre-liberalisation period.

Table 7.6 : Total factor productivity growth in pre and post liberalisation period			
Study	**Pre-liberalisation**	**Post-liberlisation**	**Methodology**
Unni et al (2001)	1985-90 4.0 11.37	1990-95 -1.28 -3.13	Value Added Function Framework Organised Manufacturing, Unorganised Manufacturing
Srivastava (2001)	1980-81 to 1989-90 2.56 2.32	1990-91 to 1997-98 0.83 1.74	Estimates for aggregate economy With no corrections for capacity utilization made With adjustments made for capacity utilization (Data Source: CSO, NSSO; Methodology: GAA)
Goldar and Kumari (2003)	1981-82 to 1990-91 1.89 1.60	1990-91 to 1997-9 10.69 1.3	Gross Output Function Framework With no corrections for capacity utilization made With adjustments made for capacity utilization (Data Source: ASI; Methodology: GAA)
Unel (2003)	1979-80 to 1990-91 1.8 3.2	1991-92 to 1997-98 2.5 4.7	Value Added Function Framework Based on actual Income shares of labour as weights Based on constant labour elasticity of 0.6 (Data Source: ASI, Methodology:GAA)
Tata Services Ltd. TSL-(2003)	1982-82 to 1992-93 0.68	1993-94 to 1999-2000 0.97	Gross Output Function Framework (Data Source: ASI)
Goldar (2004)	1979-80 to 1990-91 2.14 1981-82 to 1990-91 0.92 1979-80 to 1990-91 2.23	1991-92 to 1999-00 1.57 1991-92 to 1999-00 0.65 1991-92 to 1999-00 1.65	Value Added Function Gross Output Function Using Translog Production Function (Data Source: ASI)
Banga and Goldar (2004)	1980-81 to 1989-90 1.3 1.5	1989-90 to 1999-00 0.5 1.1	Based on random effects model Including Contribution of services as inputs to productivity (KLEMS model) Excluding services (KLEM model) (Data Source: ASI; Methodology: PFA)
Trivedi (2004)	1980-81 to 1991 -92 1.9	1992-93 to 2000 -01 0.7	Gross Output Function Framework (Data Source: ASI; Methodology:GAA)
Rodrik & Subramanian (2004)	1981-90 2.5	1991-2000 1.6	Econometric Approach (estimates for All India).

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