A Critical Assessment of the Index of Industrial Production Data in India

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Abstract

This paper flags the basis weaknesses of the 1993-94 series of index of industrial production (IIP) data and calls for both base year revisions as also an overhaul of its contents so that it correctly captures the structural changes that have occurred in the economy. While highlighting some of the basic flaws in the compilation of IIP data, an attempt has also been made to gauge at the output growth pattern of the industrial sector emerging from the estimates of IIP and the annual survey of industry (ASI). Our analysis reveals divergences between the output growth trend of these two datasets.

***JEL Classification*:** *L69*

Key words: *Industry, Manufacturing, database, India*

I. Introduction:

The industrial production data based upon the index of industrial production (IIP) estimate is used for policy-making at various levels in the Government and is closely tracked by analysts as a barometer of economic activity. The importance of IIP as a vital economic indicator is further gets further amplified due to the fact that it is the only indicator generated on a monthly basis, which is, by and large, used as a reference series in the compilation of leading indicators. Nevertheless, in the last couple of years, the quality of IIP data has eroded significantly as the published data, on many occasions, has been found to be out of sync with the actual performance of the industrial sector. Accordingly, there has been a lot of criticism, which have sought to highlight the limitations of IIP data in capturing the actual production trend as the base year for IIP (1993-94) has become too outdated to capture the structural changes in the economy. Dr. C. Rangarajan, who headed the National Statistical Commission, had also raised the issue of improving the quality of the IIP data (GOI, 2001). He also

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contended that with the growing erosion of discipline in the data generating system of the Government, the reliability, adequacy and timeliness of statistical data had been adversely affected and, therefore, there is an urgent need for revising the IIP index in order to capture the actual production trends.

Structural changes that take place in the economy over time and the ongoing innovations cause a change in demand pattern for industrial goods generating demand for new generation products which replace old products. These changes affect the accuracy of measurement of industrial growth over time, thus necessitating the revision of the base year of the IIP to the recent past (at least on a quinquennial basis). It may be mentioned that base for the 1993-94 series of IIP has not been revised for a longer period and, therefore, possibly the index is showing signs of weaknesses in fully capturing the structural changes, which have taken place in the industrial sector in recent years. This is the essential crux of the paper as it makes a critical assessment of the available high frequency industrial production data and presents various evidences, which raise a question-mark on the reliability of the IIP (1993-94 base) estimates.

Given this backdrop, the paper is structured as follows. Section II highlights the issue of reliability of the IIP estimates in the light of divergences between quick and final estimates. Section III attempts to compare the industrial production trends as thrown by the IIP and the ASI datasets. Based on the discussions in the preceding sections, Section IV draws concluding observations.

II. How reliable are the IIP estimates

For the purpose of collection of data on manufacturing industries, the entire industrial activity in the country is divided into 'factory' and 'non-factory' sectors based on the size of employment in different producing units under that activity. The factory sector covers units registered under the Factories Act 1948.The non-factory sector consists of the remaining manufacturing units. The factory sector is designated as registered or organised sector and non-factory sector is called as unregistered or unorganised sector. Electricity sector and major minerals are also parts of the organised industrial sector, while minor minerals belong to the

unorganised sector. The main source of data pertaining to organised sector is the Annual Survey of Industries (ASI), while the data on unregistered sector are collected mainly through periodic sample surveys conducted by NSSO including the follow-up surveys of the Economic census. The manufacturing industries are again divided into large and small scale industries on the basis of amount of capital employed in plant and machinery. Units below the prescribed limit are called small scale industrial (SSI) units, while the rest are called large and medium-scale units. SSI census and sample surveys are the major sources of statistics on registered SSI sector.

In India, the index of industrial production (IIP) is a quick indicator, based on production data of a representative sample of the manufacturing units. It is also used as a leading short-term indicator of the industrial growth in India. It is a fixed base quantity index and is available on a monthly basis with a time lag of six weeks. The Central Statistical Organisation (CSO) is entrusted with the responsibility of compilation and release of IIP, which is being released on a monthly basis since 1950. Some of the main source agencies providing the production data to the CSO for compilation of IIP are Department of Industrial Policy and Promotion; Indian Bureau of Mines, Nagpur; Development Commissioner Small Scale Sector (DCSSI), Central Electricity Authority and the Railways.

The estimates of IIP are used as reference for tracking the performance of the industrial sector in India. Though the weighing diagram of the current series of the IIP (base 1993-94) is said to take into account the industrial output of both the organized and unorganized sectors, it has been found to generate a non-representative figure of industrial performance in the country as it captures only a select segment of SSI industries (18 in number) and does not comprehensively capture the data on unorganized sector.

As per the Special Data Dissemination Standards (SDDS) of the IMF, quick estimates (QE) of the IIP for a reference month are released within a lag of about six weeks. Subsequently, these quick estimates of the IIP are revised twice - once in the following month (called the 1st revision) and then in the following third month (called the 2nd or final revision). Concern has been expressed over the large divergence between the quick and final estimates (FE) of the IIP. The variability between Q.E and F.E of the IIP is observed to be the lower in

the case of mining and electricity sectors as compared to the manufacturing sector (Tables 1 to 3). This might be due to the fact in the case of former sectors, there might be good data reporting as these units largely belong to the public sector, while there might not be cent per cent and good quality data reporting in the case of manufacturing sector as it also encompasses a large sector of the private industrial units.

Table 1: Mean and Dispersion of variability of Mining & Quarrying Sector Index and Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	Std. Dev.	Avg. Diff.	Std. Dev.
2004-05	0.9	1.1	0.6	0.8
2005-06	0.8	2.3	0.5	1.5
2006-07	1.1	2.1	0.6	1.3
2007-08	0.3	2.7	0.1	1.7
2008-09	-0.1	2.6	-0.3	1.1
2009-10	-0.1	2.2	0.0	1.4
2010-11	0.8	1.7	0.5	1.0

Table 2: Mean and Dispersion of variability of Manufacturing Sector Index and Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	Std. Dev.	Avg. Diff.	Std. Dev.
2004-05	1.6	2.3	0.8	1.1
2005-06	0.0	2.2	0.0	1.0
2006-07	1.9	3.0	0.8	1.2
2007-08	0.9	3.7	0.3	2.7
2008-09	2.7	3.4	0.6	1.0
2009-10	15.8	6.4	4.3	1.2
2010-11	7.8	7.6	-2.6	3.2

Table 3: Mean and Dispersion of variability of Electricity Sector Index and Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	Std. Dev.	Avg. Diff.	Std. Dev.
2004-05	-0.1	0.5	-0.1	0.3
2005-06	0.5	0.5	0.2	0.3
2006-07	0.2	0.4	0.1	0.2

2007-08	0.1	0.2	0.0	0.1
2008-09	-0.1	0.3	-0.1	0.2
2009-10	-0.3	1.2	-0.1	0.4
2010-11	0.2	0.6	0.2	0.6

Table 4: Mean and Dispersion of variability of General IIP Index and Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	**Std. Dev.**	**Avg. Diff.**	**Std. Dev.**
2004-05	1.3	1.9	0.7	1.0
2005-06	0.1	1.9	0.0	0.9
2006-07	1.6	2.4	0.7	2.9
2007-08	0.7	3.0	0.2	1.2
2008-09	2.1	2.9	0.5	0.8
2009-10	12.5	5.3	3.6	1.1
2010-11	6.3	5.9	-2.2	2.8

Table 5: Mean and Dispersion of variability of Basic Goods Sector Index and Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	**Std. Dev.**	**Avg. Diff.**	**Std. Dev.**
2004-05	0.3	0.9	5.5	2.3
2005-06	0.6	0.9	0.3	0.5
2006-07	0.5	0.5	0.3	0.2
2007-08	0.0	0.6	-0.1	0.3
2008-09	0.1	1.0	0.1	0.4
2009-10	-0.3	2.2	-0.2	1.1
2010-11	1.3	1.5	0.7	1.3

Table 6: Mean and Dispersion of variability of Capital Goods Sector Index and Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	**Std. Dev.**	**Avg. Diff.**	**Std. Dev.**
2004-05	-0.1	12.3	13.6	4.7
2005-06	-0.3	8.7	-0.4	4.2
2006-07	6.8	11.1	2.2	4.0

2007-08	2.6	17.6	0.2	4.5
2008-09	3.4	7.4	0.6	3.9
2009-10	78.0	48.3	17.8	8.5
2010-11	33.7	37.1	-8.7	11.2

Table 7: Mean and Dispersion of variability of Intermediate Goods Sector Index and Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	**Std. Dev.**	**Avg. Diff.**	**Std. Dev.**
2004-05	1.5	2.2	6.2	3.5
2005-06	0.7	3.0	0.3	1.5
2006-07	2.6	3.7	1.2	1.7
2007-08	1.0	3.3	0.4	1.4
2008-09	4.3	12.1	1.3	4.4
2009-10	13.5	1.9	3.4	5.0
2010-11	7.4	7.4	-2.5	2.6

Table 8: Mean and Dispersion of variability of Consumer Goods Sector Index and Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	**Std. Dev.**	**Avg. Diff.**	**Std. Dev.**
2004-05	3.0	3.0	11.7	3.6
2005-06	-0.8	4.8	-0.4	2.2
2006-07	0.4	4.5	0.2	1.7
2007-08	0.7	4.1	0.2	1.5
2008-09	4.7	5.5	1.3	2.2
2009-10	6.3	3.7	0.4	2.2
2010-11	-7.8	21.5	-4.1	5.6

Table 9: Mean and Dispersion of variability of Consumer Durables Sector Growth based on quick and final estimates

	Index		Growth (%)	
	Avg. Diff.	**Std. Dev.**	**Avg. Diff.**	**Std. Dev.**
2004-05	1.9	8.8	-1.6	3.3
2005-06	2.9	5.6	0.8	1.8
2006-07	-3.6	3.8	-1.1	1.1

2007-08	-2.4	7.1	-1.2	1.8
2008-09	4.5	10.7	1.9	3.2
2009-10	13.2	4.8	1.4	4.9
2010-11	4.7	7.7	-2.3	1.3

Table 10: Mean and Dispersion of variability of Consumer Non-Durables Sector Index and Growth based on quick and final estimates

	Index		**Growth (%)**	
	Avg. Diff.	**Std. Dev.**	**Avg. Diff.**	**Std. Dev.**
2004-05	3.3	2.9	10.7	4.2
2005-06	-1.7	5.3	-0.9	2.8
2006-07	1.4	5.3	0.6	2.2
2007-08	1.4	4.1	0.5	1.7
2008-09	4.7	5.7	1.2	2.7
2009-10	4.8	4.4	0.0	2.3
2010-11	2.2	4.0	-0.9	1.8

Besides these sharp divergences between the quick and final estimates of the IIP, we have gathered some more evidences, which raise a question-mark on the reliability of IIP estimates and these are documented as below. Further, the IIP is found to suffer from the problem of non-reporting of data by firms in a number of industries. It was found that in respect of some industries same dataset was being repeated for a couple of months while in respect of some industries '*nil*' reporting was done (Table 11).

Table 11: Industries in which production data were repeated in 2008						
	Weight	**Apr-08**	**May-08**	**Jun-08**	**Jul-08**	**Aug-08**
Til seed oil	0.38	0	0	0	0	0
D. W. Tarpaulin	0.12	100	100	100	100	100
Paints, enamels & varnishes (SSI)	0.26	23396	23396	23396	23396	23396
High explosive nitro glycerine base	0.65	0	0	0	0	0
Di-methyl tetra pthalate (DMT)	1.63	0	0	0	0	0
Asbestos cement pressure and building	0.32	12.47	12.47	12.47	12.47	12.47
Textile machinery	2.64	24249.6	24249.6	24249.6	24249.6	24249.6
Air and gas compressor (SSI)	0.06	1398	1398	1398	1398	1398
Sewing machines	0.83	0	0	0	0	0
Lighting, fitting & fixtures	0.70	383.44	383.44	383.44	383.44	383.44
Tape recorders	0.35	1.089	1.089	1.089	1.089	1.089
Alarm time pieces	2.73	33.874	33.874	33.874	33.874	33.874
Source: CSO.						

In some industries, the same monthly data has been reported for more than a year or so (Table 12).

Table 12: Industries in which production data were repeated in 2007 and 2008					
		Weight	Apr-07	Mar-08	Aug-08
1	D. W. Tarpaulin	0.12	100	100	100
2	Paints, enamels & varnishes (SSI)	0.26	23396	23396	23396
3	High explosive nitro glycerine base	0.65	0	0	0
4	Asbestos cement pressure and building	0.32	12.47	12.47	12.47
5	Sewing machines	0.83	0	0	0
6	Lighting, fitting & fixtures	0.70	383.44	383.44	383.44
7	Tape recorders	0.35	1.089	1.089	1.089
8	Alarm time pieces	2.73	33.874	33.874	33.874
Source: CSO.					

Further, it found that out of 299 items, which are used for compiling the IIP data, 18 items belong to the small scale industries (SSIs). Our analysis revealed that data in respect of SSIs were also repeated possibly on account of non-reporting of production data by the SSIs.

This highlights the fact that the functioning of the source agencies providing the primary data of industrial production to the CSO is afflicted with a number of serious deficiencies. The product coverage of IIP and the administrative and institutional framework for primary data collection are much below the desirable standards.

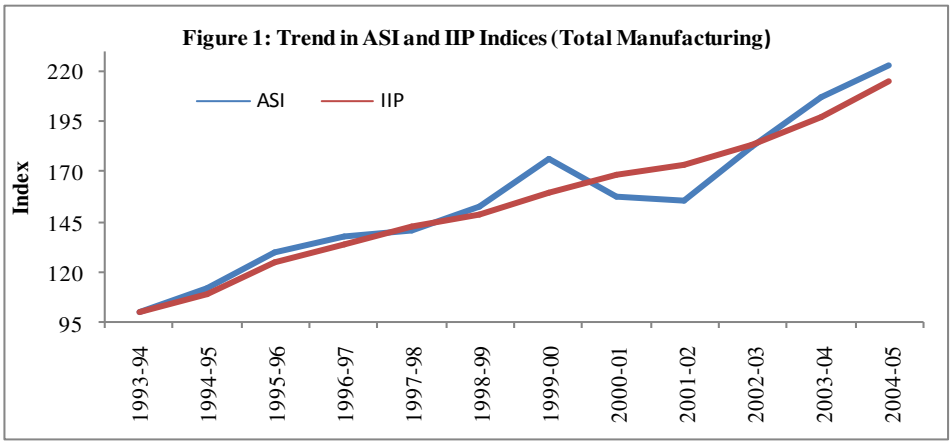
In the new policy regime of liberalisation of the industrial sector, the Governmental machinery's ability to induce a good response from the industrial units for providing statistics on a monthly basis has been considerably eroded. The available legal backing by the Industrial Development and Regulation Act has also not yielded the desired response. The National Statistical Commission has recommended that the quality of the IIP must be improved by toning-up the statistical wings of the source agencies, in particular, within the Department of Industrial Policy and Promotion (DIPP) of the Ministry of Industry, which has a considerable share in the weighting diagram (GOI, *ibid*.). Further, the Commission has recommended exploring the possibilities of constructing an additional IIP based on bigger units, for which collection of data could be streamlined in a more effective manner than in the case of the entire industrial sector.

III. Trends in ASI and IIP at disaggregated level

Having highlighted various limitations of the IIP data in preceding section, in this section, we make a comparison of ASI estimates with the IIP data so as to find if there is any divergence between them. It may be mentioned that as compared to the IIP, the ASI has a wider coverage of the manufacturing sector as also it does not suffer from the 'base effect' problem that is associated with an index. Further, the ASI is based on the detailed survey on industry enterprises and, broadly captures the structural changes in the industrial sector. Besides, since it is based on the final audited data of firms, it broadly represents and captures the structural changes in the industrial sector better than the IIP. Here, a comparison has been attempted to analyse if the two data series present similar growth trends. This exercise has been undertaken to validate the IIP data with the ASI results since the IIP - manufacturing component of it, in particular – has a correspondence with the ASI. Saluja (2003); Kamra and Chakraborty (2004); Saluja and Yadav (2008) had also compared the growth trends as shown by the IIP and ASI dataset for an earlier period.

In order to compare the growth patterns, an index has been developed for the ASI 'Value of Output', which is described as follows. First, the ASI data for two-digit manufacturing industry groups has been computed using the concordance table published by the CSO (**Appendix Table 1A**). As the ASI data is value added data at current prices, it has been converted into constant prices for the purpose of comparison with the IIP, which is also estimated at constant prices. The whole sale price Index (WPI) index for the manufacturing sector has been used as the deflator. The deflated value added ASI figures at constant prices have then been converted into indices by expressing the results as percentage of 1993-94 ASI data for the value of output.

In order to compare the production trends as revealed by the ASI and IIP data, we have plotted the ASI and the corresponding IIP indices. For the manufacturing sector as a whole, it is found that the industrial growth trend as captured by the IIP and ASI are almost similar till the year 1998-99 (**Figure 1**). After 1998-99, however, the deviation between the two series becomes more prominent. At a disaggregated level of 2-digit of National Industrial Classification (NIC), the divergences between the IIP and ASI indices are even sharper (**Appendix Figure 1A**).



In order to measure the extent of association between the ASI and IIP indices, correlation coefficients were calculated at a disaggregated level using non-parametric correlation based on Spearman Rank Correlation coefficient (r_{rank}). The analysis is undertaken for the period 1994-95 to 2004-05. After calculating the correlation coefficients, their significance was checked. While significance test could have been done with Pearson's correlation coefficient, however, some

restrictive conditions for the applicability of the test – such as the samples need to be normal and there should not be too much deviation from normal distribution – render its utility futile. As deviation increases, the results become less reliable. Therefore, if the samples are not close enough to the normal distribution, it is relevant to use non-parametric correlation coefficient (Spearman's rank correlation coefficient), which doesn't depend on the sample distribution and, therefore, does not require sample normality. Besides, another advantage of the non-parametric correlation coefficient is that it is less affected by the outliers. If the sample size is small, one big outlier can enlarge Pearson's correlation coefficient, leading to erroneous conclusions. Spearman's rank correlation coefficient is less affected by the outliers (as it remains independent of the outlier size), and is, therefore, better while working with noisy data.

The Spearman rank correlation statistics is calculated as follows:

$$r_{rank} = 1 - \frac{6 \sum_i D_i^2}{n(n^2 - 1)}$$

where, $D_i = X_i - Y_i$ = the difference between the ranks of corresponding values of the ASI and IIP indices;

n = the number of values in each data set (same for both sets).

The value of r_{rank} ranges from –1 to +1. A value of +1 indicates perfect association, while a value of –1 indicates perfect disagreement between the two series of ranks.

For testing the significance of correlation coefficient, we consider the null hypothesis that the two series of indices are not associated *i.e.* the two series are independent, suggesting, therefore, that $r_{rank} = 0$ (the hypothesis of no relationship). The alternative hypothesis can take one of three forms stated below:

a) H_{a1}: $r > 0$ (hypothesising a significant positive correlation between the two variables - a one tailed test);
b) H_{a2}: $r < 0$ (hypothesising a significant negative correlation between the two variables - a one tailed test);
c) H_{a3}: $r \neq 0$ (hypothesising a significant non zero correlation - a two tailed test)

In the present analysis, however, since we are concerned only with a significant positive relationship between the two variables, we would use the first variant of the alternative hypothesis (H_{a1}). Null hypothesis is rejected whenever the calculated r_{rank} is greater than the

tabulated value. For testing the significance of correlation coefficient, r_{rank}, t-test has been employed. The t-statistics is computed as follows:

$$t = r\sqrt{\frac{n-2}{1-r^2}}$$

The degrees of freedom (df) for r_{rank} is the number of subjects (pairs of scores) minus 2 for our problem. That is, df = N - 2 = 11 - 2 =9.

The results of the significance test for rank correlation coefficient for manufacturing industry groups are summarised in **Table 1**. An examination of the results reveals that at aggregated level, there exists a significant association between the ASI and IIP data both at 1 per cent and 5 per cent levels of significance. However, at a disaggregate level, significant association could not be found for some manufacturing industry groups. At 1 per cent level of significance, no significant association between the ASI and IIP indices could be established in respect of as many as eleven manufacturing industry groups. While, at 5 per cent level of significance, no significant association was found in respect of seven manufacturing industry groups.

Table 13: Significance Test for correlation coefficient for Manufacturing Industry Groups				
Indy Code (NIC-87)	**Manufacturing Industry Group**	**Estimated t-statistics**	**Conclusion**	
			At 5% Level of significance	**At 1% Level of significance**
20-21	Food products	1.69	*Association does not exist*	*Association does not exist*
22	Beverages, tobacco and related products	4.95*	Association exists	Association exists
23	Cotton textiles	0.27	*Association does not exist*	*Association does not exist*
24	Wool, silk and man-made fibre textiles	6.19*	Association exists	Association exists
25	Jute and other vegetable fibre textiles (except cotton)	1.27	*Association does not exist*	*Association does not exist*
26	Textile products (including wearing apparel)	3.76*	Association exists	Association exists
27	Wood and wood products, furniture & fixtures	-0.94	*Association does not exist*	*Association does not exist*
28	Paper and paper products and printing , publishing and allied Industries	1.67	*Association does not exist*	*Association does not exist*
29	Leather and leather & fur products	2.53**	Association exists	*Association does not exist*
30	Chemicals and chemical products (except products of petroleum & coal)	2.87*	Association exists	Association exists
31	Rubber, plastic, petroleum and coal products	10.88*	Association exists	Association exists
32	Non-metallic mineral products	3.88*	Association exists	Association exists
33	Basic metal and alloy industries	2.41**	Association exists	*Association does not exist*
34	Metal products and parts (except machinery and equipment)	1.10	*Association does not exist*	*Association does not exist*
35-36	Machinery and equipment other than transport equipment	1.57	*Association does not exist*	*Association does not exist*
37	Transport equipment and parts	2.10**	Association exists	*Association does not exist*
38	Other manufacturing industries	2.73**	Association exists	*Association does not exist*
	Total Manufacturing	10.88*	Association exists	Association exists

Note: For df=9, the critical values of one-tailed t-statistics are 1.833 (at 5% level of significance) and 2.821 (at 1% level of significance), respectively.
*: Indicates significance at 1% level of significance.
**: Indicates significance at 5% level of significance.

Section IV: Concluding Observations

The weakening of association and growing divergence at disaggregated level between ASI and IIP data during the later examined period signals the growing obsolescence of IIP index in light of its unrevised base for long time and need for an exercise to correct the anomaly with a changed basket (by omitting obsolete products and including newer items, which are in vogue) and revised weights for different items. The issue assumes significance at the current juncture since the IIP is the only dataset in respect of real sector, which gauges the (industrial) production trends on a higher frequency (monthly) basis and, therefore, enables policy formulation. Suggestions made earlier by National Statistical Commission in 2001 are still relevant for making IIP a robust estimate. Given the fast changing taste preference, product obsolescence, product innovation and newer product introduction, the composition of index would be required to be changed more timely and frequently than in the past.

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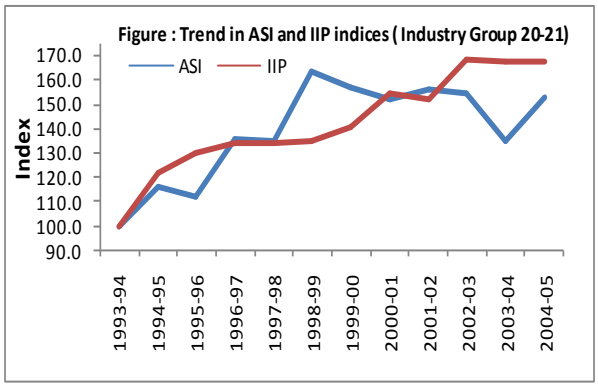
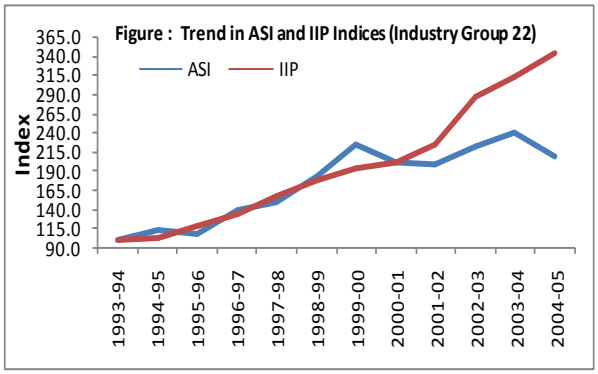
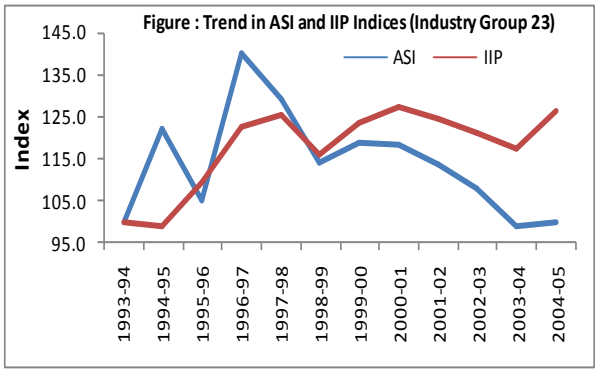
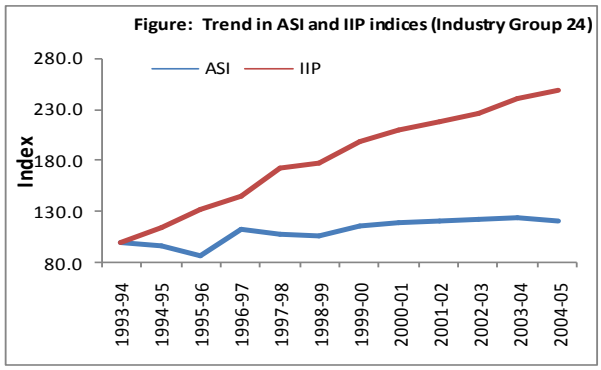
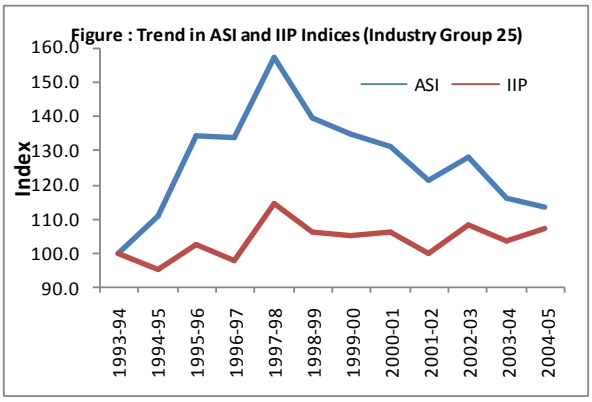
Appendix Figure 1A: Trends in ASI and IIP Indices for Manufacturing Industry Groups

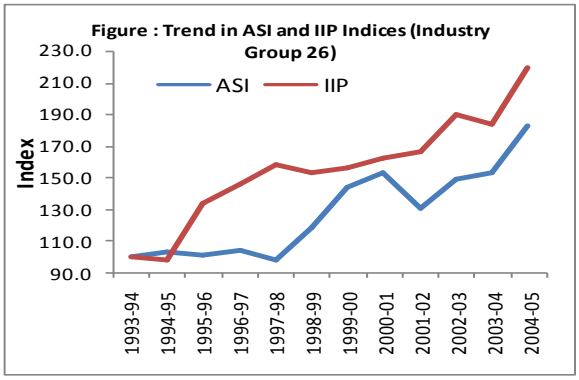












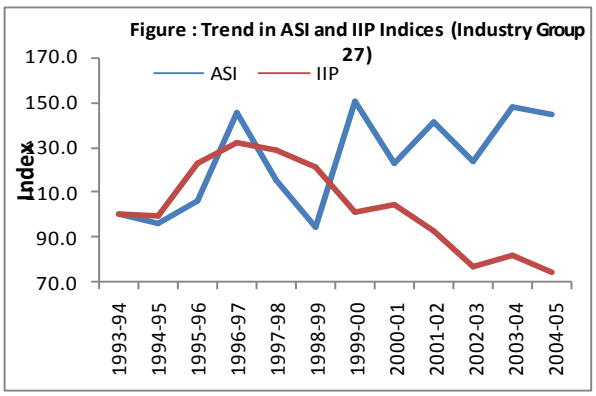


Figure : Trend in ASI and IIP Indices (Industry Group 27)
ASI
IIP
Index
170.0
150.0
130.0
110.0
90.0
70.0
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

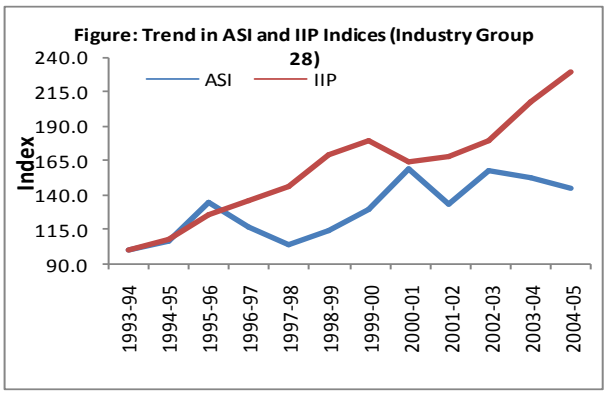


Figure: Trend in ASI and IIP Indices (Industry Group 28)
ASI
IIP
Index
240.0
215.0
190.0
165.0
140.0
115.0
90.0
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

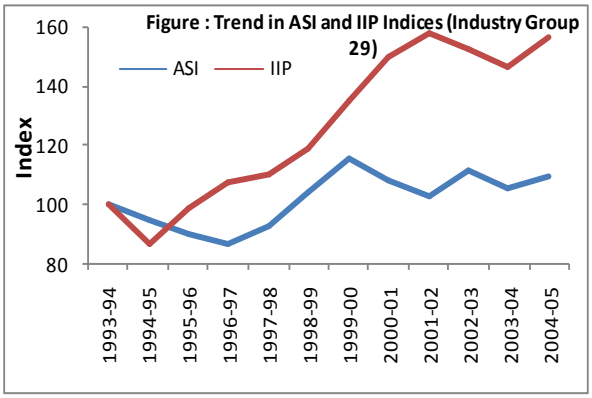


Figure : Trend in ASI and IIP Indices (Industry Group 29)
ASI
IIP
Index
160
140
120
100
80
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

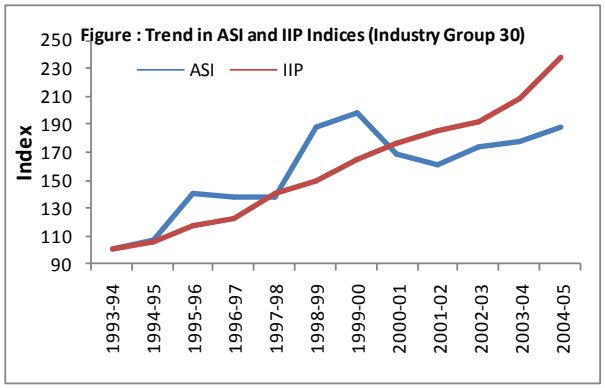


Figure : Trend in ASI and IIP Indices (Industry Group 30)
ASI
IIP
Index
250
230
210
190
170
150
130
110
90
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

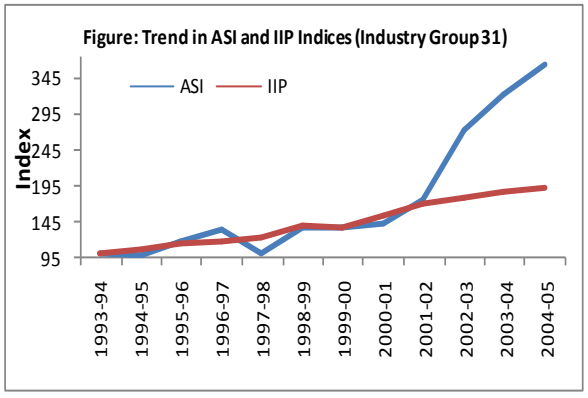


Figure: Trend in ASI and IIP Indices (Industry Group 31)
ASI
IIP
Index
345
295
245
195
145
95
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

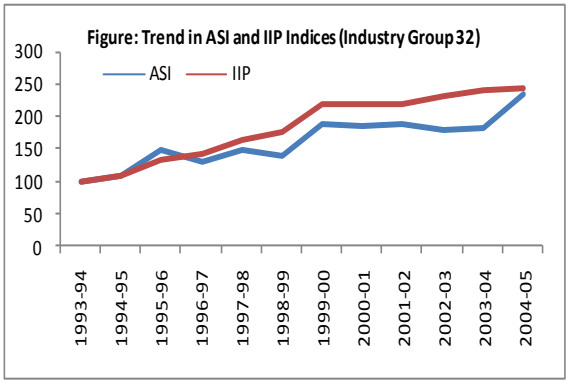


Figure: Trend in ASI and IIP Indices (Industry Group 32)
ASI
IIP
300
250
200
150
100
50
0
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

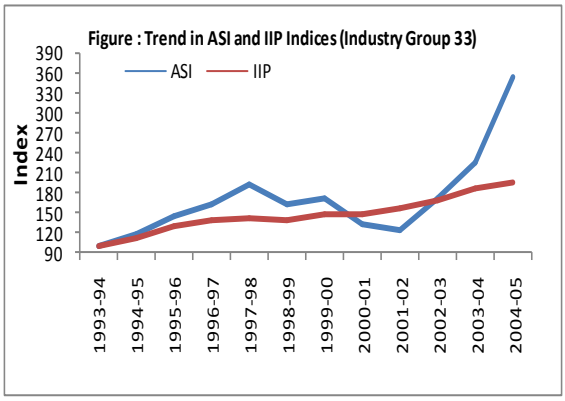


Figure : Trend in ASI and IIP Indices (Industry Group 33)
ASI
IIP
Index
390
360
330
300
270
240
210
180
150
120
90
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

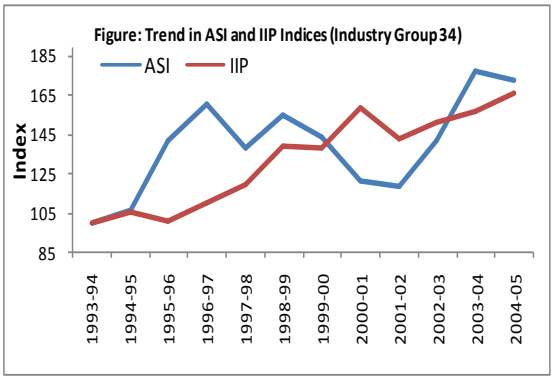


Figure: Trend in ASI and IIP Indices (Industry Group 34)
ASI
IIP
Index
185
165
145
125
105
85
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

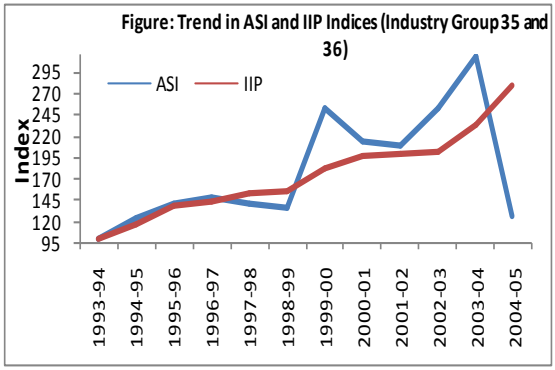


Figure: Trend in ASI and IIP Indices (Industry Group 35 and 36)
ASI
IIP
Index
295
270
245
220
195
170
145
120
95
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

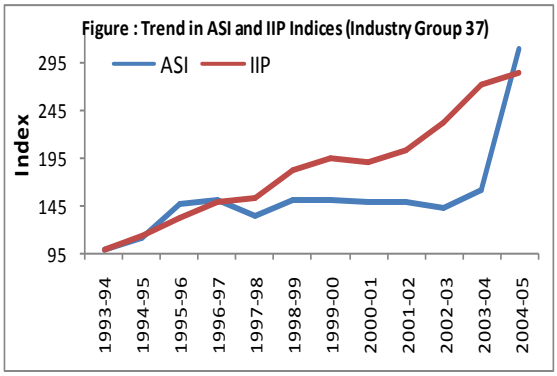


Figure : Trend in ASI and IIP Indices (Industry Group 37)
ASI
IIP
Index
295
245
195
145
95
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

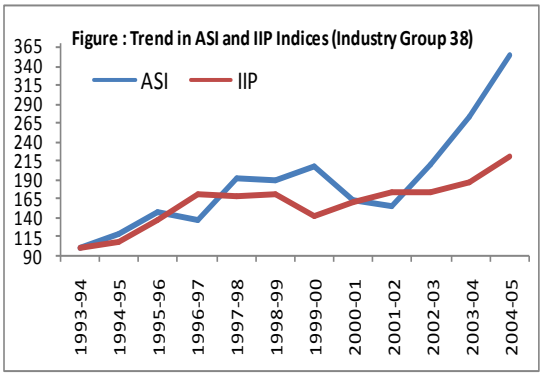


Figure : Trend in ASI and IIP Indices (Industry Group 38)
ASI
IIP
365
340
315
290
265
240
215
190
165
140
115
90
1993-94
1994-95
1995-96
1996-97
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05

Appendix Tables

Table 1A : Manufacturing Industry Group (Concordance Table)	
NIC 87 (2 digit)	**NIC 98 (2 and 3 digits)**
20-21	151 + 152 + 153 + 154
22	155 + 16
23 + 24 + 25	171
26	172 + 173 + 181
27	20 + 361
28	21 + 22
29	182 + 19
30	24
31	23 + 25
32	26
33	27 + 371
34	2811 + 2812 + 289
35-36	2813 + 29 + 30 + 31 + 32
37	34 + 35
38	33 + 369
39	725

Table 2A: Manufacturing Industry Groups: Two-digit Classification as per NIC-87	
Code	**Description**
20-21	Food Products
22	Beverages, Tobacco and related Products
23	Cotton Textiles
24	Wool, Silk and man-made fibre textiles
25	Jute and other vegetable fibre Textiles
26	Textile Products (including Wearing Apparel)
27	Wood and Wood Products, Furniture and
28	Paper & Paper Products and Printing, Publishing & Allied Industries
29	Leather and Leather & Fur Products
30	Chemicals & Chemical Products (except products of Petroleum & Coal)
31	Rubber, Plastic, Petroleum and Coal
32	Non-Metallic Mineral Products
33	Basic Metal and Alloys Industries Products
34	Metal Products and Parts, except Machinery and Equipment
35-36	Machinery and Equipment other than Transport equipment
37	Transport Equipment and Parts
38	Other Manufacturing Industries