Quarterly Index of Industrial Production (QIIP)
2nd Quarter 2005

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Introduction

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Quarterly Index of Industrial Production (QIIP)

2nd Quarter 2005

1.   Introduction

The Index of Industrial Production shows the evolution of the volume of output of the Industrial Sector which covers "Mining and quarrying", "Manufacturing" and "Electricity, gas and water" and which accounts for around 22% of Gross Domestic Product (GDP). This index is now being compiled and disseminated on a quarterly basis in a new series of the "Economic and Social Indicators".

The **Q**uarterly **I**ndex of **I**ndustrial **P**roduction (**QIIP**) is one of the most important industrial short-term indicators which aim at measuring, on a quarterly basis, the ups and downs of the volume of industrial output. It is widely recommended by international organizations.

This issue on the QIIP is the second of the new series. It presents quarterly indices for the period 2001 to 2nd quarter 2005 with year 2000 as base. The indices are given separately for the 3 sections, namely, "Mining and quarrying", "Manufacturing" and "Electricity, gas and water". Within "Manufacturing", estimates by broad group, namely, EPZ, Non-EPZ and "Sugar milling" as well as by main industrial grouping are also given. Wherever possible, the annual averages of the quarterly indices have been worked out and included in the tables. It is to be noted that, due to incomplete data, indices for the second quarter 2005 are provisional and published at section and broad group levels only. They are therefore subject to revision in future issues of the indicator.

The published indices are not seasonality adjusted. The user is therefore advised to base comparisons for a particular period of a year on the corresponding period of the previous year.

The objectives of the QIIP, the sources and methodology used in the compilation of the index as well as the limitations of the index are given at annex.

2.   The overall index - Industrial Sector

In the second quarter 2005, the overall index of industrial production was 14.2% higher than the previous quarter but 6.7% lower when compared to the corresponding quarter of 2004. In the year to the 2nd quarter 2005, i.e., 3rd quarter 2004 to 2nd quarter 2005, real industrial output receded by 5.9% compared to the same period, a year ago, following a negative growth of 13.5% in the real output of the EPZ (Table 1) partly offset by increases in the other broad sectors. The long-term trend (4-quarter moving average), as shown graphically by chart 1, reveals the downwards tendency in the performance of the sector due mainly to the poor performance of the EPZ since 2002.
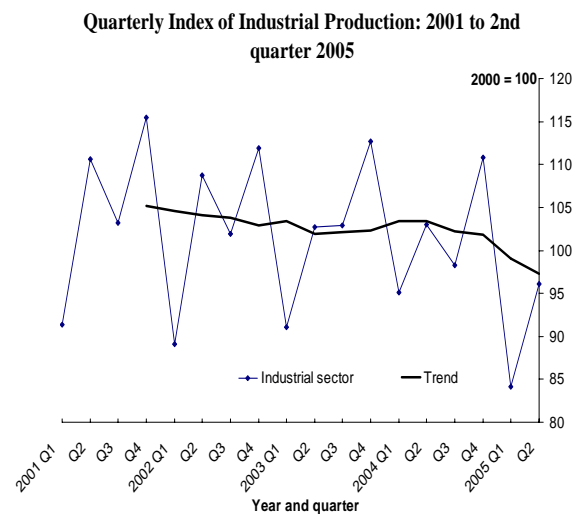

Quarterly Index of Industrial Production: 2001 to 2nd quarter 2005

Chart 1
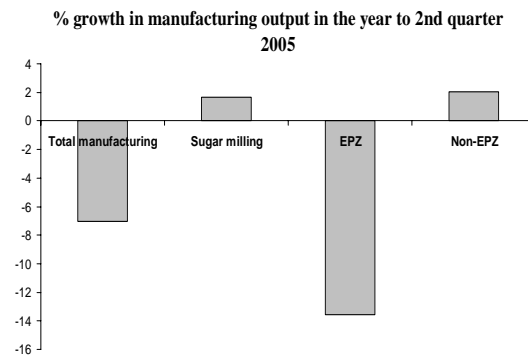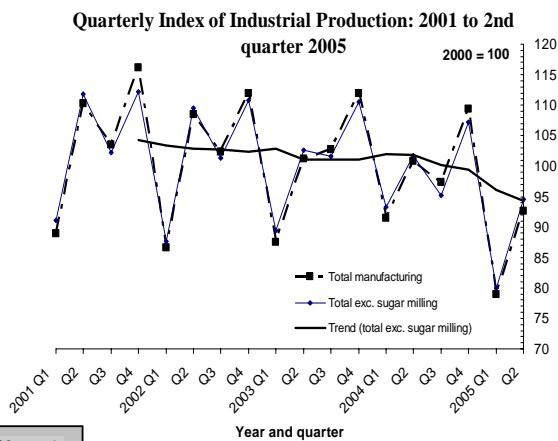
3. Changes by section

3.1 Mining and quarrying

"Mining and quarrying", is restricted to activities relating to quarrying of decorative stones, sand and salt extraction and represents only half a percent of the total weight allocated to the industrial sector. In the 2nd quarter 2005, real output rose by 9.9% compared to the previous quarter and 10.4% higher when compared to the corresponding quarter of 2004. In the year to 2nd quarter 2005, real output grew by 6.0% (Table 1). It will be recalled that output in this sector plummeted at the end of 2001 following the government's decision to ban sand extraction from the lagoon.

Quarterly Index of Industrial Production: 2001 to 2nd quarter 2005

2000 = 100

Chart 2

3.2 Manufacturing

Manufacturing output, which covers the production of a wide range of goods, represents over 90% of the output of the industrial sector. For analysis purposes, "Manufacturing" is broken down into the following broad groups:

- Sugar milling representing around 8% of manufacturing output
- EPZ (56%)
- Non–EPZ (36%)

Quarterly Index of Industrial Production: 2001 to 2nd quarter 2005

2000 = 100

Chart 3

% growth in manufacturing output in the year to 2nd quarter 2005

Chart 4

Manufacturing output, in the 2nd quarter 2005, rose by 17.3% compared to the previous quarter but fell by 8.1% when compared to the same quarter, a year ago (Table 1). In the year to the 2nd quarter 2005, it declined by 7.0% due to the poor performance of the EPZ partly offset by weaker positive performances in "non-EPZ" and "Sugar milling". In fact, within "Manufacturing", whilst real output rose by 1.7% in "Sugar milling" and 2.0% in Non-EPZ, it declined significantly in the EPZ (-13.5%) following the closure of a number of large enterprises during the period under review. The performances of the EPZ and the Non-EPZ

excluding "Sugar milling" by detailed industry group up to 1st quarter 2005 are analysed separately at Section 4. As mentioned in the introduction, due to incomplete data, indices for the 2nd quarter 2005 are provisional and published at section and group levels only.

3.3 Electricity, gas and water

"Electricity, gas and water" accounts for around 8% of the output of the industrial sector. In the 2nd quarter 2005, real output of this section fell by 4.6% compared to the previous quarter but increased by 4.5% when compared to the same quarter, a year ago. In the year to the 2nd quarter 2005, it is estimated to have moved up by 3.6% (Table 1).
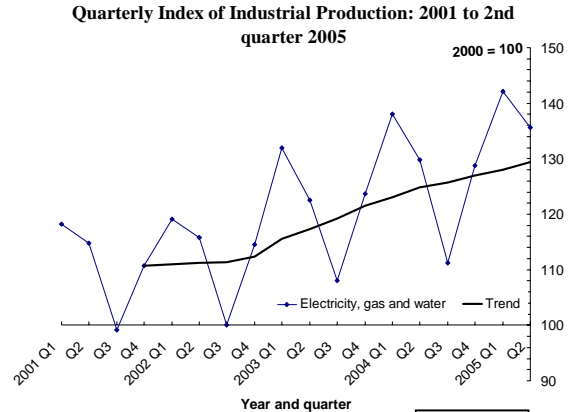
Quarterly Index of Industrial Production: 2001 to 2nd quarter 2005

Chart 5

4. Changes by broad group

4.1 EPZ

Real output of the EPZ increased by 22.3% in the 2nd quarter 2005 compared to the previous quarter but fell by 9.9% when compared to the same quarter, a year ago. In the year to the 2nd quarter 2005, it is estimated to have plummeted by 13.5% (Table 1).

Indices by main industrial grouping for the 2nd quarter of 2005 are not available. However, an indication of the annual performance at this level can be obtained by comparing the detailed indices available for year ending 1st quarter 2005 to the corresponding period, a year ago (Table 3). Real output of "Wearing apparel", the most important industrial grouping within the EPZ, dropped by 16.5% and that of "Textiles" fell by 13.9%. These two sub-groups account for 88.3% of the total weight allocated to the EPZ. Moreover, production of chemicals and man-made fibres fell by 41.2% in real terms. On the other hand, significant increases were noted in the other sub-groups which, in total, carry only 10.3% of the total weight. Details of changes at sub-group's level are shown in Chart 7.
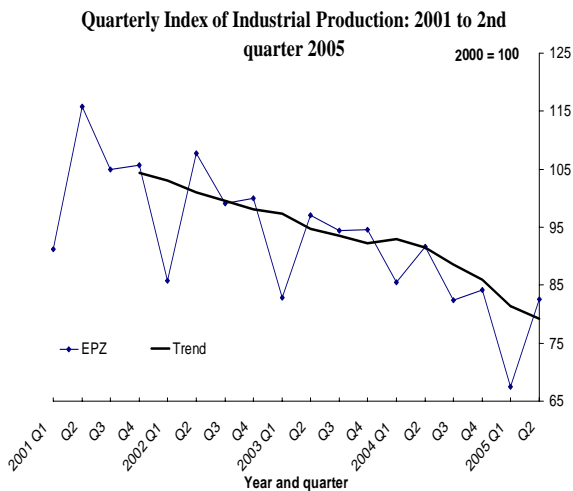
Quarterly Index of Industrial Production: 2001 to 2nd quarter 2005

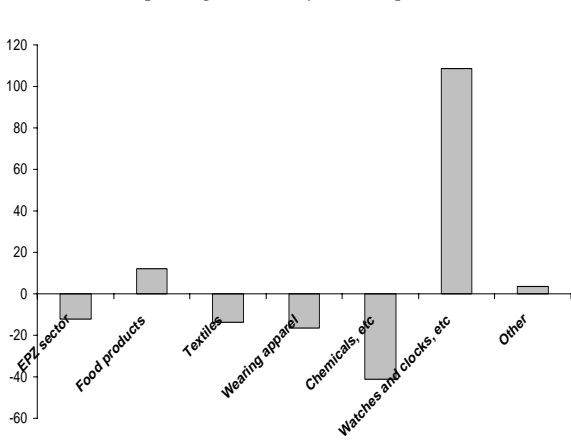**EPZ output: % growth in the year to 1st quarter 2005**

Chart 6

Chart 7

4.2   Non-EPZ excluding "Sugar milling"

The index for the Non-EPZ refers to large establishments only (see methodology at annex). Provisional estimate of real output of large Non-EPZ establishments shows an increase of 12.8% in the 2nd quarter 2005 compared to the previous quarter but a decrease of 3.6% compared to the same quarter, a year ago. In the year to the 2nd quarter 2005, it rose by 2.0% (Table 1). The corresponding growths up to the 1st quarter 2005 and the 4th quarter 2004 are 4.5% and 6.3% respectively. This downwards performance confirms the sign of a turning point mentioned in the previous indicator.

An indication of the annual performance at sub-group's level is obtained by comparing the detailed indices available for year ending 1st quarter 2005 with those of the corresponding period, a year ago (Table 4). All the different industrial groupings registered increases except "Textiles", "Chemicals and man-made fibres" and "Non-metallic mineral products" whose output fell by 13.7%, 12.2% and 9.3% respectively. The real output of "Beverages and tobacco", which is among the most important industrial groupings in the Non-EPZ with 25.4% of the weight, increased by 4.9% and that of "Basic metals and metal products" went up by 22.4%, both at lower growths than the corresponding figures for the year ending 4th quarter 2004 (i.e. 8.3% and 33.9% respectively).
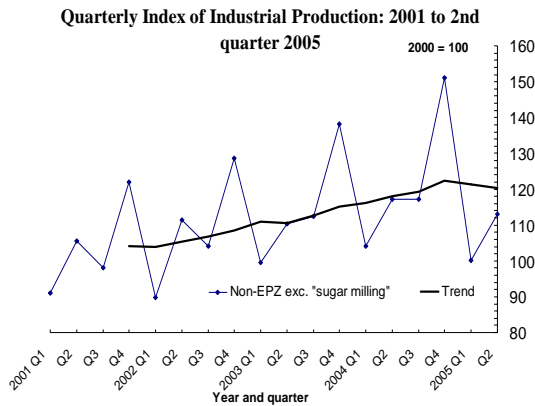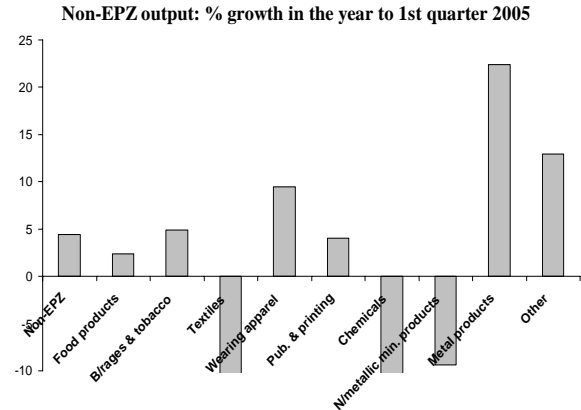
Chart 8

Chart 9

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Table 1: Index of industrial production by section - annual and quarterly indices, 2001 to 2nd Quarter 2005   Year 2000 = 100

	Industrial sector	Mining and quarrying	Manufacturing					Electricity, gas and water
			Total	Total exc. sugar milling	Sugar milling [1]	EPZ	Non-EPZ [2]	
NSIC Rev. 3	10 - 37, 40, 41	10 - 14	15 - 37	15-37 exc. 1542	1542	15 - 37	15 - 37	40, 41
Weight	1000	5	911	842	69	510	332	84
Annual								
2001	105.2	94.2	104.7	104.3	109.9	104.4	104.1	110.7
2002	102.9	48.0	102.3	102.4	82.2	98.1	108.5	112.4
2003	102.3	48.4	100.9	101.1	84.7	92.2	115.1	121.6
2004	101.8	48.7	99.8	99.4	90.2	85.9	122.4	127.0
Quarterly								
2001 Q1	91.4	100.9	88.9	91.1	62.5	91.1	90.9	118.2
Q2	110.6	99.0	110.3	111.8	92.8	115.8	105.5	114.8
Q3	103.2	106.1	103.5	102.2	120.0	104.9	98.0	99.2
Q4	115.5	70.6	116.1	112.2	164.4	105.8	122.0	110.7
2002 Q1	89.1	46.3	86.6	87.6	50.5	85.8	89.8	119.1
Q2	108.8	42.3	108.5	109.6	68.5	107.7	111.4	115.8
Q3	101.9	45.3	102.4	101.4	100.0	99.0	104.1	100.0
Q4	111.9	58.1	111.9	110.8	109.9	99.9	128.6	114.5
2003 Q1	91.0	46.5	87.5	89.4	52.1	82.8	99.5	132.0
Q2	102.8	43.3	101.2	102.6	70.6	97.0	110.3	122.6
Q3	103.0	45.3	102.8	101.6	102.9	94.4	112.4	108.0
Q4	112.6	58.6	111.9	110.5	113.2	94.6	138.3	123.7
2004 Q1	95.1	42.1	91.5	93.3	55.4	85.5	104.1	138.0
Q2	103.0	44.1	100.8	101.8	75.1	91.6	117.2	129.8
Q3	98.3	49.7	97.3	95.2	109.7	82.4	117.1	111.2
Q4	110.8	58.8	109.4	107.3	120.6	84.2	151.1	128.8
2005 Q1	84.2	44.3	79.0	80.0	51.9	67.4	100.2	142.1
Q2 [3]	96.1	48.7	92.7	94.5	70.3	82.5	113.0	135.6
% change, latest quarter over: [3]								
previous quarter	14.2	9.9	17.3	18.1	35.5	22.3	12.8	-4.6
same quarter a year ago	-6.7	10.4	-8.1	-7.1	-6.5	-9.9	-3.6	4.5
% growth in output in the year to: [3]								
2nd quarter 2005	-5.9	6.0	-7.0	-7.4	1.7	-13.5	2.0	3.6

[1] figures for 2003 to 2nd quarter 2005 are provisional   [2] large, i.e establishments with 10 or more employees   [3] provisional

Table 2: Index of industrial production by main industrial grouping - manufacturing[1], 2001 to 1st quarter 2005

Year 2000 = 100

					Main industrial grouping					
	Total manufacturing	Food products inc. sugar	Beverages and tobacco	Textiles	Wearing apparel	Publishing and printing	Chemicals and man-made fibres	Non-metallic mineral products	Basic metals and metal products	Other
NSIC Rev. 3	15 - 37	151-154	155/160	17	18	22	23-25	26	27,28	19-21,29-37
Weight	1000	154	93	71	440	31	60	39	25	87
Annual										
2001	104.7	110.6	102.6	119.8	100.9	103.9	101.4	109.9	101.0	104.9
2002	102.3	110.6	104.3	134.0	89.1	98.2	102.2	138.6	103.9	104.4
2003	100.9	113.4	109.9	127.1	81.9	106.4	123.0	141.5	118.8	102.5
2004	99.8	119.1	119.0	115.5	73.2	116.0	110.7	133.0	159.0	124.9
Quarterly										
2001 Q1	88.9	81.1	91.4	99.0	89.7	89.5	83.5	90.1	88.0	90.6
Q2	110.3	101.4	103.9	141.3	110.7	106.2	100.1	114.9	118.3	109.6
Q3	103.5	116.5	89.5	132.5	98.4	95.2	98.9	102.4	95.5	106.8
Q4	116.1	143.6	125.6	106.6	104.6	124.8	123.0	132.3	102.1	112.5
2002 Q1	86.6	86.7	93.1	119.6	77.0	83.6	80.0	104.0	79.1	90.9
Q2	108.5	105.6	109.4	150.8	97.1	96.6	94.8	151.9	119.1	112.6
Q3	102.4	118.7	91.6	131.4	90.0	90.4	105.9	140.9	105.4	102.0
Q4	111.9	131.4	123.1	134.2	92.4	122.1	128.0	157.4	112.1	112.0
2003 Q1	87.5	88.6	95.7	114.1	74.5	89.9	94.3	125.2	99.3	89.4
Q2	101.2	102.0	98.8	128.8	87.4	103.0	113.0	144.4	127.6	103.4
Q3	102.8	124.9	103.9	134.3	82.9	100.0	129.8	142.3	121.3	99.4
Q4	111.9	138.2	141.1	131.4	83.0	132.8	154.8	154.0	127.0	117.8
2004 Q1	91.5	91.3	103.8	110.4	73.9	102.7	99.4	120.3	107.7	106.4
Q2	100.8	110.8	112.3	133.9	77.9	118.6	103.0	140.5	116.9	120.3
Q3	97.3	131.4	111.0	114.9	68.2	101.3	114.3	131.0	124.8	130.1
Q4	109.4	142.7	149.0	102.9	72.7	141.3	126.1	140.3	286.5	142.8
2005 Q1	79.0	90.9	97.1	87.3	56.3	97.0	75.7	96.7	65.1	112.3
% change, latest quarter over:										
previous quarter	-27.8	-36.3	-34.9	-15.1	-22.6	-31.3	-40.0	-31.1	-77.3	-21.4
same quarter a year ago	-13.6	-0.4	-6.4	-20.9	-23.8	-5.6	-23.8	-19.6	-39.5	5.5
% growth in output in the year to:										
the 1st quarter 2005	-5.1	4.2	4.9	-13.0	-15.9	4.5	-15.7	-9.3	22.7	18.4

[1] Non-EPZ includes large establishments only

Table 3: Index of industrial production by main industrial grouping - EPZ, 2001 to 1st quarter 2005

Year 2000 = 100

	EPZ, manufacturing	Main industrial grouping					
		Food products	Textiles	Wearing apparel	Chemicals and man-made fibres	Optical instruments, watches & clocks	Other
NSIC Rev. 3	15 - 37	151-154	17	18	23-25	33	19-22, 26-32, 34-37
Weight	1000	20	118	765	14	18	65
Annual							
2001	104.4	153.9	119.8	100.8	95.3	98.3	96.2
2002	98.1	235.7	132.1	89.3	87.8	104.6	94.2
2003	92.2	271.0	123.3	82.2	129.9	87.9	94.3
2004	102.8	379.4	131.6	87.1	99.9	216.5	135.8
Quarterly							
2001 Q1	91.1	121.9	99.1	89.8	73.3	86.0	87.8
Q2	115.8	160.3	141.5	111.2	94.8	97.2	107.7
Q3	104.9	164.4	133.8	98.5	88.8	94.3	85.1
Q4	105.8	169.1	104.9	103.7	124.3	115.9	104.2
2002 Q1	85.8	172.2	119.1	77.4	67.3	92.8	100.7
Q2	107.7	260.6	150.5	97.6	83.0	102.0	93.3
Q3	99.0	257.6	128.8	90.1	106.3	109.2	95.8
Q4	99.9	252.3	130.0	92.0	94.7	114.6	86.9
2003 Q1	82.8	253.1	111.8	74.7	87.0	91.7	86.9
Q2	97.0	236.3	126.3	88.0	113.8	89.9	96.1
Q3	94.4	295.2	132.6	83.4	158.0	80.9	82.9
Q4	94.6	299.3	122.5	82.8	160.6	89.0	111.2
2004 Q1	85.5	276.3	106.3	74.2	91.6	105.0	119.1
Q2	91.6	324.3	129.6	78.3	92.1	123.9	82.4
Q3	82.4	361.4	110.2	68.1	89.1	193.3	131.8
Q4	84.2	296.5	96.9	71.9	81.5	214.5	84.6
2005 Q1	67.4	259.1	83.4	56.1	45.4	229.5	125.3
% change, latest quarter over:							
previous quarter	-19.9	-12.6	-13.9	-21.9	-44.3	7.0	48.1
same quarter a year ago	-21.1	-6.2	-21.5	-24.4	-50.4	118.6	5.2
% growth in output in the year to:							
1st quarter 2005	-12.3	12.1	-13.9	-16.5	-41.2	108.7	3.6

Table 4: Index of industrial production by main industrial grouping - Non-EPZ exc. Sugar[1], 2001 to 1st quarter 2005

Year 2000 = 100

	Non-EPZ, manufacturing	Food products exc. sugar	Beverages and tobacco	Textiles	Wearing apparel	Publishing and printing	Chemicals and man-made fibres	Non-metallic mineral products	Basic metals and metal products	Other
					Main industrial grouping					
NSIC Rev. 3	15-37	151-154	155,160	17	18	22	23-25	26	27,28	19-21,29-37
Weight	1000	184	254	13	34	79	143	107	68	118
Annual										
2001	104.1	104.3	102.6	119.9	103.3	105.3	102.3	109.9	100.9	103.6
2002	108.5	112.6	104.3	159.1	74.7	96.3	104.2	138.6	103.6	98.7
2003	115.1	118.6	109.9	185.5	65.3	104.6	119.2	141.5	118.0	100.4
2004	147.4	148.9	143.3	192.2	85.3	134.5	129.4	157.2	173.7	137.5
Quarterly										
2001 Q1	90.9	95.5	91.4	98.0	87.6	91.1	85.0	90.1	87.9	92.5
Q2	105.5	101.4	103.9	138.2	94.1	106.9	100.9	114.9	118.2	103.8
Q3	98.0	104.4	89.5	114.0	96.0	94.7	100.4	102.4	95.5	102.1
Q4	122.0	115.7	125.6	129.5	135.4	128.4	122.8	132.3	101.9	116.2
2002 Q1	89.8	100.8	93.1	122.3	54.2	85.0	81.8	104.0	78.7	73.5
Q2	111.4	111.4	109.4	147.6	66.1	95.5	96.5	151.9	119.0	106.0
Q3	104.1	111.0	91.6	168.3	77.3	85.1	106.1	140.9	105.0	92.5
Q4	128.6	127.2	123.1	198.0	101.3	119.8	132.5	157.4	111.7	122.8
2003 Q1	99.5	107.6	95.7	143.0	60.8	89.6	94.2	125.2	98.7	87.1
Q2	110.3	114.7	98.8	158.4	58.3	101.7	110.9	144.4	126.7	99.0
Q3	112.4	118.1	103.9	146.4	57.8	97.9	121.8	142.3	120.5	96.6
Q4	138.3	134.0	141.1	294.2	84.3	129.2	149.7	154.0	126.3	118.9
2004 Q1	104.1	108.7	103.8	135.3	58.2	96.1	96.7	120.3	106.8	91.4
Q2	117.2	122.1	112.3	143.3	61.7	113.1	100.3	140.5	116.0	116.4
Q3	117.1	118.8	111.0	156.2	66.6	98.4	114.2	131.0	123.4	117.8
Q4	151.1	134.3	149.0	198.6	99.9	135.6	128.3	140.3	286.0	140.3
2005 Q1	100.2	111.8	97.1	135.3	55.0	95.0	77.9	96.7	62.5	83.9
% change, latest quarter over:										
previous quarter	-33.7	-16.7	-34.9	-31.9	-45.0	-29.9	-39.2	-31.1	-78.2	-40.2
same quarter a year ago	-3.7	2.9	-6.4	0.0	-5.6	-1.1	-19.4	-19.6	-41.5	-8.3
% growth in output in the year to:										
1st quarter 2005	4.4	2.4	4.9	-13.7	9.5	4.0	-12.2	-9.3	22.4	12.9

[1] large, i.e establishments with 10 or more employees

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ANNEX

Quarterly Index of Industrial Production (QIIP) - Methodology

</div>

1   Introduction

The Index of Industrial Production shows the movement of the volume of output of the Industrial Sector. This index was calculated annually and published in the Digest of Industrial Statistics. Following the needs expressed by various institutions, both public and private, the Central Statistics Office decided to compile and disseminate the index on a quarterly basis. The compilation and dissemination of the Quarterly Index of Industrial Production is also one of the requirements of the **I**nternational **M**onetary **F**und (**IMF**) towards graduation to the **S**pecial **D**ata **D**issemination **S**tandard (**SDDS**)**.**

2   Objectives

The **Q**uarterly **I**ndex of **I**ndustrial **P**roduction (**QIIP**) is one of the most important industrial short-term indicators which aim at measuring, on a quarterly basis, the ups and downs of the volume of industrial output with a special focus on detecting, as early as possible, the turning points of the business cycle. This enables planners, decision makers and the business community at large to be aware of any sign of change in the progress of the economy in order to take appropriate and timely policy measures.

At the office level, the index based on "hard " data, provides useful and reliable inputs for the improvement of the annual production estimates and forecasts as well as estimates of quarterly value added for the Industrial Sector.

3   Concept/Definition

The basic concept of the Index of Industrial Production is the measurement of the change in real value added at basic prices. Given that value added is defined as the difference between output and input, the compilation of the index, on a quarterly basis, is faced with practical difficulties in obtaining the data required on inputs and outputs within a reasonable period. In the absence of detailed data for most of the different industrial groups, an approximation of the index is based on change in deflated turnover, physical output or other indicators of change in real value added generated by industrial enterprises. The indicators used by main industrial grouping/sector are as follows:

Sector/Industrial grouping	Indicators used
Mining and quarrying	Value added deflated by appropriate deflators
Industry groups within manufacturing (excluding sugar milling)	Use of proxy indicators i. Volume of production ii. Employment iii. Turnover data deflated by appropriate deflators (for most of the industry groups) iv. Consumption of raw materials
Sugar milling	Value added deflated using the double deflation method. However, until final data

	are obtained quarterly changes are based on proportions of the deflated annual estimate/forecast. The proportions are computed from the latest quarterly cost structure of milling activities (see sections 7 and 8).
Electricity, gas and water	Volume of sales as proxy indicator.

The deflators used are the following price indices at detailed level, wherever possible:
  i. Producer Price Index (PPI)
  ii. Export Price Index (EPI)
  iii. Import Price Index (IPI)
  iv. Construction Price Index (CoPI)
  v. Consumers Price Index (CPI)
  vi. Wage Rate Index (WRI)

4   Scope/Classification

The Quarterly Index of Industrial Production covers the Industrial Sector, which comprises:

  Mining and quarrying (NSIC Section C),

  Manufacturing (NSIC Section D), and

  Electricity, Gas and Water (NSIC Section E)

The activity classification used is the National Standard Industrial Classification of Economic Activities (NSIC) which is compatible to ISIC Rev. 3 recommended by the United Nations. As regards Manufacturing, the index is compiled separately for the EPZ and Non-EPZ sectors. However, for the Non-EPZ sector, because of the non-availability of basic data on small establishments, the index can be considered to refer to large establishments only.

5   Compilation practices

The weights have been derived (separately for EPZ and Non-EPZ within the manufacturing sector) from value added at basic prices by detailed industry group (mostly at 5-digit level of activity classification) compiled from the 1997 Census of Economic Activities. The index is calculated for each of the lowest level of activity classification and aggregation to the broader level is done as a weighted arithmetic average of the lowest level indices. The reference period for the calculation of the indices is 2000.

6   Data sources

As mentioned previously, use is extensively made of proxy indicators for the calculation of the index and one such indicator is deflated turnover data. Turnover data are mainly obtained from the VAT (Value Added Tax) Department, which is a very important source of secondary data. The sources of data by industry are as follows:

Sector/Industrial grouping	Data sources
Mining and quarrying	• Survey of establishments • Deflators used: PPI and WRI
Industry groups within manufacturing (excluding sugar milling)	• Turnover data from VAT Department

	• Trade statistics • Quarterly Stock Survey • Quarterly Survey of Employment among EPZ and Pioneer enterprises • Sales of excisable goods from Customs Department • Deflators used: PPI, EPI and IPI
Sugar milling	• Data on income and expenditure from Mauritius Chamber of Agriculture • Deflators used: PPI, CoPI and CPI
Electricity, gas and water	Returns from CEB, CWA and Independent Power Producers (IPPs)

7 Problems/Constraints/Data quality

The practical difficulties in compiling an ideal index showing the evolution of value added at constant prices lead to the use of a number of approximation methods which are listed at section 3. Each of the methods has a number of constraints, the main ones being:

Deflated turnover:

▪ quality of data from VAT Department. The data refer to a mix of formal "large" responding enterprises/establishments. The output of secondary activities of an enterprise are included in turnover data corresponding to the main activity of the enterprise;

▪ time-lag between production and sales may lead to a late identification of a turning point in the business cycle;

▪ ignorance of changes in stocks gives a false picture of true production. However, based on available information from the Quarterly Stock Survey, adjustments are made, wherever possible, to take account of changes in stocks;

▪ the quality of the index is subject to the precision and relevance of the different price indices used for deflation.

▪ assumption based on a fixed ratio of value added to gross output when, in fact, the ratio may change as a result of technological changes, productivity changes as well as seasonal variation in the production structure

Consumption of raw materials:
▪ involves the assumption that output is constant per unit of materials used.

Employment:

▪ does not take account of changes in labour productivity. Although, in the short term, it is reasonable to assume that labour productivity is relatively constant, this is not true in the long term;

Volume of production:
▪ does not take account of quality changes

For sugar milling, final quarterly real value added is computed from final annual accounts which are available with a lag of two years. Until then, the deflated annual estimate/forecast of sugar production and the latest quarterly cost structure of sugar milling activities are used

to compute the quarterly estimates. These may be subject to large revisions when final data are obtained with a lag of two years.

8 Appropriateness of the QIIP

In spite of the above constraints/weaknesses, it is observed that the index shows relative consistency and is of reliable quality for the measurement of quarterly and other changes. However, great care should be taken when interpreting small changes that may be insignificant at the more detailed level.

Users are also cautioned in the use of the overall index which includes "Sugar Milling". For the latest two years, the overall index is affected by the preliminary methodology used for estimating quarterly changes in "Sugar Milling" which is based on fixed proportions of the deflated annual estimate/forecast (see section 7). Moreover, because of climatic conditions, the forecasted annual figure itself is subject to large deviations.

9 Index calculation

The QIIP is calculated according to a modified Laspeyre's index and the formula is:

$$I_t = \frac{\sum W_i (Q_{it}/Q_{io})}{\sum W_i} \times 100$$

with I_t = index for quarter t

W_i = weight for activity i

(Q_{it}/Q_{io}) = is the growth in real value added of activity i in quarter t relative to the base year as estimated by an appropriate proxy indicator