Quarterly Index of Industrial Production (QIIP)
Fourth Quarter 2013

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", "Electricity, gas, steam and air conditioning supply" and "Water supply; sewerage, waste management and remediation activities" and accounts for around 20% of Gross Domestic Product (GDP). The index compiled on a quarterly basis is one of the most important industrial short-term indicators, which aims at measuring, on a quarterly basis, the changes in the volume of industrial output.

2. Contents of the publication

This issue of "Economic and Social Indicators" presents the quarterly indices for the first quarter of 2008 to fourth quarter of 2013 with weights based on the results of the 2007 Census of Economic Activities.

The indices are given separately for the four sections, namely, "Mining and quarrying", "Manufacturing", "Electricity, gas, steam and air conditioning supply" and "Water supply; sewerage, waste management and remediation activities". Within "Manufacturing", estimates by broad group, namely Export Oriented Enterprises (EOE), Non-EOE and "Sugar milling" as well as by main industrial grouping are 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 fourth quarter of 2013 are provisional and published at section and broad group level only. They are therefore subject to revision in future issues of the Economic and Social Indicators of QIIP.

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

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

3. The overall index - Industrial Sector

In the fourth quarter of 2013 the overall index of industrial production grew by 13.6% compared to the previous quarter and by 4.3% compared to the corresponding quarter of 2012.

The index for the year 2013 worked out as the average of the quarterly indices went up by 4.2% compared to 2012. This is explained mainly by expansions in the real output of "Manufacturing" (+4.6%), "Electricity, gas, steam and air conditioning supply" (+4.4%) and "Water supply; sewerage, waste management and remediation activities" (+2.5%) partly offset by a contraction of 4.6% in the output of "Mining and quarrying".

Chart 1 : Industrial sector- Quarterly index of production, Q_1 2008 - Q_4 2013
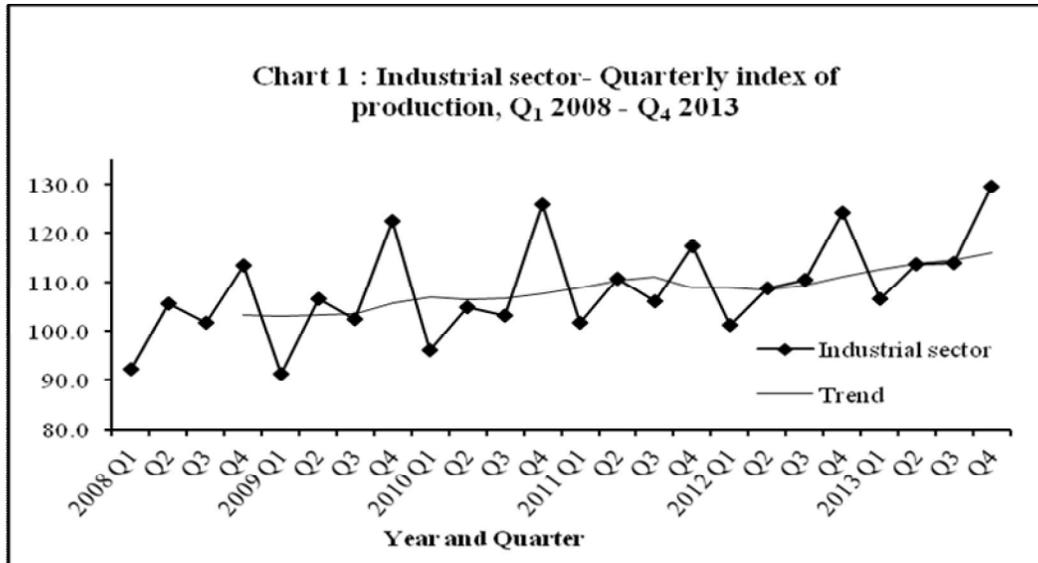
Within "Manufacturing", the increase of 4.6% is mainly due to growth of 9.8% in the "Non-EOE" sector partly offset by contractions in "Sugar milling (-1.0%) and "EOE" sectors (-2.3%).

4. Changes by section

4.1 Mining and quarrying

"Mining and quarrying" comprises activities relating to quarrying of decorative stones, sand and salt extraction as well as stone crushing and represents only 2% of the output of the industrial sector. In the fourth quarter of 2013, no growth has been noted when compared to the previous quarter while compared to the corresponding quarter of last year real output contracted by 8.0%. In 2013, production went down by 4.6% (Table 1).

Chart 2 : Mining and Quarrying - Quarterly index of Production, Q_1 2008 - Q_4 2013
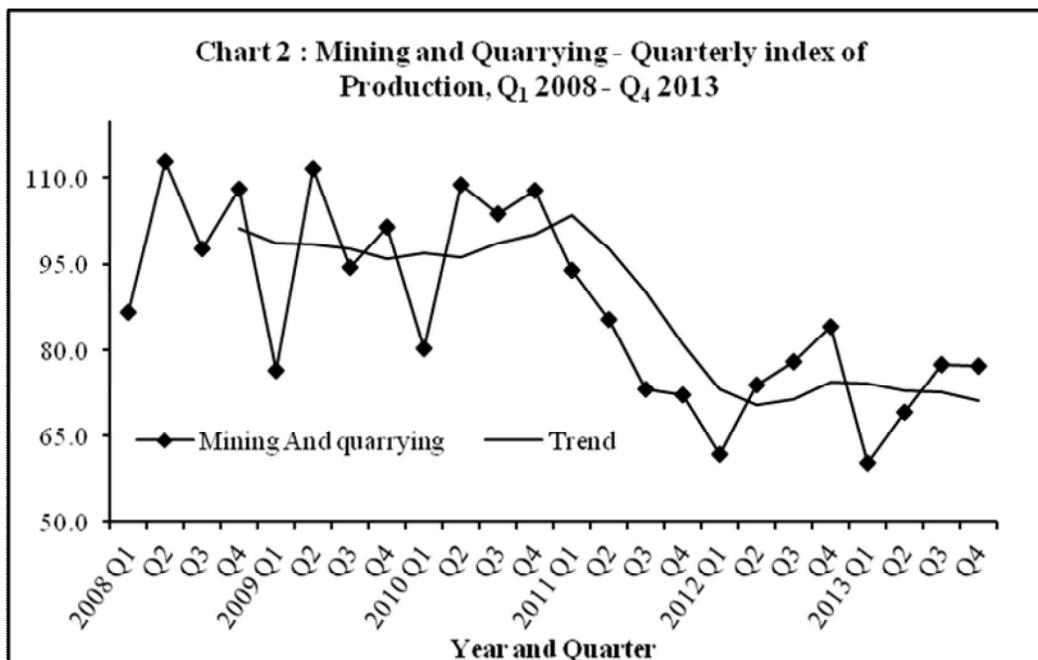
4.2 Manufacturing

Manufacturing output, which covers the production of a wide range of goods, represented 89% of the output of the industrial sector in 2012. For analysis purposes, "Manufacturing" is broken down into the following broad groups:

- Sugar milling representing around 2% of manufacturing output
- EOE (37%)
- Non–EOE (61%)

Chart 3 : Manufacturing - Quarterly index of production, Q₁ 2008 - Q₄ 2013
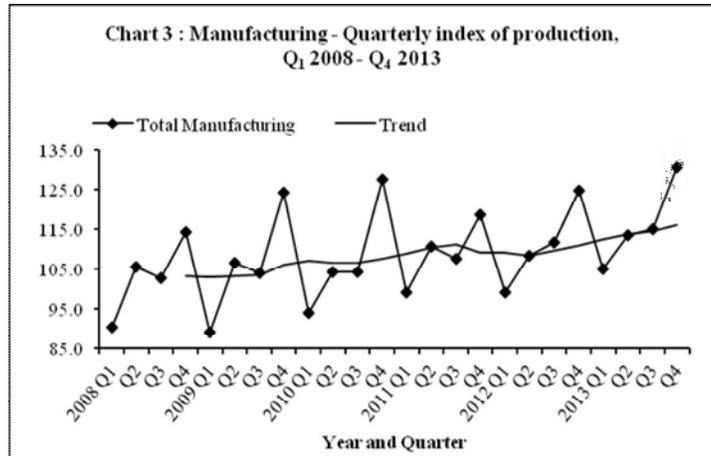
Manufacturing output in the fourth quarter of 2013 grew by 13.7% compared to the previous quarter and by 4.8% compared to the corresponding quarter of 2012 (Table1). In 2013, real output expanded by 4.6%. This is explained by an expansion of 9.8% in the "Non-EOE" sector, partly offset by contractions of 1.0% and 2.3% in the output of "Sugar Milling" and "EOE" sectors respectively The performances of the "EOE" and the "Non-EOE excluding Sugar Milling" by detailed industry group up to third quarter 2013 are analysed separately in Section 5.

Chart 4 : % growth in manufacturing output in year ending fourth quarter 2013
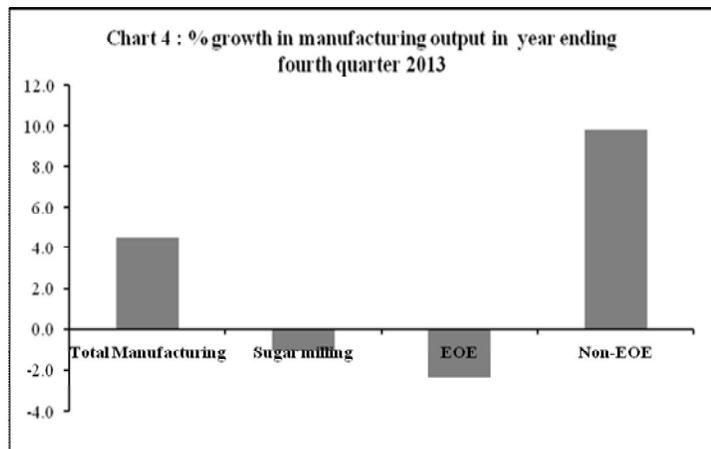
4.3 Electricity, gas, steam and air conditioning supply

"Electricity, gas, steam and air conditioning supply" accounts for around 8% of the output of the industrial sector. In the fourth quarter of 2013, real output of this sector grew by 24.2% compared to the previous quarter and by 5.0% when compared to the corresponding quarter of 2012. In 2013, it is estimated to have moved up by 4.4% (Table 1).

Chart 5 : Electricity, gas, steam & air conditioning - Quarterly index of production, Q₁ 2008 - Q₄ 2013
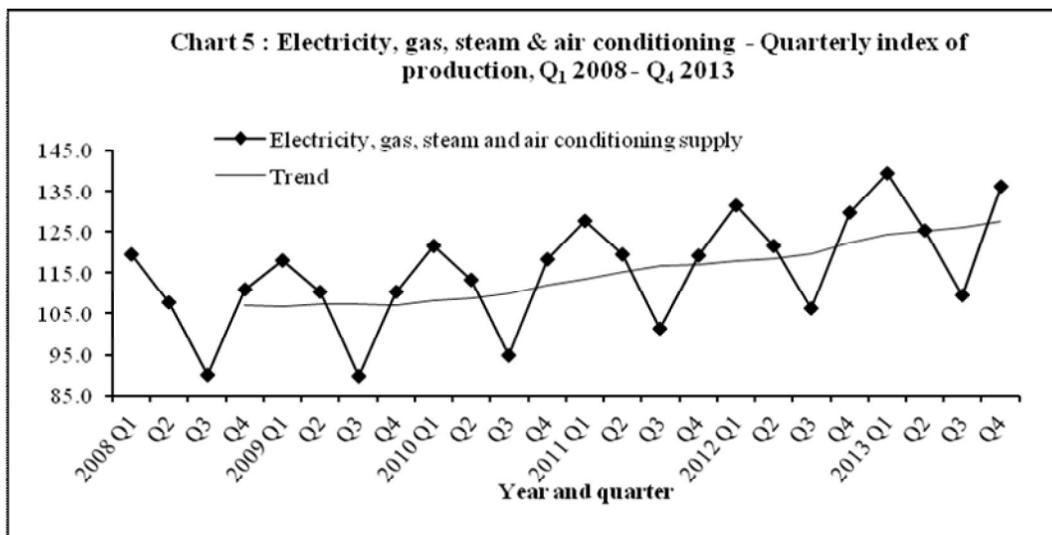
4.4 Water supply; sewerage, waste management and remediation activities

"Water supply; sewerage, waste management and remediation activities" accounts for around 2% of the output of the industrial sector. In the fourth quarter of 2013, real output of this sector went up by 4.8% compared to the previous quarter and by 3.4% when compared to the corresponding quarter of 2012. In 2013, an expansion of 2.5% has been noted (Table 1).

Chart 6 : Water supply; sewerage, waste management & remediation activities - Quarterly index of industrial production, Q_1 2008 - Q_4 2013
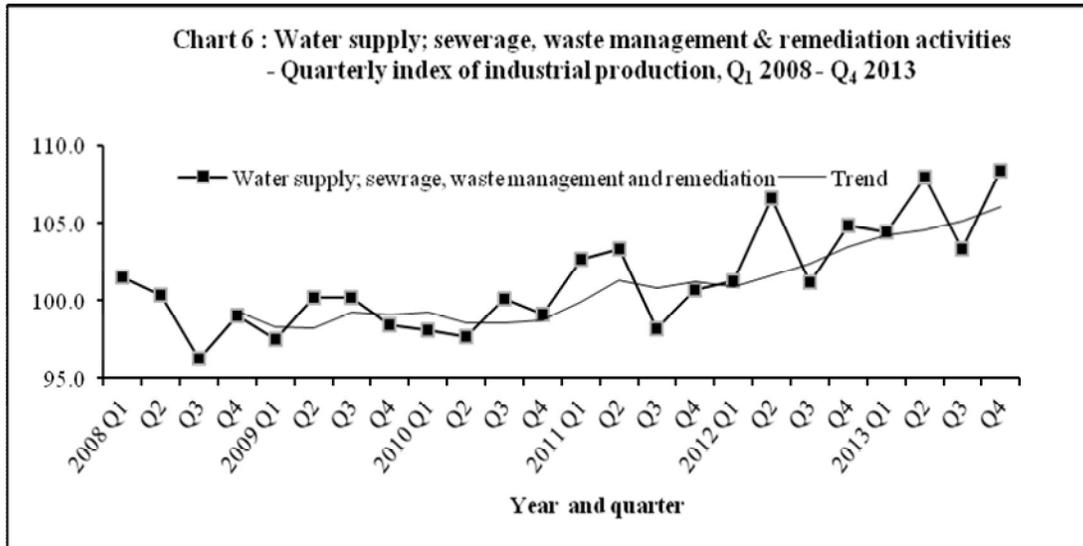
5. Changes by broad group

5.1 EOE

Real output of the EOE contracted by 0.3% in the fourth quarter of 2013 compared to the third quarter of 2013 and grew by 0.9% when compared to the corresponding quarter of 2012. In 2013, output in the EOE went down by 2.3% (Table1).

Chart 7: EOE - Quarterly index of Production, Q_1 2008- Q_4 2013
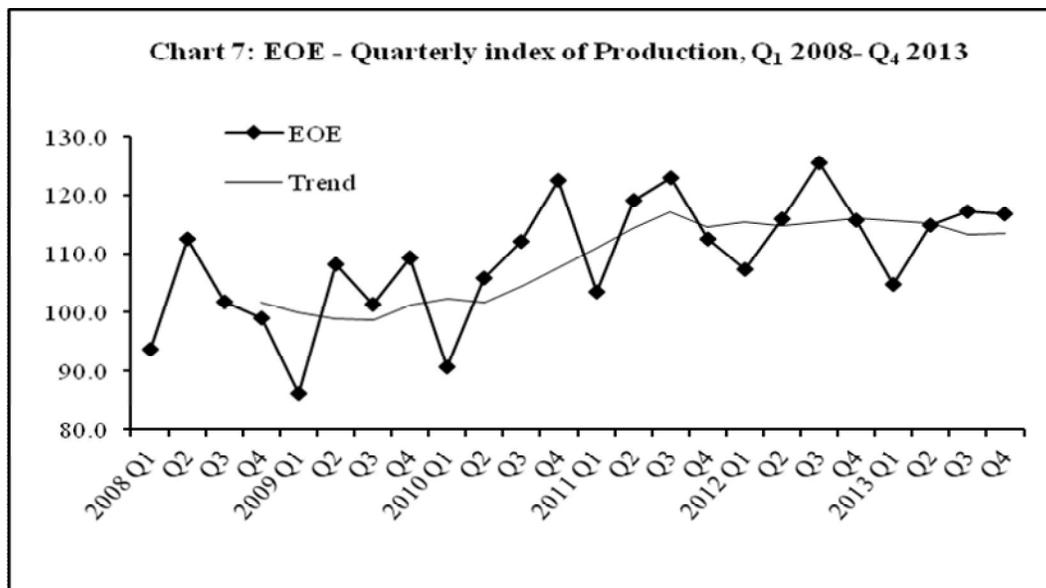
Indices by main industrial grouping for the fourth quarter of 2013 are not yet available. However, an indication of the annual performance at this level can be obtained by comparing the detailed quarterly indices available for year ending third quarter 2013 to those for year ending third quarter 2012 (Table 3). Real output of "Wearing apparel", the most important industrial grouping within the EOE, expanded by 5.5% and that of "Textiles" by 0.7%. These two sub-groups account for 75% of the total weight allocated to the EOE. The above positive growths are partly offset by contractions in the production of "Food products" (-4.2%), "Computer, electronic and optical products" (-6.6%), "Jewellery, bijouterie & related articles n.e.c." (-23.4%) and "Other manufacturing" (-9.3%). Details of changes at sub-group level are shown in Chart 8.

Chart 8 : EOE output - % growth in the year ending third quarter 2013
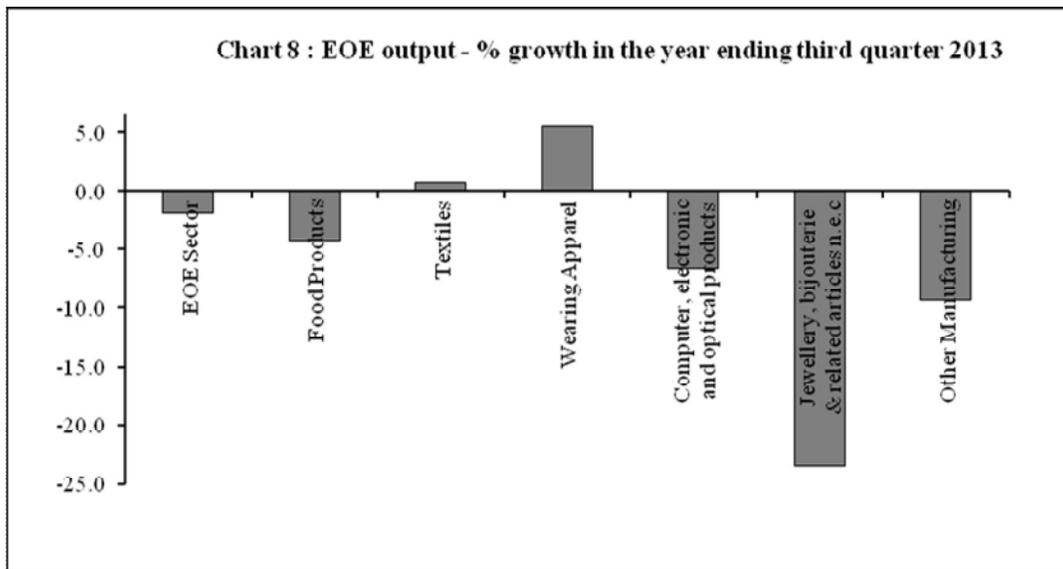
5.2 Non-EOE excluding "Sugar milling"

Provisional estimate of the real output of Non-EOE establishments shows expansion of 22.9% in the fourth quarter of 2013 compared to the previous quarter and 7.5% compared to the corresponding quarter of 2012. In 2013, the index grew by 9.8% (Table 1).

Chart 9 : Non EOE excl. "Sugar milling" - Quarterly index of production, Q_1 2008 - Q_4 2013
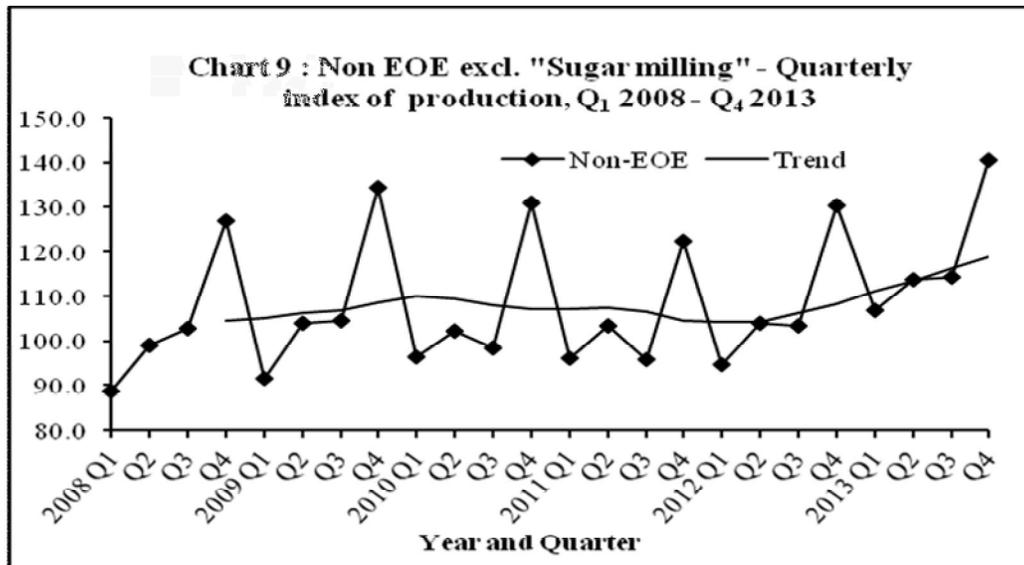
An indication of the annual performance at sub-group level is obtained by comparing the detailed quarterly indices available for year ending third quarter 2013 to those for year ending third quarter 2012 (Table 4). Expansions were registered in "Food products excluding sugar" (+4.2%), "Beverages (+0.5%) "Textiles" (+5.3%), "Printing and reproduction of recorded media" (+3.0%), "Chemicals and chemical products" (+0.5%), "Plastic and non metallic product" (+7.0%), "Furniture" (+16.4%) and "Other Manufacturing" (+26.5%). Contractions were noted in, "Wearing Apparel" (-1.4%) and "Basic metals and fabricated metal products" (-1.1%) as illustrated in chart 10.

Chart 10 : Non-EOE output - % growth in year ending third quarter 2013
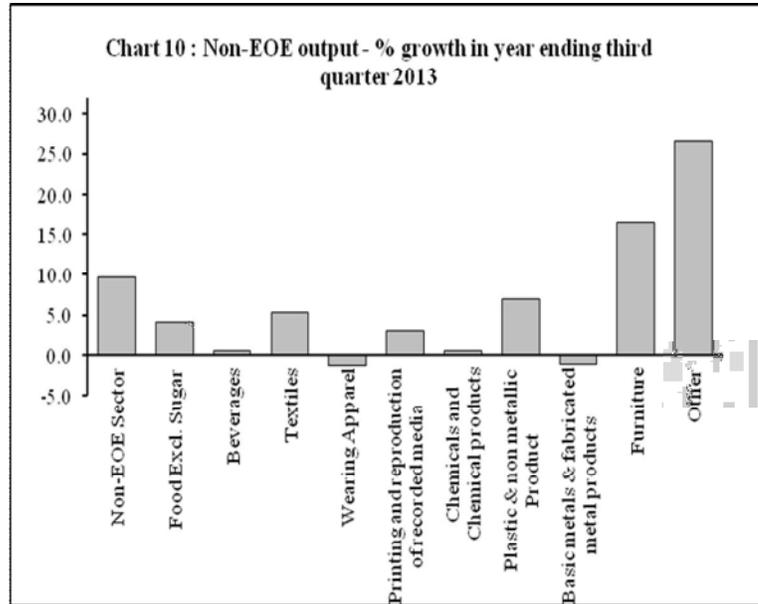
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Table 1: Index of industrial production by section - annual and quarterly indices, Q_1 2008 to Q_4 2013

<div align="right">Year 2007 = 100</div>

	Industrial sector	Mining and quarrying	Manufacturing Total	Total exc. sugar milling	Sugar milling	EOE	Non-EOE	Electricity, gas, steam and air conditioning supply	Water supply; sewrage, waste management and remediation
NSIC Rev. 2	10 - 33, 35-39	05 - 09	10 - 33	10 - 33 except 10720	10720	10 - 33	10 - 33	35	36-39
Weight (Year 2007)	1000	20	899	873	27	400	472	60	21
Annual									
2008	103.3	101.5	103.2	103.2	103.5	101.7	104.4	107.1	99.3
2009	105.7	96.0	105.8	105.6	119.0	101.3	108.6	107.1	99.1
2010	107.6	100.2	107.5	107.3	114.2	107.7	107.1	112.0	98.8
2011	109.0	81.1	108.5	108.8	118.5	114.5	104.5	117.0	101.2
2012	111.2	74.4	110.9	111.4	111.0	116.1	108.1	122.2	103.5
2013	115.9	71.0	116.0	116.6	109.8	113.5	118.8	127.5	106.0
Quarterly									
2008 Q1	92.3	86.7	90.5	91.0	72.7	93.7	88.7	119.5	101.5
Q2	105.7	112.9	105.5	105.2	114.4	112.4	99.1	107.8	100.3
Q3	101.7	97.8	102.7	102.4	114.0	101.8	102.9	90.3	96.3
Q4	113.5	108.0	114.2	114.2	112.8	99.1	127.0	110.9	99.0
2009 Q1	91.3	76.4	89.2	89.3	83.6	86.3	91.4	117.8	97.5
Q2	106.7	111.6	106.4	105.8	131.6	108.3	104.1	110.4	100.2
Q3	102.6	94.3	103.9	103.2	131.1	101.3	104.5	89.8	100.2
Q4	122.4	101.5	124.3	124.2	129.8	109.3	134.4	110.4	98.4
2010 Q1	96.3	80.2	93.9	94.2	80.2	90.8	96.4	121.5	98.1
Q2	105.0	108.7	104.2	103.7	126.2	105.8	102.3	113.4	97.7
Q3	103.3	103.9	104.3	103.8	125.8	112.0	98.6	94.8	100.1
Q4	125.9	107.8	127.7	127.7	124.5	122.4	131.1	118.4	99.1
2011 Q1	101.7	94.0	99.2	99.5	83.2	103.4	96.1	127.7	102.7
Q2	110.8	85.2	110.6	110.2	131.0	119.0	103.4	119.5	103.4
Q3	106.0	73.2	107.5	107.1	130.5	123.0	96.0	101.4	98.2
Q4	117.4	72.0	118.7	118.4	129.2	112.4	122.4	119.2	100.7
2012 Q1	101.2	61.8	99.1	99.6	77.9	107.3	94.8	131.4	101.3
Q2	108.9	74.0	108.4	108.1	122.7	115.9	103.8	121.5	106.6
Q3	110.5	77.9	111.8	111.5	122.2	125.4	103.3	106.2	101.2
Q4	124.0	84.0	124.7	124.7	121.0	115.8	130.5	129.6	104.8
2013 Q1	106.6	60.3	105.0	105.6	77.1	104.8	106.8	139.2	104.5
Q2	113.6	69.1	113.5	113.4	121.4	114.9	113.6	125.2	107.9
Q3	113.9	77.3	114.9	114.8	120.9	117.1	114.2	109.6	103.4
Q4	129.4	77.3	130.6	130.6	119.7	116.8	140.4	136.1	108.4
% change, latest quarter over: [1]									
previous quarter	13.6	0.0	13.7	13.8	-1.0	-0.3	22.9	24.2	4.8
same quarter a year ago	4.3	-8.0	4.8	4.7	-1.0	0.9	7.5	5.0	3.4
% growth in output in the year: [1]									
2013	4.2	-4.6	4.6	4.7	-1.0	-2.3	9.8	4.4	2.5

[1] Provisional

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Table 2: Index of industrial production by main industrial grouping - manufacturing, Q$_1$ 2008 to Q$_3$ 2013 **Year 2007 = 100**

	Total manufacturing	Food Incl. sugar	Beverages	Textile	Wearing apparel	Printing and reproduction of recorded media	Chemical products	Non Metallic Products	Basic Metals& fabricated metals	Furniture	Other
NSIC Rev. 2	10 -33	10	11	13	14	18	20 &21	22&23	24 & 25	31	15,16,17,19,26,27,282 9,30,32,33
Weight (Year 2007)	1000	222	112	62	315	28	38	48	51	46	79
Annual											
2008	103.2	109.1	102.6	96.1	101.1	106.6	109.3	104.4	104.0	91.2	103.3
2009	105.8	117.0	102.6	74.5	105.9	115.1	110.6	99.7	105.3	102.8	205.6
2010	107.5	121.2	106.0	82.8	102.9	120.1	111.6	88.0	103.8	92.2	124.9
2011	108.5	114.9	114.1	96.3	104.2	99.5	110.5	92.6	102.8	100.5	110.9
2012	110.9	123.6	120.2	92.4	103.9	109.0	101.9	89.5	94.5	103.1	113.0
Quarterly											
2008 Q1	90.5	93.0	85.4	96.3	89.8	90.3	98.8	90.8	87.1	86.3	89.3
Q2	105.5	103.3	97.0	112.3	109.1	102.7	110.2	103.6	106.0	94.4	110.1
Q3	102.7	117.8	95.9	85.9	98.7	99.1	104.9	102.9	110.9	87.0	103.2
Q4	114.2	122.4	131.5	90.1	106.9	134.4	123.4	120.3	112.2	96.9	110.7
2009 Q1	89.2	91.9	83.4	68.5	98.6	92.6	84.7	82.7	85.3	87.4	172.0
Q2	106.4	125.0	91.6	72.2	110.0	109.7	95.2	108.0	102.6	90.3	203.3
Q3	103.9	120.8	89.8	73.1	100.7	109.3	110.4	98.7	109.0	112.7	196.3
Q4	124.3	130.4	145.0	84.1	114.4	148.8	152.2	109.3	124.3	120.6	250.8
2010 Q1	93.9	104.9	88.0	69.6	91.2	116.7	100.1	80.1	92.5	95.1	90.8
Q2	104.2	125.5	102.2	91.7	90.1	115.3	110.1	87.2	100.2	92.3	110.7
Q3	104.3	120.4	100.8	74.8	107.4	100.4	100.4	80.3	93.9	98.0	99.2
Q4	127.7	134.1	133.1	95.0	122.8	148.1	135.9	104.5	128.7	116.8	143.1
2011 Q1	99.2	105.6	94.5	100.7	91.0	86.1	104.7	86.1	109.3	104.3	105.5
Q2	110.6	122.7	111.2	112.3	102.0	98.9	122.7	87.6	100.9	86.3	124.1
Q3	107.5	107.5	105.7	83.5	115.9	92.7	109.3	91.6	97.5	96.3	117.5
Q4	118.7	123.9	145.0	88.7	108.1	120.1	105.2	104.9	103.5	81.9	152.4
2012 Q1	99.1	112.4	105.6	82.8	91.9	91.8	87.1	77.8	90.7	86.1	111.8
Q2	108.4	127.7	109.6	95.3	95.3	105.8	113.9	95.1	100.4	82.7	123.9
Q3	111.8	124.9	110.6	88.5	113.3	100.6	117.3	85.2	84.7	94.0	125.7
Q4	124.7	129.6	155.2	103.0	115.1	137.9	91.4	100.0	102.0	115.8	146.4
2013 Q1	105.0	114.3	98.2	72.5	100.7	90.1	90.3	80.2	97.6	103.9	137.7
Q2	113.5	125.6	107.7	99.4	103.4	102.1	98.1	101.2	84.2	84.2	159.3
Q3	114.9	126.7	113.4	85.5	110.1	99.9	107.4	103.9	83.2	97.3	142.3
% change, latest quarter over:											
previous quarter	1.2	0.9	5.3	-14.0	6.5	-2.1	9.5	2.6	-1.2	15.5	-10.7
same quarter a year ago	2.8	1.4	2.6	-3.4	-2.8	-0.6	-8.4	21.8	-1.8	3.5	13.1
% growth in output in the year ending:											
3rd quarter 2013	4.9	1.5	0.8	1.4	5.1	2.8	-8.6	6.1	-3.3	16.4	14.0

Table 3: Index of industrial production by main industrial grouping - EOE, Q$_1$ 2008 to Q$_3$ 2013

Year 2007 = 100

	EOE, Manufacturing	Main industrial grouping					
		Food Products	Textiles	Wearing Apparel	Computer, electronic and optical products	Jewellery	Other Manufacturing
NSIC Rev. 2	10 - 33	10	13	14	26	32100	11,15,16,17,18,20,21,22,25,27,32 except 32100,33
Weight (Year 2007)	1000	132	109	655	19	27	58
Annual							
2008	101.7	107.5	95.5	101.1	108.1	103.3	105.0
2009	101.3	119.1	75.6	101.0	69.4	118.6	107.7
2010	107.7	138.0	82.5	102.9	74.6	125.7	122.1
2011	114.5	135.6	100.0	104.7	93.1	118.7	139.9
2012	116.1	146.9	96.8	105.2	95.9	134.1	136.5
Quarterly							
2008 Q1	93.7	98.8	95.0	91.2	101.7	80.9	111.1
Q2	112.4	107.2	117.4	111.4	122.8	112.9	122.3
Q3	101.8	126.0	85.6	99.8	97.9	110.8	96.6
Q4	99.1	98.0	84.2	101.9	109.9	108.6	89.9
2009 Q1	86.3	77.9	71.8	94.0	71.6	58.0	81.2
Q2	108.3	139.0	76.7	110.8	87.9	75.2	86.6
Q3	101.3	130.2	75.0	99.0	55.4	113.6	105.9
Q4	109.3	129.3	79.0	100.1	62.5	227.7	157.1
2010 Q1	90.8	94.7	67.8	93.3	60.1	98.5	97.3
Q2	105.8	160.1	95.7	93.3	81.4	101.9	125.8
Q3	112.0	137.6	74.1	111.8	67.1	125.1	119.1
Q4	122.4	159.5	92.5	113.3	89.8	177.5	146.1
2011 Q1	103.4	115.9	108.1	93.0	72.0	89.1	149.4
Q2	119.0	148.5	118.6	105.1	109.9	94.8	161.5
Q3	123.0	133.4	89.4	118.8	96.1	129.3	137.8
Q4	112.4	144.7	84.1	101.8	94.3	161.4	111.0
2012 Q1	107.3	139.5	90.2	94.0	112.4	111.9	134.0
Q2	115.9	155.2	100.4	99.1	107.8	109.4	166.2
Q3	125.4	150.7	92.1	117.8	84.3	142.8	146.8
Q4	115.8	142.1	104.5	109.7	79.5	163.8	102.6
2013 Q1	104.8	133.1	73.3	103.2	94.6	71.6	132.9
Q2	114.9	143.3	104.7	108.0	101.6	80.0	138.6
Q3	117.1	146.5	86.8	114.5	96.7	86.9	131.8
% change, latest quarter over:							
previous quarter	2.0	2.2	-17.1	6.0	-4.8	8.7	-5.0
same quarter a year ago	-6.6	-2.8	-5.7	-2.9	14.7	-39.1	-10.2
% growth in output in year ending:							
3rd quarter 2013	-1.8	-4.2	0.7	5.5	-6.6	-23.4	-9.3

Table 4: Index of industrial production by main industrial grouping - Non-EOE (exc. Sugar), Q_1 2008 to Q_3 2013

Year 2007 = 100

| | Non-EOE, manufacturing | Main industrial grouping | | | | | | | | | |
		Food Excl. Sugar	Beverages	Textiles	Wearing Apparel	Printing and reproduction of recorded media	Chemicals and Chemical products	Plastic & non metallic Product	Basic metals & fabricated metal products	Furniture	Other
NSIC Rev. 2	10-33	10	11	13	14	18	20	22 & 23	24 &25	31	15,16,17,19, 26-30,32 & 33
Weight (Year 2007)	1000	254	212	25	45	49	64	86	89	88	88
Annual											
2008	104.4	111.1	102.5	98.3	101.5	108.2	103.3	105.5	105.3	91.2	103.6
2009	108.6	115.9	102.2	70.7	158.4	118.4	96.4	100.9	107.2	102.8	107.6
2010	107.1	116.3	104.2	83.7	102.5	122.4	98.8	88.9	106.3	100.4	114.5
2011	104.5	105.5	109.9	83.7	99.4	101.2	98.0	93.5	103.7	92.1	122.9
2012	108.1	115.8	112.6	75.7	92.6	111.0	102.3	90.4	94.5	94.6	127.7
Quarterly											
2008 Q1	88.7	94.9	85.5	100.9	71.6	89.2	83.3	92.0	88.1	86.3	87.3
Q2	99.1	99.1	97.0	93.5	80.4	103.2	99.8	103.6	106.8	94.4	105.5
Q3	102.9	115.1	95.9	87.2	84.7	101.8	107.0	103.7	111.6	87.0	102.3
Q4	127.0	135.3	131.3	111.7	169.3	138.5	123.3	122.6	114.7	96.9	119.4
2009 Q1	91.4	99.0	83.1	57.6	147.1	95.1	78.7	83.7	85.6	87.4	97.4
Q2	104.1	118.2	91.2	57.4	102.0	112.7	93.2	109.2	103.4	90.3	113.5
Q3	104.5	115.3	89.6	66.7	118.6	112.3	95.9	99.8	111.5	112.7	104.2
Q4	134.4	131.0	144.1	101.0	265.9	153.6	117.9	110.7	128.1	120.6	115.4
2010 Q1	96.4	111.9	88.1	76.4	76.3	119.1	86.2	81.2	96.0	95.1	95.8
Q2	102.3	113.2	100.3	76.7	67.2	116.7	97.1	88.1	102.3	91.9	119.1
Q3	98.6	113.6	98.2	77.3	76.5	101.7	86.8	81.7	94.9	98.0	98.9
Q4	131.1	126.5	130.3	104.4	190.2	152.1	125.1	104.7	131.8	116.8	144.4
2011 Q1	96.1	104.0	91.1	75.9	70.4	87.2	77.0	87.8	112.3	104.3	108.7
Q2	103.4	110.5	108.1	91.1	68.2	100.4	95.0	87.9	101.9	86.0	127.4
Q3	96.0	93.4	101.4	63.5	87.7	93.8	98.0	92.6	97.4	96.3	102.1
Q4	122.4	114.2	138.8	104.3	171.2	123.5	121.9	105.6	103.1	81.9	153.4
2012 Q1	94.8	106.1	98.8	54.8	73.2	93.0	80.3	78.6	90.2	86.1	108.3
Q2	103.8	116.9	102.9	76.0	60.6	107.2	95.5	95.8	100.1	82.3	124.7
Q3	103.3	114.5	103.5	74.6	74.2	102.0	109.2	86.2	83.3	94.0	126.6
Q4	130.5	125.6	145.0	97.3	162.3	141.9	124.4	101.4	104.2	115.8	151.3
2013 Q1	106.8	109.9	92.3	69.5	78.2	91.6	82.2	81.9	100.0	103.9	122.0
Q2	113.6	117.4	101.3	79.1	60.8	103.7	95.9	102.9	83.6	83.9	235.8
Q3	114.2	117.6	107.4	80.4	72.6	101.3	106.3	105.8	84.7	97.3	140.0
% change, latest quarter over:											
previous quarter	0.6	0.2	6.0	1.7	19.3	-2.4	10.8	2.8	1.3	16.0	-40.6
same quarter a year ago	10.6	2.8	3.8	7.7	-2.1	-0.7	-2.7	22.6	1.6	3.5	10.6
% growth in output in year ending:											
3rd quarter 2013	9.6	4.2	0.5	5.3	-1.4	3.0	0.5	7.0	-1.1	16.4	26.5

ANNEX

Quarterly Index of Industrial Production (QIIP) - Methodology

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, Statistics Mauritius 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**) **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

Sector/Industrial grouping	Indicators used
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, steam and air conditioning supply	Volume of electricity sales as indicator.
Water supply; sewerage, waste management and remediation activities	Volume of water sales as indicator. VAT data

The deflators used are the following price indices at detailed level, wherever possible:

   i.   Producer Price Index (PPI)
  ii.   Export Price Index (EPI)
 iii.   Consumer Price Index (CPI)
  iv.   Import Price Index (IPI)
   v.   Wage Rate Index (WRI)

4   Scope/Classification

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

    Mining and quarrying (NSIC Section B),

    Manufacturing (NSIC Section C),

    Electricity, Gas, Steam and Air conditioning Supply (NSIC Section D), and

    Water Supply; Sewerage, Waste Management and Remediation Activities (NSIC Section E)

The industrial classifications used is according to the National Standard Industrial Classification (NSIC), Revision 2 based on the UN International Standard Industrial Classification (ISIC) of all economic activities, Rev. 4 of 2008, previous classifications used being NSIC Rev 1 based on ISIC, Rev. 3 of 1990.

Moreover QIIP series prior to 2007 covered only large establishments for Non EOE subsector.

The main changes between the two classifications , NSIC1 and 2 are:

"Electricity, gas and water supply" which was previously classified under section E has been split into "Electricity, gas, steam and air conditioning supply" and "Water supply; sewerage, waste management and remediation" and classified under sections D and E respectively. Section E comprises also the activities of "Sewerage, waste management and remediation activities" which was formerly part of section O in NSIC 1.

Publishing activities have shifted from the "Manufacturing" sector to "Information and Communication".

5   Compilation practices

The weights have been derived (separately for EOE and Non-EOE 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 2007 Census of Economic Activities. A representative sample has been selected from the CEA 2007 data which covers the whole manufacturing sector. The VAT turnover for the selected establishments is used to derive the index. 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. Under this methodology the weights are revised every year.

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 - Volume production of salt and sand - Quarterly data from VAT - Deflators used: change in producer prices
Industry groups within manufacturing (excluding sugar milling)	- Turnover data from VAT Department - Trade statistics - Quarterly Stock Survey - Quarterly Survey of Employment among EOE - Sales of excisable goods from the Mauritius Revenue Authority - Continuous Multipurpose Household Survey - Building permits statistics - Deflators used: PPI M, EPI and IPI components
Sugar milling	- Survey of establishments - Deflators used: PPI A and CPI components
Electricity, gas, steam and air conditioning supply	Returns from CEB and Independent Power Producers (IPPs) Volume of electricity sales
Water supply; sewerage, waste management and remediation activities	Returns from CWA and quarterly VAT data Volume of water sales

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

Indirect Indicators

- Indirect indicators such as household consumption and building permits have been used to estimate volume changes for certain activities of small establishments. The volume changes may be revised when more appropriate data sources are obtained or after the next Census of Economic Activities is carried out.

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.

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