World Manufacturing Production

Statistics for Quarter I, 2011

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Report on world manufacturing production
Quarter I, 2011

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1.   Introduction

UNIDO Statistics presents its first report on current growth trends in the world manufacturing production, which are based on quarterly production data collected and published by the National Statistical Offices (NSOs). A preliminary report was prepared earlier to check the availability of data and the efficiency of the statistical method used for this purpose. Upon completion of an assessment period of data production for internal use, the results are now ready for worldwide dissemination.

2.   Objectives

The main objective of this report is to provide an overview of current growth trends in the world manufacturing production by country groups and by major sectors. For many years UNIDO statistical publications were only released annually. While researchers involved in fundamental economic studies prefer detailed business structure statistics, other international data users, especially policymakers and business associations, require more recent assessments of overall production growth trends. In order to meet the user's demand in current industrial statistics and to present the growth assessment of Organization in its capacity of a specialized UN agency in the field of industrial development, UNIDO presents the latest growth estimates for the general manufacturing industry as well as for its major branches.

3.   Sources and methods

The main data source of this report is the quarterly production indices compiled and disseminated by the National Statistical Offices (NSOs) through their publications or websites. These data are exclusively obtained from secondary sources, and there is thus no respondent's burden on the part of the NSOs in the data collection process. UNIDO used national data to aggregate and derive estimates at the global level. The results were occasionally compared with international data sources such as Eurostat, OECD and UNSD to confirm the consistency of estimates.

Country data are aggregated to the development group and to the world average based on the relative contribution of a country (weights) to the respective group's total manufacturing value added or to the world. Indices are computed using Laspeyers fixed base method. The base weights refer to the value added figures for 2005. The country weight is further disaggregated to the sector weights at the 2-digit level of ISIC Rev 3. The distribution of weights is consistent both across countries as well as manufacturing sectors. Thus, the overall manufacturing output growth can either be computed by aggregating all country indices or all sector indices.

The lowest level of indices acquired by UNIDO from NSO publications represents the relative growth of value added of the reporting country's manufacturing sector. However, it is quite difficult to obtain input data from quarterly surveys necessary to estimate the value added. Therefore, NSOs often use output data to measure the approximate movement of value added in a short period of time. Indices are usually computed using either a deflating or volume extrapolation method or a combination of the two methods as described in the *International Recommendations for the Index of Industrial Production* (2010)[1]. Individual indices are aggregated using weights.

Let w_0 and Q_t denote the base weights and indices of industrial production for the reference period, which are available by manufacturing sector $i = 1, 2, \ldots\ N$ and by country $j = 1, 2, \ldots\ N_j$. Subsequently, the overall index is calculated for a country group $J_1, J_2 \ldots$ or a sector as:

$$I_{t,i,J} = \sum_{j \in J} w_{0,i,j} Q_{t,i,j} \qquad (1)$$

Where,
$I_{t,i,J}$ – overall aggregated index for i-th sector or for J-th country group

$w_{0,i,j}$ – weight in the base period for *i*-th sector of country *j*

$Q_{t,i\ j}$ - Production indices for *i*-th sector of country *j*

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[1] unstats.un.org/unsd/statcom/doc10/BG-**Industrial**Stats.pdf

The compilation process involves aggregating the sector level indices to the national or to the country group level and aggregating the national level indices to the country group level.

The quarterly report is compiled from a sample number of countries that accounts for more than 90 per cent of the world MVA. The sample is stratified into industrialized and developing countries. As the developing countries are highly heterogeneous in terms of level of industrial development, the sample was selected from three development groups within the category 'developing countries', namely newly industrialized countries, other developing countries and least developed countries. However, the current report does not present separate estimates for LDCs due to limited data availability. A further disaggregation of the sample into these groups is carried out to achieve better representativeness of data. No specific stratification has been planned for the group of industrialized countries, however, the sample includes North America, Europe and East Asia. All classification categories applied here strictly correspond to UNIDO's standard country grouping described in the International Yearbook of Industrial Statistics[2].

In case of missing data, imputation is conducted for the latest period based on the index numbers for earlier periods derived from national data sources and estimated percentage changes for reference periods computed from international data sources. A typical example applying the international data source for estimation is given by:

$$Q_{t,i,j} = Q_{t-1,i,j}^{NSO} \times \frac{Q_{t,i,j}^{IDS}}{Q_{t-1,i,j}^{IDS}} \qquad (2)$$

Where;

$Q_{t,i,j}$ — Estimated production index of country j for the i-th sector

$Q_{t-1,i,j}^{NSO}$ — Production index of country j for i-th sector in the preceding quarter $(t-1)$ as reported by the NSO

$Q_{t,i,j}^{IDS}$ and $Q_{t-1,i,j}^{IDS}$ — Production index of country j for i-th sector in reference and preceding periods reported in international data sources.

Such imputation has helped maintain the national index series as the primary source for the estimation process.

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[2] *International Yearbook of Industrial Statistics,* 2011, UNIDO.

4.   **Results and interpretation**

The report contains two sets of growth indicators for world manufacturing output for the reference period which is compared to:

- the previous quarter
- the same period of the previous year.

While the first set of growth indices represents more recent growth trends, the second set provides more precise estimates taking seasonal variation into account. The first quarter of the year has a varying number of holidays in different parts of the world, such as Christmas and the New Year holiday season, which affects the number of work days in the first week of January, the Lunar New Year festivities in East Asian countries in February and other holidays. As national data are not always seasonally adjusted or metadata information on seasonal adjustment is not adequately available, a comparison with the same period of the previous year yields more precise estimates on growth figures.

The results are presented with some interpretation. For this purpose, the index figures are transcribed to the growth percentage by chaining the indices of the reference period to the previous periods selected for comparison.

$$G_t = \left(\frac{I_t}{I_{t-1}} - 1 \right) \times 100 \qquad\qquad (3)$$

Growth figures, as mentioned earlier, refer to the change of MVA; however, they are in most cases computed from output data. The reference period of the present report is the first quarter of 2011.

5.   **Major findings and statistical tables**

The results obtained from the analysis of quarterly indices reveal that world manufacturing output grew by 6.5 per cent compared to the first quarter of 2010. The figure clearly indicates the progress of the recovery of world industrial production from the recent financial crisis. The manufacturing output of industrialized countries rose by 4.4 per cent in the first quarter compared to the same period in 2010 (see Fig. 1). Strong growth by 7.1 per cent was observed in US manufacturing. The major European economies France, Germany, Italy and the United Kingdom also demonstrate a significant change in growth figures. However, manufacturing output

in Greece fell by 6.9 per cent, while Portugal and Spain had marginal growth of less than one per cent. The full impact of the Tsunami disaster, which occurred in the first week of March, was not yet reflected in Japan's manufacturing data. Yet its manufacturing output fell by 2.4 per cent, which contributed to lower growth among East Asian industrialized countries in general (see Table 1).

Fig 1: World manufacturing output in Quarter I, 2011
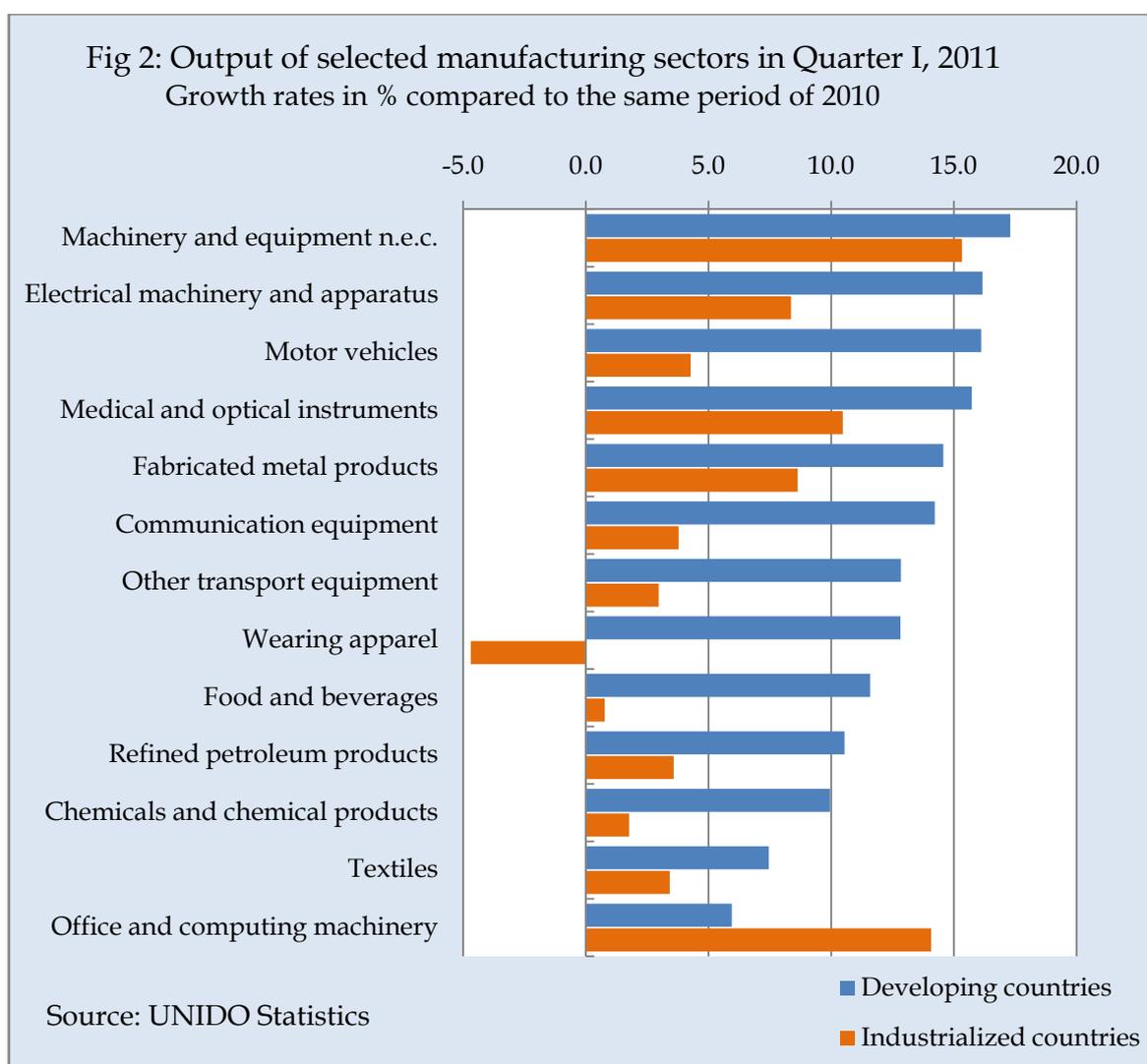Growth rates in% compared to the same period of 2010

Source: UNIDO Statistics
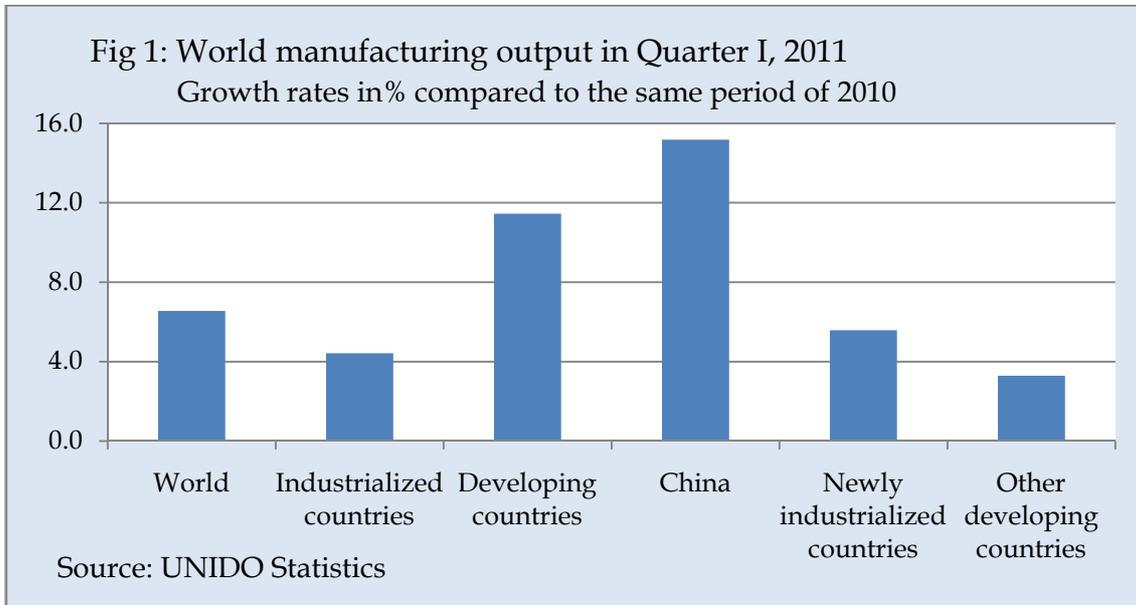
The manufacturing output of developing countries increased by 11.5 per cent in the first quarter. The major contribution to such strong performance came from China— its manufacturing output grew by 15 per cent. The manufacturing output of the group of newly industrialized countries increased by 6 per cent, with Brazil's growth estimated at 2.0 per cent, India's at 5.1 per cent and Mexico's growth at 7.4 per cent. The growth rate of other developing countries including least developed countries was below 5 per cent. Negative growth was observed in Egypt and Tunisia, where manufacturing output fell by 8.9 per cent and 7.4 per cent, respectively, during this period.

Growth rates are also estimated in comparison with the previous quarter, i.e., the change in manufacturing output in the first quarter of 2011 compared with the last quarter of 2010. These growth rates were lower for two reasons: first, the world manufacturing industry significantly recovered from the recent financial crisis over the last 12 months, which has brought industrial production to a much higher level. Second, index series were not seasonally adjusted in some countries as mentioned earlier in this report. Estimated growth rates in comparison with both the previous

quarter as well as with the same quarter of the previous year are presented in Table 1.

Growth estimates are also produced separately for the manufacturing sectors at the 2-digit level of ISIC for industrialized and developing countries. Industrialized countries performed well in a number of high-technology industries, especially in office and computing machinery, electrical machinery and medical optical and precision equipment. Their growth rates are particularly low in traditional low-technology sectors such as food and beverages and textiles. The production of wearing apparel fell by nearly 5 per cent in industrialized countries (see Fig. 2).

Fig 2: Output of selected manufacturing sectors in Quarter I, 2011
Growth rates in % compared to the same period of 2010

Source: UNIDO Statistics

Developing countries outperformed industrialized countries in all sectors except in office and computing machinery. The difference in growth rates is significant not only in traditional low technology and resource based sectors, such as food and beverages, textiles, wearing apparel and petroleum products, but also in

high-tech manufacturing. Developing countries have performed well in the production of motor vehicles and other transport equipment, radio television and communication equipment and the chemical industry. Data for all sectors at the 2-digit level are presented in Table 3 and 4.

6.   Limitation of the report

This report focuses on the overall growth performance of the world manufacturing by country groups, namely by industrialized and developing countries. It is based on quarterly production indices which measure production change over a short period of time. Long-term growth series as well as detailed business structure statistics pertaining to the manufacturing sector at the country level are available in other UNIDO statistical publications. Since not all countries publish a harmonized long-time series containing information about quarterly indices of industrial production, the report has presented growth figures rather than the index of industrial production itself.

The national data source may revise the index series depending on availability of new data. The report is based on the latest data releases. As soon as new releases from national sources are available, UNIDO will revise the figures in its database, which may result in some alterations of the figures published in subsequent reports. Index figures for a significant number of countries in the sample are not seasonally adjusted, which has some implications on comparability over time as well as on the imputation of missing values. The data was converted from various classifications of industrial activities to 2-digit level of ISIC Rev. 3. Even though these classifications are mostly compatible with ISIC Revision 3, there is no one-to-one match for all sectors. Occasionally, national sources publish data at a more aggregated level which requires a disaggregation of index numbers at the 2-digit level of ISIC.

These limitations are described here to clarify the technical process of index construction and to advise data users to take them into consideration when conducting economic analysis. Despite these limitations, the figures presented in this report are reliable and adequately reflect the growth trends in global manufacturing.

Table 1: Estimated growth rates of the world manufacturing output
Quarter I, 2011

	Share in world MVA[3] (2010)	Growth rates compared to:	
		previous quarter	same period of the previous year
WORLD	100.0	2.87	6.55
Industrialized Countries	67.9	-0.15	4.42
North America	24.8	1.85	6.28
Europe	23.5	0.85	7.12
East Asia	18.1	-2.92	-0.50
Developing Countries (by development group)	32.1	9.63	11.45
China	15.4	15.27	15.18
Newly industrialized countries	12.8	1.23	5.58
Other developing countries	3.9	-2.21	3.29
Developing Countries (by region)	32.1	9.63	11.45
Africa[4]	1.1	-4.49	-7.40
Asia	24.1	13.10	13.33
Latin-America	5.7	-2.31	4.92
Others	1.2	3.38	12.22

Source: UNIDO Statistics

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[3] For detail MVA distribution worldwide, see UNIDO publication *International Yearbook of Industrial Statistics*, 2011

[4] South Africa is included in the group of industrialized countries

Table 2: Estimated growth rates of output by manufacturing sector
Quarter I, 2011 compared to the same period of the previous year

	Developing Countries	Industrialized Countries	World
Food and beverages	11.59	0.77	4.11
Tobacco products	5.13	-2.56	3.46
Textiles	7.45	3.42	6.12
Wearing apparel, fur	12.82	-4.69	5.98
Leather, leather products and footwear	15.46	3.47	11.02
Wood products (excl. furniture)	5.42	2.96	3.63
Paper and paper products	12.28	0.21	3.50
Printing and publishing	12.02	-1.12	0.44
Coke, refined petroleum products	10.54	3.58	6.79
Chemicals and chemical products	9.95	1.76	3.64
Rubber and plastics products	12.20	4.74	7.20
Non-metallic mineral products	13.86	5.92	9.41
Basic metals	9.41	6.04	7.90
Fabricated metal products	14.57	8.63	9.81
Machinery and equipment n.e.c.	17.30	15.33	15.97
Office, accounting and computing machinery	5.95	14.07	13.36
Electrical machinery and apparatus	16.16	8.36	11.85
Radio, TV and communication equipment	14.22	3.78	8.47
Medical, precision and optical instruments	15.73	10.47	10.93
Motor vehicles, trailers, semi-trailers	16.11	4.27	6.32
Other transport equipment	12.84	2.97	8.07
Furniture; manufacturing n.e.c.	11.85	1.69	5.41
Total Manufacturing	11.45	4.42	6.55

Source: UNIDO Statistics

Table 3: Estimated growth rates of output by manufacturing sector
Quarter I, 2011 compared to the previous quarter

	Developing Countries	Industrialized Countries	World
Food and beverages	10.87	0.13	3.88
Tobacco products	0.63	1.20	0.75
Textiles	7.85	0.23	5.29
Wearing apparel, fur	13.39	-2.19	7.32
Leather, leather products and footwear	5.83	0.36	3.88
Wood products (excl. furniture)	10.47	1.35	3.71
Paper and paper products	9.25	0.50	2.93
Printing and publishing	-0.11	-0.62	-0.56
Coke, refined petroleum products	5.62	-0.30	2.44
Chemicals and chemical products	7.80	1.18	3.06
Rubber and plastics products	9.48	1.95	4.43
Non-metallic mineral products	13.66	2.50	7.33
Basic metals	14.31	4.06	9.56
Fabricated metal products	15.07	1.67	4.19
Machinery and equipment n.e.c.	17.45	1.38	6.18
Office, accounting and computing machinery	11.62	5.71	6.17
Electrical machinery and apparatus	13.63	0.56	6.23
Radio, TV and communication equipment	10.55	1.51	5.59
Medical, precision and optical instruments	15.42	2.98	4.02
Motor vehicles, trailers, semi-trailers	2.72	-0.14	0.39
Other transport equipment	9.98	2.61	6.43
Furniture; manufacturing n.e.c.	5.81	1.36	3.23
Total Manufacturing	**9.63**	**-0.15**	**2.87**

Source: UNIDO Statistics