
Bank of Japan

Research and Statistics Department

June, 2019

Outline of the Input-Output Price Index of the Manufacturing Industry by Sector (IOPI, 2011 base)

1. Basic Structure

The IOPI is a collection of indexes that focuses on the input and output of the manufacturing industry. The Input Price Index covers goods and services used for production activities and the Output Price Index covers goods that are produced in the manufacturing industry. The IOPI is used for comparative analyses of input and output price changes for various sectors in the manufacturing industry.

2. Classification and Weights

The Input Price Index measures prices of raw and intermediate materials,^{*1} fuel and energy (including both domestic goods and imports), and services that are consumed in each manufacturing process. The Output Price Index covers prices of products in each sector of manufacturing (including both domestic goods and exports, as well as both final and intermediate goods).^{*1}

As the weights for aggregation, the Input Price Index uses the purchasers' price-based intermediate input value of goods and services in the manufacturing industry. On the other hand, the Output Price Index uses the producers' price-based output value of domestic goods in the manufacturing industry. The weights for both indexes are derived from the "*Input-Output Tables for Japan (I-O Tables)*" -- published by the Ministry of Internal Affairs and Communications -- for the base year 2011.^{*2}

The IOPI contains two levels of sector classifications: "Manufacturing industry sector",^{*3,*4} and "Major sector." The former consists of one category and the latter consists of 18 categories.

Each sector classification contains three levels of commodity groups: "Aggregated major commodity group",^{*5} "Major commodity group"; and "Commodity group."

As reference indexes, the Bank compiles sub-indexes for "General machinery (2005 IOPI Classification)," "Electrical machinery (2000 IOPI Classification)," "Precision instruments (2005 IOPI Classification)," and "Miscellaneous manufacturing products (2005 IOPI Classification)."

^{*1} Input and output goods also include scrap and by-products.

^{*2} Weights assigned to Commodity group are calculated based on the weights of Commodity of the Corporate Goods Price Index (CGPI) and those of Item of the Services Producer Price Index (SPPI).

^{*3} With regard to the "Manufacturing industry sector," the Input Price Index contains sub-indexes of "Domestic goods," "Imports," and "Services." The Output Price Index contains those of "Domestic goods" and "Exports."

^{*4} For the "Manufacturing industry sector," the Input Price Index has a reference index for "Goods" (domestic goods and imports).

^{*5} In the Output Price Index, the category of "Major sector" corresponds to that of "Aggregated major commodity group."

3. Base year for the Index and the Weight Calculation

The base year is 2011 for both the index calculation and the weight calculation.*

* In principle, the base year of the IOPI is rebased every five years (years ending with either 0 or 5) in accordance with the rebasing of the I-O tables as well as that of the CGPI and the SPPI. In order to conform to the latest rebasing of the I-O tables from 2005 to 2011, the IOPI is also based on the CY 2011.

4. Price data

Commodity group indexes of the IOPI are compiled by using the following two data source: Commodity indexes of the CGPI and Item indexes of the SPPI*. The number of selected Commodities and Items amounts to 1,192 for the Input Price Index and 1,155 for the Output Price Index, respectively. Both the Input Price Index and the Output Price Index exclude the consumption tax.

* In accordance with the rebasing of the price indexes that are the sources of price data, the IOPI uses Commodity indexes of the CGPI and Item indexes of the SPPI in the 2010 base from Jan. 2011 to Dec. 2014, and those indexes in the 2015 base from Jan. 2015 onward. Commodity group indexes of the IOPI which are not covered in the 2015 base CGPI are treated as if they were unchanged from Jan. 2015 onward.

5. Index Formula

The fix-weighted Laspeyres formula is adopted for the index calculation.

6. Publication and Revision Schedule

In principle, the preliminary figures are released at 8:50 a.m. on the 20th business day of the month following the survey month. The release date may be brought forward a few days due to fewer business days in the month or other reasons.

Scheduled retroactive revisions are implemented to the released indexes twice a year in March and September (at the time of the release of the preliminary figures for the February and August), during the same months of the scheduled retroactive revisions for CGPI and SPPI. They are basically performed to the indexes within the most recent one and a half year.

In addition to the scheduled retroactive revisions, the indexes of the IOPI are revised as soon as possible when an unscheduled revision that has a significant impact arises in the CGPI and SPPI.

7. The 2011 Base Linked Indexes

In principle, the 2011 Base Linked Indexes are available for the "Manufacturing industry sector" from January 1975 and those for the "Major sector" from January 1980.*1,*2

*1 The following linked indexes for "Major sector" are compiled in accordance with the 2000 base and 2005 base classifications: "Electrical machinery (2000 IOPI Classification)"; "General machinery (2005 IOPI Classification)"; "Precision instruments (2005 IOPI Classification)"; and "Miscellaneous manufacturing products (2005 IOPI Classification)."

*2 The Input Price Index up until December 1999 were calculated using only inputs from goods, and did not cover those from services. Therefore, it should be noted that there is a discontinuity in the index resulting from the break between December 1999 and January 2000.

8. Notes on Usage

Please note that not all price data used for compiling the Input Price Index and the Output Price Index meet the definition of "purchasers' prices" and "producers' prices." Price data obtained from the PPI include some data collected from wholesalers. Moreover, those from the EPI and the IPI are collected at the time when cargo is loaded/unloaded in Japan.