

Description of Methods Used in Compilation of Wholesale Price Index

1. Historical Notes

The Wholesale Price Indices (WPI) started in February 1946. In accordance with the Program of Survey and Statistics of Commodity Prices laid down by the Directorate General of Budget, Accounting and Statistics (DGBAS), Executive Yuan, the Office of Statistics in Taiwan Administrator's Headquarters compiled the Taipei WPI by selecting 50 items of commodities in six groups, adopting the simple geometric mean formula with the first half year of 1937 as the base. After the Taiwan currency reform in 1949, two additional series of Taipei WPI with June 15, 1949 and the first half year of 1950 as bases were compiled respectively. In 1954, the DGBAS invited representatives of related agencies, scholars and experts (both Chinese and foreigners) to meeting and decided to replace thirteen items out of the original fifty for compiling a new index with the whole 1952 as the base.

In order to coordinate with the nation's economic development plan and meet the increasing requirements of all concerned, the base was revised to 1956 in 1957, and the aggregate supply of commodities of Taiwan in 1956 was used as weight. The index, which comprised of 179 items of priced commodities in 11 groups, was published in January 1959, and started to adopt the Laspeyres Weighted Aggregate Formula.

Since Taipei Municipality has become a special municipality under direct control of the Executive Yuan in July 1967, the WPI in Taiwan was jointly compiled by the concerned departments of both Taipei Municipality and Taiwan Province. With the average of 1963 to 1965 as the base and 382 selected items in 12 groups, new index was published officially in January 1968.

During 1970, for avoiding the difficulties of joint compilation, the DGBAS decided to take over the work. The year of 1966 and its transaction value in Taiwan Area were used as base and weight respectively. With 586 selected items in 12 groups, WPI was published in January 1971. It was the first time to add the special group indices and to use computer in compilation of the index. In order to match the changes of the economy and production structure, the base period is revised once every five years, meanwhile the groups and priced items are adjusted as see fit.

In rebased year 1981, we used the total supply value of commodities as weights, while added export commodities to WPI and started to compile the indices by stage of processing. In rebased year 1991, to avoid widespread misconceptions about the meaning of "wholesale", we altered to survey the prices received by producers from whoever makes the first purchase, the WPI was directly compiled by using domestic wholesale, export and import price indices and published in Oct. 1993. From the base year of 1996, we introduced the relative importance to compile the indices; the link period is next Dec. of base year. From the base year of 2016, the Wholesale Price Indices will be rebased every 2-3 years instead of every 5 years to reflect the production situations more finely and representatively. The WPI still used point linking method for compilation, and adopted 2019 weights since 2021. The rebased index was released from February 2021 using January 2021 data. The Domestic Products of WPI (compiled from Domestic Sales Excluding Imports, as well as Exports) and PPI (Producer Price Index, data starting in 2021 Jan) were too similar, therefore cease to publish after 2021 Dec.

Since WPI is a weighted compilation of Domestic Products, Export and Imports Indices, it mingles the price changes of business output and input, thus having an ambiguous economic definition and was often misquoted. DGBAS start compiling a much more economic defined Producers Price Index starting Jan 2021, to measure the average changes of selling prices received by domestic producers for their output. As most NSOs discontinued their WPI after introducing PPI, DGBAS shall discontinue WPI after Jan 2023.

2. Purpose and Uses

(1) Purpose

The wholesale price index is to measure the average changes of selling prices received by producers for their outputs, such as raw materials, semi-finished products and finished products.

(2) Uses

- ① For financial decision-making and academic researches.
- ② As a reference for GDP and I/O Tables.
- ③ The basis for the revaluation and appraisal of assets.

3. Priced Items

The following figures show the numbers of selected items, based on economic structure of 2019:

	Domestic Wholesale	Import	Export	Total
Numbers of Items	596	304	295	1,195

4. Grouping

(1) Basic Grouping

Wholesale Price Index, based on the “Standard Industrial Classification System of The Republic of China(Rev. 10,2016)”, is divided into 4 major groups, 30 sub-groups 81 groups and 96 small groups.

(2) Special Grouping

- ① Grouping by stage of processing
- ② Grouping by waygoing

5. Base Period

The base period is 2016.

6. Weights

(1) Respective weights in the Wholesale Price Index:

	Weights
Domestic Wholesale Price Index	257.00
Import Price Index	340.98
Export Price Index	402.02
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Wholesale Price Index	1000.00

(2) The weights of commodities for compiling the Domestic Wholesale Price Index:

For manufacturer, in 2019, Industrial Production Statistics, National Accounts Statistics and data provided by relative associations are referred for weighting.

For non-manufacturers (Agriculture, Forestry, Fishing, Water Supply, etc.): Year books of Agriculture, Forestry, Fishing, Water Supply and Electricity are referred for weighting.

(3) The weights of commodities for compiling Import and Export Price Indices can be found in the explanation of the respective indices in this publication.

(4) According to the month sale average from 2017 to 2019, the weight of fresh vegetables and fruits are monthly varying weights.

7. Pricing

(1) Price Surveyed

The prices of domestic manufactured goods are reported by designated companies every month by mail or through Internet Reporting Systems, whereas prices of Agriculture, Forestry and Fishing goods are obtained from the digital transmission data dispatched by Council of Agriculture (and its Fisheries Agency) and Taipei Agricultural Products Marketing corporation.

The prices of import and export goods are directly provided by the Import and Export Price Indices surveys.

(2) Pricing criteria

The designated companies are required to report the actual selling prices of selected commodities with the same specification (in principle, price after adjustment for rebate, tax, shipment, etc.) around the 20th of the month.

8. Computation

(1) Formula: The general index and group indices are computed by the derived from of Laspeyres Weighted Aggregate Formula.

① Average price relatives:

$$\frac{P_{i,j}}{P_{2020.12,j}} = \frac{1}{n_j} \sum_k \frac{P_{i,j,k}}{P_{2020.12,j,k}}$$

i: current period j: priced item k: brands

P: price Q: quantity

n_j : Number of brand for the jth item.

② Index:

$$I_{i/2016}^{2019CH} = \frac{\sum_j \frac{P_{i,j}}{P_{2020.12,j}} (P_{2020.12,j} \cdot Q_{2019,j})}{\sum_j (P_{2020.12,j} \cdot Q_{2019,j})} \times I_{2020.12/2016}^{2016CH}$$

$P_{2020.12,j} \cdot Q_{2019,j}$: total supply volume of 2019 basket for commodity j, valued at December 2020 price

$I_{2020.12/2016}^{2016CH}$: the price index for December 2020 with 2016 basket and 2016 as the base period

$I_{i/2016}^{2019CH}$: the chain price index for i period with 2019 basket and 2016 as the base period.

(2) The yearly index is the arithmetical average of the monthly indices, rounded to nearest hundredth.

(3) Treatment for lack of priced items:

If the item of a specific brand is out of supply on market, a similar commodity bearing a different brand is priced and the adjustment should be made according to the following formula:

Estimated price of substitute commodity at base period	=	$\frac{\text{Price of substitute commodity at period prior to current one}}{\text{Price of originally surveyed commodity at period just prior to running out of supply}}$	×	Price of originally surveyed commodity at base period
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9. Publication

The monthly index is published on the 5th working day (subject to postponement due to Chinese Lunar New Year or other consecutive public holidays) in news release, The e-book "Price Statistics Monthly" with the detailed figures is made available immediately at the time of release; please see <https://eng.dgbas.gov.tw> or <https://eng.stat.gov.tw> for details.