Explanation of the 1995 Base Wholesale Price Index (Revised Version)

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1. Purpose and use

The Wholesale Price Index (WPI) focuses on the prices of goods traded among corporations. The main purpose of the index is to investigate price movements that sensitively reflect the supply and demand condition of individual goods, with the view to facilitating the analysis of both macro- and micro- economic conditions. The indexes of less aggregated levels also have a role as a "deflator" that transforms nominal output values into real quantities.

It follows from these characteristics of the index that gross transaction values of individual goods, if available, would be the most suitable data for its weight calculation. Unfortunately, such statistics are not regularly available, and hence, WPI has relied instead upon regularly published data such as manufacturer's shipments and custom clearance since its adaptation of weighted averages in 1933.

2. Structure

The WPI is composed of the Domestic Wholesale Price Index (DWPI), the Export Price Index (EPI), the Import Price Index (IPI), and the Overall Wholesale Price Index (OWPI). The first three indexes cover different types of products as indicated below, while the OWPI is a weighted average of these three indexes.

DWPI

The DWPI measures the price movement of domestically-produced and domestically-used goods with "sample price"s collected either from the producer or wholesaler of these goods.

The weights of the index are based on the value of producers' shipments for domestic demand, which are calculated by subtracting the value of exports (from *Japan Exports & Imports* published by the Ministry of Finance) from the value of total producers' shipments (from *Census of Manufactures* published by the Ministry of Economy, Trade and Industry). [1]

EPI(IPI)

The EPI (IPI) measures the price movement of export (import) products on FOB (CIF) basis and

[1] In the case of non-manufacturing products where the value of producers' shipments could not be obtained from

compiled both in terms of yen and contracted currencies.

The weights are based on the value of exports (imports) obtained from *Japan Exports & Imports*.

OWPI

The OWPI is the weighted average of the DWPI, EPI, and IPI.

3. Coverage

Conceptually, the WPI covers all type of commodities (except services) traded regularly among corporations. In practice, however, the following commodities are excluded; (a) commodities of which the weights in the index are impossible to calculate (e.g., office buildings), (b) commodities of which the prices are difficult to survey continuously and of which the weights cannot or should not be imputed to other commodities selected in the index because of the absence of similarities (e.g., ships, arms, and ammunition), and (c) commodities of which the transaction volumes as well as prices show excessive seasonality hindering the continuity of price surveys or the collection of representative "sample price"s (e.g., fresh foods). [2]

The share of the commodities (b) and (c) above amounts to about one-tenth of the total calculable shipment values (including exports and imports). As a matter of practice, the remaining part of calculable shipment values is called the "transaction values for the index."

	DWPI	EPI	IPI	OWPI
Total calculable shipment values of commodities (a) <billion yen>	268,811.2	41,530.9	31,548.8	341,890.9
"Transaction values for the index" (b) <billion yen>	254,214.2	38,266.4	28,149.6	320,630.2
Non "transaction values for the index" (c) <billion yen>	14,597.0	3,264.5	3,399.2	21,260.7
(b)/(a) <percent>	94.6	92.1	89.2	93.8
(c)/(a) <percent>	5.4	7.9	10.8	6.2

Census of Manufactures, other official statistics are used as substitutes.

[2] As the prices of exported ships and imported fresh foods are relatively easy to survey, their price indexes are calculated as reference indexes, and published separately from the WPI.

4. Classification

The WPI has two grouping systems; the basic grouping, which classifies commodities selected for the index calculation by their attributes, and the special grouping, which classifies commodities selected in the basic grouping under different criteria for specific purpose.

4.1. Basic grouping

The DWPI is classified into five classes: "major group," "group," "subgroup," "commodity class," and "commodity." "Major group" and "group" are based on *Japan Standard Industrial Classification* published by the Ministry of Public Management, Home Affairs, Posts and Telecommunications. The layer "major group" has five categories and the "group" has 21 (of which three categories are the same as those of "major group"). "Subgroup" and "commodity class" which are subordinate classes of "group," are categorized according to the respective attributes of commodities that make up these groups.

DWPI by major group and group

Manufacturing industry products	Electrical machinery
Processed foodstuffs	Transportation equipment
Textile products	Precision instruments
Lumber & wood products	Other manufacturing industry products
Pulp, paper & related products	Agricultural, forestry & fishery products
Chemicals	Edible agricultural, livestock & fishery products
Plastic products	Inedible agricultural & forestry products
Petroleum & coal products	Mining products
Ceramic, stone & clay products	Electric power, gas & water
Iron & steel	Scrap & waste
Nonferrous metals	(Reference index)
Metal products	Foodstuffs
General machinery	Machinery & equipment

Note: Underlines denote the layers in "major group." Three categories in the "major group"; "mining products," "electric power, gas & water," and "scrap & waste," are equal to those in "group."

The EPI and the IPI are classified into four classes: "group," "subgroup," "commodity class," and "commodity" (same as the DWPI, except for "major group"). Both indexes are composed of eight

categories at the “group” level, which are determined according to the Trade Statistics (the “Basis Classification Index” for *Summary Report Trade of Japan* published by the Ministry of Finance).

EPI by group	**IPI by group**
Textiles	Foodstuffs & feedstuff
Chemicals	Textiles
Metals & related products	Metals & related products
General machinery	Wood, lumber & related products
Electrical machinery	Petroleum, coal & natural gas
Transportation equipment	Chemicals
Precision instruments	Machinery & equipment
Other manufacturing industry products	Other primary products & manufactured goods
(Reference index) Transportation equipment including ships	(Reference index) Foodstuffs & feedstuff including fresh foods

The basic grouping in the OWPI is similar to that of the DWPI, which is classified by “major group” (five categories) and “group” (21 categories). However, the subordinate classes of “group” have different classifications; instead of “subgroups” and “commodity class,” it has three categories; “domestic products,” “exports,” and “imports.”

4.2. Special grouping (by stage of demand and use in the OWPI)

The special grouping is classified by demand stage and use which facilitates analysis on, for example, how a price change in one stage is transmitted to other stages.

Commodities are divided into groups based on demand stage, which are subdivided into subgroups based on use.

Grouping by stage of demand

First, commodities are generally divided into “domestic demand products” (domestic products for domestic use, and imports) and “exports.” Based on *Input-Output Tables* published by the Ministry of Public Management, Home Affairs, Posts and Telecommunications, the former is categorized as “Raw materials” (unprocessed materials), “Intermediate materials” (processed materials) which are used or consumed in production, and “Final goods” for final demand users.

Grouping by use

“Domestic demand products” are subdivided into subgroups by use. In this process, the “Basis

Classification of Goods" in *Indices of Industrial Production* published by the Ministry of Economy, Trade and Industry is used as a reference. "Exports" are categorized in parallel to the use in the domestic market, as it is difficult to know their actual use overseas.

The weights of commodities that are in several categories in either stage of demand or use (e.g., eggs are used as material of processed food as well as food as is) are subdivided, according to a ratio determined by relevant data (when it is difficult to calculate the ratio for dividing weight due to data limits, the commodity is put into the principal category). The ratios used in subdividing the weights of "exports" are identical to those of "domestic demand products."

Concepts of Each Group by Stage of Demand and Use

Group	Concept
Domestic demand products	Domestic products and imports.
Raw materials	Unprocessed materials produced by primary industries, and used or consumed in production.
Raw materials for processing	Raw materials processed into goods, including scrap and waste.
Construction materials	Raw materials directly used for construction, such as building and civil engineering.
Fuel	Raw materials used as fuel in production (e.g., crude petroleum, natural gas).
Other raw materials	Raw materials other than above (e.g., city water, water for industry).
Intermediate materials	Processed materials that are used or consumed for further production, including expendable supplies.
Semi-finished goods	Intermediate materials that still require further processing.
Construction materials	Intermediate materials directly used for construction, such as building and civil engineering.
Fuel & energy	Intermediate materials used as fuel and sources of energy in production.
Other intermediate materials	Intermediate materials other than the above (e.g., expendable supplies, packaging materials, and containers used for business use).
Final goods	Finished goods ready for sale to final demand users.
Capital goods	Durable goods with a relatively high unit purchase price, which are used for production for a year or longer.
Consumer goods	Goods mainly used and consumed by households.
Durable consumer goods	Consumer goods with duration of a year or longer, and with a relatively high unit purchase price.
Non-durable consumer goods	Consumer goods with duration of less than a year, and with a relatively low unit purchase price.
Exports	
Semi-finished goods	Same as corresponding categories of “Intermediate materials” under “Domestic demand products” (except for a few commodities under “Other intermediate materials,” the category of which is combined with “Semi-finished goods” for convenience’ sake).
Construction materials	Same as corresponding categories of “Intermediate materials” under “Domestic demand products.”
Capital goods	Same as corresponding categories of “Final goods” under “Domestic demand products.”
Consumer goods	Same as corresponding categories of “Final goods” under “Domestic demand products.”
Durable consumer goods	Same as corresponding categories of “Final goods” under “Domestic demand products.”
Non-durable consumer goods	Same as corresponding categories of “Final goods” under “Domestic demand products.”

(Reference indexes of “Domestic demand products”)

Producer goods (raw materials + intermediate materials)

Construction materials (construction materials under raw materials and intermediate materials)

Fuel & energy (fuel under raw materials + fuel & energy under intermediate materials)

Materials (raw materials for processing + semi-finished goods)

Investment goods (capital goods + construction materials under raw materials and intermediate materials)

(Reference indexes of “Exports”)

Producer goods (semi-finished goods + construction materials)

5. Base year and year for calculation of weights

Current base year for the index calculation, which is also the year for weight calculation, is 1995. It is revised every five years, in principle.

6. Selection of commodities

6.1. Selection criteria

As shown below, commodities in the DWPI, EPI, and IPI are selected so as to secure enough coverage of their populations. Commodities selected in the OWPI are the same as those in the other three indexes.

DWPI

Commodities with transaction values no less than 1/10,000 (¥25.4 billion for 1995 base) of the total transaction values for the index (i.e., the total producers' shipment value of domestic products for the domestic market) are selected.

EPI

Commodities with transaction values no less than 5/10,000 (¥19.1 billion for 1995 base) of the total transaction values for the index (i.e., the total export value) are selected.

IPI

Commodities with transaction values no less than 5/10,000 (¥14.1 billion for 1995 base) of the total transaction values for the index (i.e., the total import value) are selected.

6.2. Exceptional cases in selection of commodities

Commodities which do not fulfill the above criteria are also selected, 1) when they are likely to satisfy them in the near future, 2) when they satisfy the criteria as a group of similar commodities (e.g., medical gauze, bandages, absorbent cotton, and other medical supplies are selected as the commodity called "medical supplies" in the DWPI), or 3) when they are considered to be essential in compiling a balanced classification of the index.

On the other hand, commodities with volatile transaction values are omitted even though their transaction values exceed the selection criteria. They are, for example, custom-made commodities for which the prices under fixed-quality are hard to measure, or commodities for which prices are hard to obtain from plural entities.

When a commodity is not selected for the index, its weight is added to the weights of other selected commodities of similar kind in the process of weight calculation, or excluded from the index if this is not possible. For details, see section 3. and 7.

6.3. Number of selected commodities

The number of selected commodities for the 1995 base year indexes is as follows:

Number of commodities

DWPI	EPI	IPI	OWPI
971	209	247	1,427

7. Weights

7.1. Calculation of weights

The weights of commodities in the DWPI, EPI, and IPI are expressed as one-thousandths of the total transaction values for the individual indexes down to the first decimal place.

The weights of commodities in the OWPI are expressed as one-thousandths of the total transaction value for the above three indexes down to the second decimal place.

The weights of upper classification levels, such as “group” used for compiling the basic grouping and special grouping, are calculated by accumulating the weights of commodities within individual classes.

The weights for the indexes in yen terms and those in contracted currency terms are the same for the EPI and IPI.

The weights of each price index in the 1995 base OWPI are as follows:

Weights

DWPI	EPI	IPI	OWPI
792.86	119.35	87.79	1,000.00

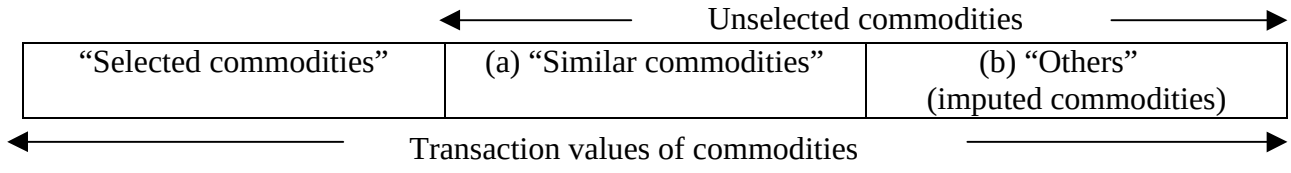
7.2. Unselected Commodities

The commodities which are a part of the transaction values for the indexes, but are not selected in the indexes because of a lack of sufficient transaction values or because of a difficulty in conducting a continuous price survey, are called "unselected commodities." The weights of those "unselected commodities" are determined as follows:

(a) If the attributes and price fluctuations of an unselected commodity resemble those of a selected "commodity," the unselected commodity is classified as a "similar commodity." Its shipment (export/import) value is simply added to the corresponding selected commodity in the process of weight calculation.

(b) Otherwise, the unselected commodities are classified as "others" and its shipment (export/import) value is added to those of the closest "commodity class" ("subgroup," or "group" if deemed appropriate). In this case, the weights of individual commodities in the "commodity class", "subgroup" or "group" are inflated in proportion to their shares. This procedure is called "imputation."

Composition of transaction values of commodities



	DWPI	EPI	IPI	OWPI
Transaction values of commodities (c) <billion yen>	254,214.2	38,266.4	28,149.6	320,630.2
Values of selected commodities (d) <billion yen>	192,724.4	22,419.3	21,071.2	236,212.9
Coverage (d)/(c) <percent>	75.8	58.6	74.9	73.7
Values of selected commodities + similar commodities (e) <billion yen>	199,986.3	27,787.4	22,695.4	250,469.1
Coverage (e)/(c) <percent>	78.7	72.6	80.6	78.1

The transaction values of "commodity class," "subgroup," "group," and "major group" are calculated by accumulating the transaction values of "commodity"s mentioned above. In each price index, the transaction values of "all commodities" are the "transaction values for the index." The transaction values of the OWPI are the total transaction values of the DWPI, EPI and IPI.

7.3. Weights of "sample price"s within individual commodities

In principle, weights of "sample price"s (see section 8.**)** that comprise each "commodity" are equally allocated. However, different weights are assigned when the price fluctuations vary substantially among the "sample price"s within a commodity, due to differences in sales channels, uses, or sources of import, and the data for differential weight allocation are available. [3]

8. Price data

8.1. Basic principles of price survey

The WPI is compiled from "sample price"s surveyed monthly by mail. In conducting the survey, foremost consideration is given to the following points:

(a) The prices which reflect most sensitively the supply and demand condition of the commodity in concern should be chosen as "sample price"s.

[3] For instance, different weights are assigned to the "sample price"s of several "commodity"s in the group "iron & steel" where there are two distinctive sales channels; long-term sales channels for big users and spot sales channels for small users.

(b) The movement of “sample price”s must to be as genuine as possible in that they are not affected by changes in the commoditys’ quality or the conditions of contract.

8.2. Stage for price survey

In conducting the price survey for the DWPI, a single stage in distribution process is chosen for each commodity where transactions are most active and prices move sensitively in response to changes in supply and demand condition. To be more specific, the Bank of Japan (BOJ) employs the following method in the selection of stages to be surveyed for individual commodities:

(a) The selling prices of primary wholesalers are chosen for a commodity, if primary wholesalers play a critical role in matching supply and demand for the commodity using their own inventories as a buffer.

(b) The selling prices of producers are chosen for a commodity, if it is sold directly to retailers or to final users. This is also the case if wholesalers act as intermediaries but have little influence on price formation.

(c) When the prices of wholesalers and producers seem to equally reflect the supply and demand condition for a commodity, the former is chosen, in principle.

In the EPI, the prices of FOB (free on board) at the Japan port of exportation are surveyed in principle. In the IPI, those of CIF (cost, insurance, and freight) at the Japan port of importation are surveyed, in principle.

8.3. Point of time for survey

In principle, the prices are surveyed at the time of contract. If the prices cannot be surveyed at the time of contract, they are surveyed at the time of shipment or arrival.

8.4. Specification of price data

In specifying the “sample price”s, representative products are chosen for each commodity. For each product chosen, the company to be surveyed and the conditions of contract are fixed, and effective transaction price (in principle, adjusted for discounts, rebates, etc.) is continuously

surveyed. If the “sample price”s cannot be specified for practical reasons, adjustments are made to enable a survey.

8.5. Price survey

At the beginning of every month, correspondent companies are requested to send back the previous month’s survey form that records the representative prices of domestic, exported, and imported products in ten-day periods. Some of the “sample price”s, currently about ten percent of them, are surveyed every ten-day period by phone, in order to compile the preliminary “ten-day index.” A list of “commodity”s of which “sample price”s are surveyed every ten-days by phone, is available at the reports and statistics corner of the BOJ website (currently available only in Japanese).[4]

For each “sample price,” when there is no transaction or no replies from correspondent companies in a certain survey period, it is treated as unchanged.

For the products of which prices are contracted in foreign currencies in the EPI and IPI, 1) indexes in yen terms are compiled by yen-converted prices, 2) indexes in contracted currency terms are compiled by foreign currency prices.

For the conversion from foreign currency basis to yen basis, the ten-day average of spot exchange rates quoted by banks to customers; foreign currency buying rates for imports and selling rates for exports, prevailing in each corresponding survey period, are used.

This method of converting “contract currency basis” price data to “yen basis” was adopted from the January 2000 figures. Before then, the foreign exchange rate at the time of the latest contract for individual product was used for conversion.

8.6. Number of correspondent companies and “sample price”s

The number of “sample price”s in WPI is 4,810 (as of August 1999), or around three “sample price”s per commodity. The number of correspondent companies is 2,211, which is smaller than that of “sample price”s because some correspondent companies are asked to report the “sample price”s for two or more commodities.

	Commodities (a)	"Sample price"s (b)	(b)/(a)	Correspondent Companies
DWPI	971	3,367	3.47	1,340
EPI	209	606	2.90	386
IPI	247	837	3.38	485
OWPI	1,427	4,810	3.37	2,211

In the DWPI, correspondent companies are mainly those in the Tokyo area. However, for some of the groups in the index, such as in "Machinery & equipment," "Textile products," "Electric power, gas & water," and "Lumber & wood products," considerable part of the "sample price"s come from the outside of the Tokyo area.

8.7. Replacement of price data and quality adjustments

"Sample price"s are replaced without delay in the following cases: 1) when a product of which the price is surveyed ceases to be representative in the market, 2) when the condition of transaction change, and 3) when the surveyed company need to be changed. Upon replacing "sample price"s, price difference between the new product and the old will be adjusted as follows so that only the genuine price change, and not the price change attributed to quality change, will be reflected in the indexes.

(a) The new "sample price" is linked with the old one without adjustment (direct comparison), as long as the difference in quality between the two products is negligible.

(b) The new "sample price" is linked so as not to raise or lower the index (treated as no change), if the price difference between the two products is entirely attributed to quality.

(c) The new "sample price" is linked to reflect the price change unrelated to any quality change in the index, if the price difference between the two products is partly attributable to a change in quality. The index rises or falls.

If it is difficult to compare the difference in quality between the two products, the price index is treated as unchanged.

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[4] For the calculation of the ten-day index, see section 9.3.

The production cost method (which specifies the price difference corresponding to the quality difference on the assumption that the cost for the quality change equals the price difference due to its quality difference) is mainly used to specify the part of price difference that corresponds to the quality change out of the price difference between the new product and the old. From the 1990 base index, the hedonic regression method is incorporated to estimate the quality change of products such as personal computers, since its technological innovation is so rapid that the cost corresponding to the quality difference is very difficult to estimate by the production cost method. [5]

9. Index calculation

9.1. Index formula

The index formula is the Laspeyres formula (relative method), which is the weighted arithmetic mean based on the fixed value-based weights for the base period.

Laspeyres formula (relative method)

$$I_{t,0}^{L} = \frac{\sum p_{t,i} q_{0,i}}{\sum p_{0,i} q_{0,i}} = \sum \frac{p_{t,i}}{p_{0,i}} w_{0,i}$$

where:

$I_{t,0}^{\mathrm{L}}$ is the price index at current period t compared with base period 0, compiled using the Laspeyres formula,

$p_{t,i}$ is the price of element i at current period t,

$p_{0,i}$ is the price of element i at base period 0,

$w_{0,i}$ is the value-based weight of element i at base period 0,

$q_{0,i}$ is the quantity of element i at base period 0.

[5] The hedonic regression method is a technique for quantitatively estimating the price changes corresponding to the change of various characteristics in a product. It assumes that a part of the price difference is caused by the quality difference, which is estimated by the regression from the difference in the characteristics (such as main memory, clock speed, HDD, etc. for personal computers).

9.2. Calculation method

Monthly price indexes are compiled from monthly “sample price”s which are the simple arithmetic mean of three ten-day “sample price”s in the month. Details of the calculation are as follows. First, each “sample price” is converted into an index form by dividing the current period price by the base period price. Second, “commodity” by “commodity,” these “sample price” indexes are multiplied by their own weights and then are aggregated to give a weighted “commodity” index, which in turn is divided by the weights of the “commodity” to obtain a “commodity” level price index. This process is repeated to give higher-aggregated-level price indexes such as “commodity class,” “subgroup,” “group,” “major group,” and “all commodities.” Each index is accurate to the first decimal place.

The annual average index in terms of calendar or fiscal year is obtained by taking the simple arithmetic mean of monthly indexes.

No seasonal adjustment is undertaken for the indexes.

9.3. Ten-day index

Prior to the monthly survey, “sample price”s with relatively large intra-month fluctuations (e.g., some in Iron & steel, Chemicals, and Nonferrous metals etc.) are selected and surveyed every ten days by phone as explained in section 8.5. Based on these data, “ten-day index” is compiled for selected groups and released. In the index, the non-surveyed “sample price”s are treated as unchanged. Currency conversion rate for the IPI is that of the corresponding survey period (ten days) as explained in section 8.5.[6] Users are advised to pay special attention to the nature of the ten-day index. It is a preliminary index in that the prices not surveyed by phone are treated as unchanged, and therefore, is replaced and revised retrospectively upon compiling the monthly index.

9.4. Wholesale Price Index using geometric mean formula

The Laspeyres formula, on which the WPI is based, has the virtue of being simple, clear and easy to

[6] EPI is not compiled for the ten-day index, because there is no “sample price” surveyed every ten days in the index.

compile. Hence, this method is widely used in compiling indexes, including the WPI. However, users should be well aware that actual outcome of the indexes differ depending on what type of index formula is used, and there are distinctive effects on the indexes intrinsic to each formula.

The Laspeyres formula has the characteristics of 1) when a component index continuously moves away from the overall index, the influence of its movement on the overall indexes are either overstated (when the component moved upward) or understated (when it moved downward), 2) when a sizable switch of demand occurred among substitutable commodities, the index will not reflect this change in weights until the next revision of base year.

In order to provide some information on the difference of actual indexes caused by obtaining different types of index formulae, "WPI using geometric mean formula (WPI-UGM)" is compiled and disclosed as a reference index.

The WPI-UGM adopts the geometric mean formula at the layer "commodity class" and its below, in view of the substitutional effect at these levels.

Geometric mean formula

$$I^{G}_{t,0} = \prod (p_{t,i} / p_{0,i})^{w_{0,i}}$$

10. Publication

10.1. Publication schedule and publication media

The WPI is released on a paper basis and through the BOJ website (http://www.boj.or.jp/en/index.htm) according to the following schedule:

Ten-day index

On the fifth working day of the following ten-day period, in principle.

Monthly index

On the sixth working day of the following month, in principle.

Annual average index (calendar or fiscal year)

The day when the index of the last month of the year (December or March) is released, in principle.

The publication schedule for the next six months is available on the BOJ website and is updated at the middle or end of March, June, September and December. The schedules released in these months are from April to September, July to December, October to March, and January to June, respectively. The publication schedule for the next four weeks is also available on the BOJ website. They are updated every Friday. All release schedules are available at the release schedule corner of the BOJ website.

Most of the index series are available at the download corner of the BOJ website and also presented in the *Price Indexes Monthly* (published at the middle of every month), the *Economic and Financial Data on CD-ROM* (published every spring) and the *Bank of Japan Financial and Economic Data* on CD-ROM (published every spring). Major index series are presented in the *Financial and Economic Statistics Monthly* (published at the end of every month). [7]

Public Information Division, Public Relations Department, Bank of Japan will answer inquiries about index figures (Tel: +81-3-3279-1111 ext. 4641). Price Statistics Division, Research and Statistics Department, Bank of Japan will answer inquiries about index compilation (Tel: +81-3-3279-1111 ext. 4060). Answers to "Frequently Asked Questions (FAQ)" are provided on the BOJ website (currently only in Japanese).

10.2. Retroactive revision of published indexes

If an error in its price data is discovered after the index publication, the relevant part of the WPI will be recalculated according to the following rules:

(a) If the impact of the error is large enough to cause an index level change of "all commodities" for DWPI, EPI, or IPI, the relevant indexes will be recalculated as soon as possible. The published indexes of the WPI, not only those for the latest month but also those for the

[7] The *Bank of Japan Financial and Economic Data* on CD-ROM is published by Diamond, Inc. (Tel: +81-3-5778-7242), and the other publications are published by Tokiwa Sohgoh Service Co., Ltd. (Tel: +81-3-3270-5713).

preceding months, may be revised, in these cases. The announcement of the revision will be distributed to the press and also be posted on the reports and statistics corner of the BOJ website.

(b) If the impact of the error does not meet the above criteria, but substantially changes some of the indexes at "commodity," "commodity class," "subgroup," "group" or "major group" level so that it may hinder users' analyses, the relevant indexes will be revised.

(c) In exceptional cases, where a revision is required but impossible to conduct due to computing system limitations, or other reasons, the pertinent facts will be released.

(d) The "ten-day index" will not be revised in principle, due to its nature as a preliminary index.

BOJ is now planning to introduce a more flexible retroactive revision rule to improve the accuracy of the indexes. The details of the revision, including the timing, interval, and method, will be announced as soon as they are decided.

11. Linked index

The linked index is compiled to provide continuous long-term index series: (a) In the 1995 base linked index, the indexes prior to the base year are converted to yield a continuous time series on the latest base. (b) In the prewar base OWPI, the index on the 1995 base is converted into the prewar base to yield a continuous time series on the prewar base.

11.1. 1995 base linked index

The 1995 base linked index is available from January 1960 for "group" and upper classification levels of "group" in the basic grouping and the corresponding classes in the special grouping.

The linked indexes are calculated by multiplying each monthly index with link coefficients derived from the latest (1995 base) and the former (1990 base) indexes. The annual averages of the linked indexes in terms of calendar and fiscal year are obtained by taking simple arithmetic means of the monthly indexes.

The calculation formula for the 1995 linked index is as follows:

$$\text{1995 base linked index} = \text{1990 base index} \times \frac{\text{(link coefficient)}}{\dfrac{\text{annual average index in 1995 on a 1995 base (= 100)}}{\text{annual average index in 1995 on a 1990 base}}}$$

In compiling the linked index, the classification in the basic grouping or special grouping of the former index is rearranged to be consistent with the 1995 base index (the selected commodities and weights, however, are not rearranged.

11.2. Prewar base OWPI

The prewar base OWPI (base period and its index level: 1934-1936 average = 1, the data series begin from October 1900) from January 1995 and after, is compiled by rearranging the basic grouping and the special grouping of the 1995 base index to be consistent with the prewar base index classification (which consists of 12 categories at the class of “group” in the basic grouping and five categories in the special grouping by use).

The monthly prewar base index is calculated by using the link coefficient between the prewar base index and the 1995 base index. The annual averages of the prewar base indexes in terms of calendar and fiscal year are obtained by taking simple arithmetic means of the monthly indexes.

The calculation formula for the prewar base index is as follows:

$$\text{prewar base index} = \text{1995 base index} \times \frac{\text{(link coefficient)}}{\dfrac{\text{annual average index in 1995 on prewar base}}{\text{annual average index in 1995 on a 1995 base (= 100)}}}$$

Notes: Major changes in the 1995 base index

The base year for the index and weight calculation has been updated from 1990 to 1995. In addition, the number of commodities covered by the index has been increased to enhance the accuracy of the index. Its grouping has also been revised.

1. Grouping

1.1. Abolition of the "Index for special grouping by industry" in the EPI and the IPI.

The data of "Index for special grouping by industry" in the EPI and the IPI have been dropped from the *Price Indexes Monthly* and *Price Indexes Annual* since the previous (1990 base) index revision, owing to the decrease in needs. The indexes were abolished in this 1995 base index revision, because inquiries regarding these indexes have been notably few even after their publication through regular statistical bulletins had been stopped.

1.2. Change in the name of group

The former group "Metals" in the IPI has been changed to "Metals & related products" in response to the expansion of commodities selected (metal products were newly selected).

2. Selection of commodities

In the EPI and the IPI, the commodities have been reviewed and expanded to reflect the structural changes of exports and imports in recent years. In the IPI, in particular, the expansion has been focused on the commodities of textile products and household electrical appliances.