
Bank of Japan

Research and Statistics Department

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Outline of the Services Producer Price Index (SPPI, 2010 base)

1. Purpose and Application

The Services Producer Price Index (SPPI), previously called the Corporate Services Price Index (CSPI), measures movements in prices of service products traded in the corporate sector. The purpose of the index is to facilitate a better understanding of supply/demand conditions for individual service products, as well as to provide materials for assessing the state of the economy and making decisions on monetary policy. The SPPI is also used as a deflator in calculating real values—i.e., in removing price factors from fluctuations in nominal values—such as in the estimation of the *National Accounts* (Cabinet Office), and cited as a reference for price-setting activities.

2. Coverage

The SPPI covers service products that are provided by businesses to other businesses and to the central and local governments in Japan. Although service products provided to individuals are beyond the scope of the SPPI, the index covers some service products (such as postal services and telecommunications services) that are provided to both individuals and businesses. The 2010 SPPI covers around half of all service transactions among businesses in Japan and does not cover some service products such as financial intermediation, wholesale services, and retail services.

3. Structure, Classification and Weights

The SPPI is composed of the Basic grouping index and the Reference indexes.

< Basic Grouping Index >

The Basic grouping index covers domestic service products traded among businesses. The Basic grouping index is subdivided into 7 Major groups, 22 Groups, 57 Subgroups, and 147 Items. An Item corresponds to an elementary aggregate. The weight assigned to each Item is based on the value of domestic transactions among businesses for that Item during the base year 2010. These weights have been derived mainly from values reported in the "*Updated Input-Output Tables*" (Ministry of Economy, Trade and Industry). The Basic grouping index includes the consumption tax and transactions contracted in foreign currencies are converted into yen terms. For reference purposes, the Bank of Japan also publishes "All items (excluding International transportation)" and "Contract currency basis" expressed in the original currency.

< Reference Indexes >

The Reference indexes are compiled and published to meet users' needs.

(a) Items used for calculating the Basic grouping index

(a-1) Leasing

This index is compiled by using the lease rate data surveyed in the Basic grouping index. The index does not include the consumption tax.

(a-2) Building maintenance and Security services

These indexes are compiled by rearranging the sample prices of "Building cleaning services," "Facility management services," and "Security services (except Alarm monitoring services)" by type of customer (private sector or public sector). The indexes include the consumption tax.

(b) Services Export Price Index (SEPI) and Services Import Price Index (SIPI)

Prices of service exports from Japan are surveyed for the SEPI, while those of service imports to Japan are surveyed for the SIPI. The indexes are published on both a yen basis and a contract currency basis. The indexes do not include the consumption tax.

(c) Services Producer Price Index excluding Consumption Tax

This index is compiled using prices excluding the consumption tax. The structure, classification and weights are identical to those of the Basic grouping index (except [Reference] Contract currency basis).

4. Base Year for Index and Weight Calculation

The calendar year 2010 is used as the base year for both the indexes and weight calculation.

5. Criteria for the Selection of Subgroups and Items

In principle, service products provided to businesses and governments with transaction values exceeding 500 billion yen are selected as Subgroups. Selection of Items for each Subgroup depends on whether sufficient information for calculating weights is available and whether the sample prices can be collected continuously under specified transaction terms.

6. Sample Prices

< Basic Principles of Price Survey >

Surveyed prices and service product information, which are referred to as sample prices, are used to compile the Item indexes. At least three sample prices from multiple respondents are surveyed for each Item. Every month, respondents are asked to report prices for the previous month, specifically prices at the time of delivery to the customer. When the transactions are denominated in foreign currencies, reported prices are converted into their yen equivalents using the monthly average spot exchange rate.

< Pricing methods >

Direct use of prices of repeated transactions is the basic pricing method for the SPPI. In cases where the direct use of prices of repeated transactions does not provide an accurate reflection of actual price behavior, the following methods are also used.

(a) List price method

List prices, such as standard prices or recommended prices with fixed services or contract conditions, are surveyed if such prices are thought to reflect actual transaction prices in the market.

(b) Unit value method

Average prices, i.e., the total value of transactions divided by the total number of transactions for a given group of products, are surveyed if averaging does not significantly compromise the principles stated above.

(c) Model pricing method

The model pricing method is used to survey prices of service products with price discrimination and custom-made service products which are not traded repeatedly. For service products with price discrimination, the Bank assumes that customers are offered different price menus depending on their

types, and then surveys the weighted average of the set of lowest prices by type of customer. For custom-made service products which are not traded repeatedly, the Bank surveys prices of service products that have been "normalized" in terms of quality, contract conditions, and transaction partners.

(d) Pricing based on working time method

Prices of service products per unit of labor input are surveyed in cases where the quality of the service product is proportional to the quantity of labor input.

(e) Percentage fee method

Where surveyed prices take the form of commission rates such as for financial services or leasing services, the gross growth rate of the price, defined as the multiple of the gross growth rate of the commission rate and the gross growth rate of some appropriate price index (inflater), is surveyed.

< Treatment of Missing Prices >

If no price report is received for a particular month, the sample price is assumed to remain unchanged from the previous month. When the prices are contracted in foreign currencies, prices for the previous month in their original currencies are used and converted into yen terms. Such sample prices therefore reflects changes in foreign exchange rates.

< Adoption of Prices from Other Statistics and Databases >

For some Items such as "Marine freight transportation" and "Civil engineering and architectural services," prices collected from other statistics and databases considered to be reliable and accurate are adopted as sample prices.

< Sample price replacement and quality adjustment methods >

The relevant sample price is replaced immediately when (1) a service product ceases to be representative of the market for the service in question, (2) there is a change in contract terms, or (3) it becomes necessary to replace the reporting company for some reason. When replacing a sample price, the Bank tries to adjust for any differences between the old and new sample prices using one of the following quality adjustment methods so that the index reflects pure price changes.

Method	Description
Direct comparison method	The reported price differences between the old and new products reflect pure price changes.
Unit price comparison method	The quality of products is assumed to be proportional to the quantity of products, and prices are measured per unit of size, weight, or number.
Overlap method	The price differences between the old and new products are assumed to represent pure quality differences when both services are available simultaneously for a certain period of time and when the relative prices of the two products are stable.
Production cost method	The changes in production costs are assumed to reflect quality differences. For this method, we ask respondents to provide data which include information on the difference in production costs between the old and new products.
Hedonic regression method	The functional relationship between the characteristics and prices of products in the market is estimated to measure the value of the change in product quality. The pure price change can be obtained by subtracting this value from the reported price change.

7. Index Formula

The index formula is the fix-weighted Laspeyres formula. The prices of each service are converted into index values at every period and a weighted arithmetic mean based on the fixed value-based weights for the base year is adopted for the index calculation:

$$\text{Fix-weighted Laspeyres formula: } P_{0,t}^L = \frac{\sum p_{t,i} q_{0,i}}{\sum p_{0,i} q_{0,i}} = \sum \frac{p_{t,i}}{p_{0,i}} w_{0,i}$$

$P_{0,t}^L$: price index in period t relative to base period 0, compiled using the fix-weighted Laspeyres formula

$p_{t,i}$: price of service i in period t

$p_{0,i}$: price of service i in base period 0

$w_{0,i}$: value-based weight of service i relative to the total value of services, fixed in base period 0

$q_{0,i}$: quantity of service i in base period 0

The index for Item, which is the lowest level within an index structure, is compiled by the weighted arithmetic mean of the relative Sample price index, i.e., the ratio of the current period price to the base period price, using relative weight within the Item. Similarly, the index of upper classification levels (Subgroup, Group, Major group, All items) is compiled, like the Item index, using Laspeyres formula and appropriate relative weight.

8. Publication

In principle, preliminary figures are released on the eighteenth business day of the month following the survey month. The release date may be brought forward a few business days when the number of business days in the month is limited. Revised figures are released together with the next month's preliminary figure indexes; revised data are marked with the symbol "r."

Each index for an Item is, in principle, compiled using at least three sample prices reported by multiple companies unless special approvals are obtained from all the reporting companies involved. Also, the Bank may terminate the publication of an index or indexes for specified services, marking the indexes with the symbol "x," where necessary to protect the confidentiality of reporting companies.

Scheduled retroactive revisions are made to the released indexes twice a year (in March and September, at the time of the release of preliminary figures for the February and August indexes). Scheduled retroactive revisions cover, in principle, the most recent eighteen months' worth of indexes. When contract terms last for several months, and when prices are determined only after the contract has been fulfilled, the final prices are initially considered "missing." These missing prices are replaced with the final prices upon making the periodic revisions. Some figures such as "Cellular phone services and PHS services," "Mobile data communications services," and "Custom software" are susceptible to the revisions.

In addition to the scheduled retroactive revisions, unscheduled revisions are conducted when a change in the figures that has a significant impact on the overall index—for example, resulting in changes at the index level of All items—becomes apparent after the release; the indexes are then revised as soon as possible.

9. The 2010 Base Linked Indexes

The 2010 Base Linked Indexes offer a retroactively compiled time series of indexes for all levels of aggregation in the Basic grouping index, going back as far as January 1985. Reference indexes are also compiled for January 2000 onwards for "All items," "All items (excluding International transportation)," and "International transportation" in the Services Producer Price Index excluding Consumption Tax.