

# **Explanation of the 1995 Base Corporate Service Price Index**

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Also refer to “Revision of the Corporate Service Price Index (CSPI) to 1995 base” released on December 7, 1999 (see the Bank of Japan <BOJ> homepage <<http://www.boj.or.jp/en/index.htm>>), for the explanation of the revision to the 1995 base Corporate Service Price Index (CSPI).

## 1. Purpose and use

The Corporate Service Price Index (CSPI) focuses on the prices of services traded among corporations (see Appendix 1(a) “Relations among price indexes (concept)”). The CSPI can be regarded as a counterpart of the Wholesale Price Index (WPI), which focuses on the prices of goods traded among corporations. The main purpose of the index is to investigate price movements that reflect the supply and demand conditions vividly in the services market, with a view to facilitating the analysis of macro economic conditions. The indexes of less-aggregated-levels such as “items” also have a role as a “deflator” that transforms nominal output values into real quantities.

## 2. Structure

The CSPI has one index series, which covers both domestic and import services transactions.<sup>1</sup> These services transactions are not indexed separately, because the value of domestic services transactions accounts for most of the value of total services transactions (i.e., the sum of the values of domestic, export and import services transactions).<sup>2</sup> This contrasts with the WPI, which covers different products respectively and is composed of four series of indexes (Domestic Wholesale Price Index, Export Price Index, Import Price Index and Overall Wholesale Price Index, which is a weighted average of these three indexes). The aggregated index series for exports are not calculated, because of the following reasons:<sup>3</sup>

(a) The value of export services transactions is minimal.

(b) There is no special need for aggregated index series for exports, because export services

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<sup>1</sup> “Domestic services transactions” means the trade among corporations established in Japan. “Import services transactions” means the trade between corporations established in foreign countries and those in Japan when the suppliers of the services are the corporations established in foreign countries. In reverse, “export services transactions” means the trade between corporations established in Japan and those in foreign countries when the suppliers of the services are corporations established in Japan. According to the above definitions, the goods transportation services for imports from foreign countries to Japan are defined as “domestic services transactions,” as long as the services are traded among corporations established in Japan.

<sup>2</sup> According to the *Input-Output Tables (I-O Tables)* published by the Management and Coordination Agency, the value of exports is 8,787.5 billion yen, and that of imports is 8,215.5 billion yen in 1995. The respective ratios of the exports and imports to the transaction values of domestic services (481,004.5 billion yen) are only 1.8% and 1.7%. The services which have large transaction values in exports and imports are “ocean transportation” and “international air transportation.”

<sup>3</sup> However, some prices of export services are surveyed and indexed as “reference index” for analytical reference (see section 4. “Classification”).

transactions have little impact directly on the supply and demand conditions of individual services in Japan.

The CSPI includes the excise tax.

### 3. Coverage

The CSPI covers services provided for corporations.<sup>4 5 6</sup> There are some items (postal services, telecommunications services, etc.) employed both in the CSPI and the CPI (Consumer Price Index) published by the Management and Coordination Agency, because they are demanded not only by consumers but also by corporations.

In practice, certain services are excluded from the weight calculation, even though their transaction values are available:

- (a) Services whose prices are difficult to survey continuously and whose weights should not be imputed to other services selected in the index because of the absence of similar services in terms of characteristics or price developments. (financial services <imputed interest>, wholesale and retail trade, education and research, medical services and health and social

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<sup>4</sup> Generally speaking, services are provided directly from suppliers (producers) to users, so the services traded among corporations, which are the focus of the CSPI, are equal to those provided for (or demanded by) corporations. This distribution system of services contrasts with that of goods. As an exceptional case, for example, passenger transportation services are traded in tickets. These are traded among corporations (from passenger transportation corporations to travel agencies) and some of these are finally sold to consumers by travel agencies. This distribution pattern is the same as that for goods. However, in fact, travel agencies do not provide “passenger transportation services” to users, but rather “sales on commission” for passenger transportation services. The “passenger transportation services” themselves are provided directly from suppliers (passenger transportation corporations) to users (consumers), so the CSPI does not cover these kind of services.

<sup>5</sup> On the other hand, goods (especially, final consumption goods) are often provided indirectly from producers (suppliers) to users. Wholesale or retail traders exist to carry out intermediate transactions between producers (suppliers) and users. Therefore, the WPI covers the final consumption goods traded among corporations.

<sup>6</sup> The coverage of the CSPI almost corresponds to the transaction values of total intermediate sectors in the output table of the “Transaction Tables (according to the Basic Sector Classification)” in the *I-O Tables* (see Appendix 1(b) Coverage of each price index). Additionally, some transaction values are adopted for filling up the coverage of the CSPI by using different parts of the *I-O Tables* or other statistics. For example, some of the transaction values counted in the “gross domestic fixed capital formation” in the final demand sector of the *I-O Tables* are adopted, when they are recognized as transaction values among corporations (for details, see column 7.1 “Weights calculation”). The transaction value of “made-to-order software development,” which is counted in the final demand sector of the *I-O Tables*, is incorporated into the CSPI as a part of “software development.”

security, public administration, etc.)<sup>7</sup>

(b) Services whose contents are unsuitable for inclusion in the index as individual services (transport by private cars <passengers>).<sup>8</sup>

The share of the excluded services amounts to about 40% of the total calculable transaction values. As a matter of practice, the remaining calculable transaction values are called the “transaction values for the index.”<sup>9</sup>

The amounts of transaction values, such as the “transaction values for the index,” calculated mainly from the *Input-Output Tables (I-O Tables) in 1995* published by the Management and Coordination Agency, are as follows:

<Amounts of transaction values in 1995>				
Total calculable transaction values of services (A)	Transaction values for the index (B)	Non transaction values for the index (C)	B/A	C/A
192,501.1 billion yen	110,807.7 billion yen	81,693.4 billion yen	57.6%	42.4%

#### 4. Classification

The CSPI has two grouping systems: “basic grouping” and supplementary “reference index.”

##### 4.1 Basic grouping

The “basic grouping” has four strata: “major group,” “group,” “subgroup” and “item.” Excepting “item,” each stratum corresponds to “major group,” “minor group” and “basic sector” of the *I-O Tables* respectively. In each stratum, the classification of the *I-O Tables* is rearranged for the CSPI classification if necessary. “Major group” has eight categories (“finance and insurance,” “real estate services,” “transportation,” “information services,” “communications and broadcasting,”

<sup>7</sup> When there are some services selected in the index whose characteristics or price developments are similar to unselected services, the transaction values of the unselected services are added or imputed to those of the closest services (see column 7.2 “Treatment of unselected services”).

<sup>8</sup> The transaction values of the self-activities sector, such as “transport by private cars (passengers)” and “transport by private cars (freight)” are excluded from the CSPI because they are transaction values traded inside corporations. The CSPI covers only transaction values among corporations.

<sup>9</sup> Although the shares of the transaction values of “financial services (imputed interest)” and “wholesale and retail trade” are 11% and 19% respectively of the “total calculable transaction values of services” in 1995, these services are excluded from the CSPI. It is too difficult to continuously collect reliable “price data” of a fixed quality for these items. This is the main reason the CSPI only covers about 60% of the “total calculable transaction values,” while the WPI covers about 90%.

“advertising services,” “leasing and rental,” “miscellaneous services”), “group” has 17 and “subgroup” has 39.

## 4.2 Reference index

The CSPI has a “reference index” group to supplement the “basic grouping.” The “reference index” is calculated for additional analytical use. It has two series: “items included in indexes for basic grouping” and “items not included in indexes for basic grouping.”<sup>10</sup>

### (a) Items included in indexes for basic grouping

There are two types of indexes in this category. The first are indexes whose categories correspond to the “items” of “basic grouping.” These indexes are calculated by using original data, which are not adequate for “price data” themselves but are included in the “items” of “basic grouping” in modified form. (“trust business services <commission rates>” “underwriting services <commission rates>,” etc.)<sup>11</sup> The second are indexes compiled by subdividing “items” in the “basic grouping” (“office space rental <by area>,” “industrial waste disposal <by type>”).

### (b) Items not included in indexes for basic grouping

In this category, the indexes which are not included in the “items” of “basic grouping” are calculated (“export freight transportation <yen basis>”).

## 5. Base year and year for calculation of weights

The base year for the indexes and weight calculation is 1995.

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<sup>10</sup> For details, see Appendix 2 “Corporate Service Price Index Groupings, Items and Weights” and Appendix 3 “Grouping Correspondence between the *I-O Tables* and the CSPI (1995 base).”

<sup>11</sup> For some items such as “trust business services,” service prices are determined based on “commission rates.” As commission rates are percentages and cannot be regarded as “prices” to be compiled in price indexes, they are converted to a “price” basis through multiplying the rates by the appropriate price index. This price is adopted as “price data” for the CSPI and the corresponding price index is called an “inlator.”

## 6. Selection of items

### 6.1 Selection procedure

In the CSPI, “items” are selected to secure sufficient coverage for the “transaction values for the index” (see section 3. “Coverage”) in the base year of 1995. Basically, the selection procedure of “items” is as follows:

- (a) First, the services in “basic sectors” of the *I-O Tables* whose transaction values are no less than 500 billion yen (about 0.5% of the “transaction values for the index” in the base year of 1995) are selected as “subgroups.”
- (b) Second, in each “subgroup,” individual services whose value data for calculating index weights are available and for which adequate “price data” can be collected continuously are selected as “items.”

As explained above, there are no common criteria such as a minimum level of transaction values for selecting “items” in the CSPI, in contrast to the WPI (e.g., for the Domestic Wholesale Price Index, only commodities with transaction values no less than 1/10,000 of the “transaction values for the index” are selected as “items”). This is because of the absence of comprehensive value data at the “item” level equivalent to that in the *Census of manufactures* published by the Ministry of International Trade and Industry, on which the Domestic Wholesale Price Index are based.<sup>12</sup>

### 6.2 Exceptional selection of items

Some services whose transaction values are less than the “subgroup” criteria are selected and the “items” are employed when they are likely to satisfy the above-mentioned criteria in the near future or are considered to be essential for the balance of the grouping system.

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<sup>12</sup> For the total intermediate sectors in the *I-O Tables*, the “basic sector” (basically corresponding to the “subgroup” stratum of the CSPI) is the smallest division.

<Examples of exceptional treatment>

Subgroups marked with an asterisk are employed exceptionally, even though their transaction values do not meet the minimum selection criteria of 500 billion yen.

Major group	Group	Subgroup	Reasons for exceptional adoption of subgroup
Transportation	Overland freight transportation	*Railroad freight transportation Road freight transportation	In consideration of the balance with “road freight transportation.”
	Marine freight transportation	Ocean freight transportation Coastal and inland waterways freight transportation Marine cargo handling	-----
	Air freight transportation	*International air freight transportation *Domestic air freight transportation	At the group level, in consideration of the balance with “overland freight transportation” and “marine freight transportation.” At the subgroup level, in consideration of the division between international and domestic services.

On the other hand, in the following cases, services are excluded even though their transaction values exceed the minimum selection criteria (= “unselected services”):<sup>13</sup>

- (a) Services for which fixed-quality prices are difficult to measure continuously.
- (b) Services for which prices are difficult to obtain from different corporations.

### 6.3 Number of items

The number of “items” in the CSPI with the base year of 1995 is 102 (for details, see Appendix 2 “Corporate Service Price Index Groupings, Items and Weights”).

## 7. Weights

### 7.1 Weights calculation

The weights of “items” for compiling the “basic grouping” of the CSPI are expressed as one-thousandths of the “transaction values for the index” down to the first decimal place. The procedure for calculating weights of “items” is as follows:

- (a) As the transaction values of “subgroups” of the CSPI, the transaction values of total intermediate sectors in the *I-O Tables* of corresponding services are adopted.

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<sup>13</sup> For the treatment of “unselected services” in the process of weight calculation refer to column 7.2.

- (b) The transaction values of “subgroups” are divided into those of “items” according to the data such as the “Table on Domestic Products by Sector and Commodity” in the *I-O Tables* or other statistics (in principle, all value-based data).<sup>14</sup>
- (c) The transaction values of “unselected services” (see column 7.2 “Treatment of unselected services”) are added to a similar “item” or imputed to all “items” which belong to a similar category of “subgroup,” “group” or “major group.”
- (d) The transaction values of “items,” after adjustment (c), are expressed as one-thousandths of the “transaction values for the index.”

Some transaction values, which are recognized for the CSPI coverage are added to the transaction values of total intermediate sectors of the *I-O Tables*. For example, the transaction values of made-to-order software development and freight transportation services for capital goods are included in the CSPI.<sup>15 16</sup>

## 7.2 Treatment of unselected services

Services which are part of the “transaction values for the index,” but are not selected as “items” because of a lack of sufficient transaction values or because of difficulty in implementations continuous price surveys, are called “unselected services.” The weights of “unselected services” are handled as follows:

- (a) If the attributes and price fluctuations of “unselected services” resemble those of selected services as “items” in the CSPI, the “unselected services” are classified as “similar services.” Each transaction value is simply added to the corresponding “item” in the process of weight calculation.
- (b) Otherwise, the “unselected services” are classified as “others” and their transaction values are added to those of all “items” belonging to the closest “subgroup,” “group” or “major group.” In this case, the transaction values of individual “items” (after adjustment (a)) in “subgroup,” “group” or “major group” are increased in proportion to their shares. This procedure is called

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<sup>14</sup> For example, for the items belonging to the major group “leasing and rental,” the “Table on Domestic Products by Sector and Commodity” of the *I-O Tables* and the *Report on the Survey of Selected Service Industries, Goods Rental and Leasing* published by the Ministry of International Trade and Industry are used.

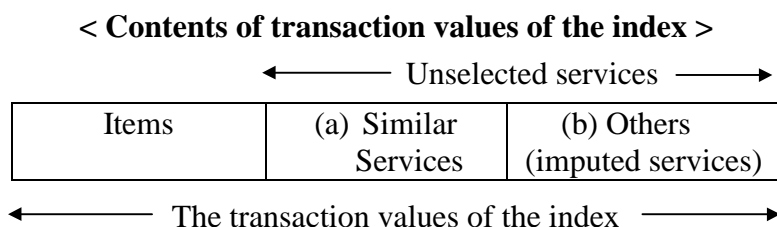
<sup>15</sup> The sector for counting made-to-order software development has changed from the 1995 *I-O Tables*. The current sector is “gross domestic fixed capital formation” in the final demand sectors, while the former was in the intermediate sector. Although the sector has been changed in the *I-O Tables*, this service is adopted in the CSPI because it is for corporations.

<sup>16</sup> In the *I-O Tables*, the transaction values of the freight transportation services for capital goods are counted in “gross domestic fixed capital formation” in the final demand sectors. These services are adopted in the CSPI, also because they are for corporations.



“imputation.”

The transaction values of “subgroup,” “group,” and “major group” are calculated by aggregating the transaction values of “items” mentioned above. The transaction values of “all items” are equal to the “transaction values of the index” as described in section 3. “Coverage.”



**< Contents of transaction values of the 1995 base index >**

	Transaction values of the index (A) (billion yen)	Values of Items (B) (billion yen)	(B/A) (%)	Values of Similar services (C) (billion yen)	(C/A) (%)	(B+C/A) (%)	Values of Others (D) (billion yen)	(D/A) (%)
CSPI	110,807.7	96,940.5	87.5	76.9	0.1	87.6	13,790.3	12.4

Most of the “unselected services” are treated as “others (imputed services)” as mentioned above. Around half the transaction values of “others (imputed services)” are the remaining part of the “other business services” and “personal services” in the *I-O Tables*, after eliminating the transaction values of “items” in the CSPI.

In the 1990 base CSPI, the remaining part of transaction values in “other business services” and “personal services” were imputed to the “items” in the major groups “miscellaneous services” and “leasing and rental” to maintain the continuity of weight calculations in the 1985 base CSPI. In the 1995 base CSPI, however, those are imputed only to the “items” in the major group “miscellaneous services,” because the characteristics of services in the major group “leasing and rental” are considered as different from those of “other business services” and “personal services.”<sup>17 18</sup>

<sup>17</sup> In the 1990 revision, the major group “miscellaneous services” was divided into “leasing and rental” and “miscellaneous services,” while the imputation procedure for “other business services” and “personal services” remained unchanged from the 1985 base. In the 1985 base CSPI, “other business services” and “personal services” were imputed to the “items” belonging to the original major group “miscellaneous services.” More accurately, in the 1990 base CSPI, the transaction values of the group “industrial waste and sewage disposal” and the group “motor vehicle and machinery maintenance” are excluded from the major group “miscellaneous services” for the imputation. In the 1995 base CSPI, all the transaction values of the major group “miscellaneous services” are used for the imputation.

<sup>18</sup> The weight of the major group “leasing and rental” of the 1995 base CSPI declined 43.2 points (while “Miscellaneous services” increased 38.0 points). The change of the imputation procedure caused 22.2 points out of the entire decrease (increase).

### 7.3 Weights of price data

In principle, the weights of the “price data” (see section 8. “Price data”) that comprise the same “item” are equally allocated. However, different weights are assigned for the “price data” when their price fluctuations are distinct due to the different characteristics or services suppliers, and data for weight allocation are available from the official or industrial organizations’ statistics (in principle, all value-based data).<sup>19</sup>

As for the “reference index,” the weights of “basic grouping” are applied to those of “items included in indexes for basic grouping” and those of “items not included in indexes for basic grouping” are equally allocated.

### 7.4 Change of weights for “price data”

The weights for “items” are not changed, because the index formula of the CSPI is the Laspeyres formula (a relative method) which is the weighted arithmetic mean based on the fixed value-based weights for the base period (see column 9.1 “Index formula”). But the allocation of weights for “price data” comprising an “item” are changed in the following cases:

- (a) When the number of “price data” in a particular “item” is changed by replacement of “price data.”
- (b) When the share of the services employed in the “item” fluctuate to the extent that the allocation of weights for “price data” should be updated to enhance the accuracy of the index.<sup>20</sup>

## 8. Price data

### 8.1 Basic principles of price survey

“Price data” for compiling the CSPI are surveyed monthly by mail. For the collection of “price data,” the following two points are emphasized:

- (a) Prices reflecting the supply and demand conditions in the services transactions for the “items”

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<sup>19</sup> For example, for many “items” in the major group “communications and broadcasting,” different weights are assigned for the “price data” by using the annual reports published by telecommunications corporations and official statistics published by the Ministry of Posts and Telecommunications (MPT).

<sup>20</sup> For example, some “items” in the major group “communications and broadcasting” are reviewed periodically, because the shares of the services in each “item” are drastically changing.

should be chosen.

- (b) Genuine price movements should be captured by specifying the quality and the contract conditions.

## 8.2 Stage of survey

In principle, “price data” are reported by suppliers (producers), because most of the services are provided directly to users (there are few intermediate transactions between producers and users, such as transactions conducted by primary or secondary wholesalers). The distribution processes for services are different from those for goods.

## 8.3 Surveyed point of time

In principle, the surveyed point of time is the time of contract. The prices of some services, for which the contract terms are one year or a quarter year, are impossible to survey on a real time basis because of the following reasons:

- (a) Due to prolonged price negotiations between suppliers and users, the prices are determined after the beginning of the contracts and applied retroactively.
- (b) The “price data” are received after the index is published because of the data collection limitations of the corporations.

In the above cases, the “price data” are reflected in the CSPI when they are revealed. For the present, retroactive index revisions are not carried out for the CSPI.<sup>21</sup>

## 8.4 Design of price data

As “price data,” representative services are selected for each “item.” Both the correspondent corporations and the contract conditions are fixed. Actual transaction prices (in principle, adjusted for discounts, rebates, etc.) are continuously surveyed. If the “price data” cannot be collected according to the above principle, alternative measures are taken as follows:

- (a) The average price of all contracts is surveyed within the bounds of ensuring fixed quality when it is difficult to select a representative service for the “price data.” (“motor vehicle

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<sup>21</sup> The Bank of Japan (BOJ) is now planning to develop more flexible retroactive revisions, so as to improve the accuracy of the indexes. After the preparation of the revision procedure and the system maintenance are completed, the index will be revised in the above cases (see column10.2 “Index revision”).

maintenance,”<sup>22</sup> “temporary employment services,”<sup>23</sup> etc.)

- (b) Commission rates, which cannot be regarded as prices themselves, are surveyed and modified into prices through multiplying the rates by adequate price indexes (which are called “inflators”) and put into the CSPI as “price data.” (“fire insurance,” “underwriting services,” “leasing of computers and related equipment,” etc.)
- (c) Unit prices per person, which follow the concept of wages, are surveyed instead of prices for the services. (“software development”, etc.)
- (d) List prices and discount rates are surveyed separately, and compounded together in order to reflect the actual price movements. (“domestic fixed telephone services,” “cellular phone services,” etc.)<sup>24</sup>
- (e) List prices are surveyed. (“remittance services,” “domestic air passenger transportation,” etc.)

## 8.5 Price survey

In the middle of every month, correspondent corporations are requested to send back the previous month’s survey that records the representative prices for the month. When the prices are contracted in foreign currencies, (a) in compiling indexes in yen terms, contracted currency prices are converted to a yen basis using the monthly average spot exchange rates (foreign currencies buying rates for exports and domestic transactions and selling rates for imports) quoted by banks to customers, and (b) contracted currency prices are used for indexing in contract currency terms (the weights of “items” are the same as those for the index in yen terms).<sup>25 26</sup>

If there are no transactions or no replies from correspondent corporations in a certain survey period, the “price data” is treated as unchanged (no fluctuation of the index) in contract currency terms.

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<sup>22</sup> The quality of “price data” for “motor vehicle maintenance” is fixed by specifying the contents of inspections (official vehicle inspections, periodical vehicle inspections, etc.) and the types of motor vehicles, and excluding the prices of motor vehicle parts.

<sup>23</sup> The quality of “price data” for “temporary employment services” is fixed by specifying the types of occupation. (operator of office equipment, filing clerk, etc.)

<sup>24</sup> This is a newly introduced procedure in the 1995 base index. For cases when discount rates cannot be surveyed on a real time basis, a retroactive index revision rule is planned. In these cases, the indexes calculated from the regular prices and the previous discount rates are published for the time being. After the corresponding discount rates are reported by the correspondent corporations, the published indexes will be revised retroactively (see note 21 and column 10.2 “Index revision”).

<sup>25</sup> “Price data” contracted in foreign currencies include “ocean liners,” “ocean trampers,” “ocean tankers” and “international air freight” in the field of transportation of the “basic grouping,” and “ocean freight transportation” in the reference index “items not included in indexes for basic grouping.”

<sup>26</sup> By commercial custom, there are cases when services transactions are contracted in foreign currencies even among domestic corporations (ocean freight transportation, international air freight transportation).

From the 1995 base index, when there are no transactions in a certain survey period, the prices contracted in foreign currencies are converted into yen using the exchange rates during the survey period for indexing in yen terms.<sup>27</sup>

## 8.6 Number of correspondent corporations and price data

Because of regional and individual differences in services, price levels and their movements tend to vary. A large number of “price data” are collected in the CSPI in comparison with the WPI to ensure the representativity of “price data.” The number of “price data” for “basic grouping” of the 1995 base CSPI is 2,963 (as of November 30,1999), or around 30 “price data” per “item” on average (for the WPI, it is around 3 on average).<sup>28</sup>

<Number of items, price data and correspondent corporations>

Items (A)	Price data (B)	B/A	Correspondent corporations <sup>29</sup>
102	2,963	29	508

## 8.7 Replacement of price data and quality adjustments

If a service in the “price data” ceases to be representative of an “item,” the contract terms change, or the surveyed corporations must be changed, “price data” are replaced without delay. When replacing “price data,” any price difference between the new service and the old are adjusted as below so that only the genuine price changes, and not price changes attributed to quality changes, are reflected in the index.

- (a) The new “price data” are linked with the old ones without adjustment (direct comparison), as long as the difference in quality between the two services is negligible.<sup>30</sup>
- (b) The new “price data” are linked so as not to raise or lower the index (treated as unchanged), if the price difference between the two services is entirely attributed to quality.
- (c) The new “price data” are linked to reflect the price change unrelated to any quality change if the price difference between the two services exceeds that associated with a change in quality, and the index rises or falls.

<sup>27</sup> Until the 1990 base index (the index before December 1994), when there were no transactions in a certain survey period, the “price data” was treated as unchanged in yen terms as well. Strictly speaking, the nature of the 1995 base index has changed from the 1990 base index.

<sup>28</sup> The number of “price data” for the “reference index” is 35.

<sup>29</sup> Different sections of the same corporations are counted separately in the number of correspondent corporations.

<sup>30</sup> In addition, when there is a price difference not in terms of a quality change but in terms of a quantity

However, if it is difficult to compare the difference in quality between the two services, the price is treated as unchanged.

Quality adjustments, which specify the price difference corresponding to the quality and quantity difference, for services “price data” are very difficult because the characteristics of services are more varied than those of goods. The “production cost method” or the “overlap method,” which are both employed in the WPI, are also employed for the CSPI as long as it is possible to specify the part of the price difference that corresponds to the quality change between the new service and the old.<sup>31 32 33</sup> The “hedonic regression method” is not employed in the CSPI.<sup>34</sup>

## 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)

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

where:

$I_{t,0}^L$  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,

change, the prices are compared using converted unit price.

<sup>31</sup> The “production cost method” specifies the price difference corresponding to the quality difference on the assumption that the cost of the quality change equals the price difference due to the quality difference. The genuine price difference, which eliminates the price difference corresponding to the quality difference from the total price difference, is reflected in the index.

<sup>32</sup> The “overlap method” stipulates that the price difference equals the price difference due to the quality difference, in cases when the new service and the old service have both been provided over a period of time and the price difference between them has been stable.

<sup>33</sup> Examples of quality adjustments are presented in Appendix 8 “Explanation of the Wholesale Price Index” (available only in Japanese) on the BOJ homepage.

<sup>34</sup> The “hedonic regression method” is a technique for estimating price changes corresponding to the changes of various characteristics in a service objectively and quantitatively. This assumes that a part of the price difference between services is caused by the quality difference, which is estimated from changes in various characteristics. The genuine price difference, which eliminates the price difference corresponding to the quality difference, is reflected in the index.

$p_{0,i}$  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.

## 9.2 Calculation method

The process of index calculation is as follows. First, each “price data” is converted into an index form by dividing the current period price by the base period price. Second, “item” by “item,” these “price data” indexes are multiplied by their own weights and then aggregated to give a weighted “item” index, which in turn is divided by the weights of the “items” to yield an “item” level price index.<sup>35</sup> This process is repeated to give higher-aggregated-level price indexes such as “subgroup,” “group,” “major group,” and “all items” indexes. Each index is accurate to the first decimal place.

The annual average indexes in terms of calendar and fiscal years are obtained from the simple arithmetic means of the monthly indexes. Seasonally adjusted indexes are not calculated.

## 10. Publication

### 10.1 Publication schedule and publication media

The CSPI is released at 8:50 a.m. according to the following schedule:

#### Monthly index

The third working day counted from the 21<sup>st</sup> of the following month, in principle.

#### Annual average index (calendar or fiscal year)

The day when the index for December (March) is released, in principle.

The data of the CSPI are available on the BOJ homepage at the time of release.

The publication schedules for the coming six months are available on the BOJ homepage and are updated at the middle or end of March, June, September and December (the schedules for the coming six months, respectively from April to September, July to December, October to March, and January to June).

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<sup>35</sup> “PHS (Personal Handyphone System) services,” is a newly selected “item” from July 1995. For its “price data” from January to June 1995, the index of the subgroup “mobile telecommunications services” is substituted to obtain the 1995 annual average index which is equal to 100.0. Because of this, the index of “PHS (Personal Handyphone System)” from January to June does not exist, and the average index of “PHS (Personal Handyphone System)” from July to December does not equal 100.0.

Most of the published index series including the “item” stratum, which is the lowest stratification level of the CSPI, are available on the BOJ homepage at the data downloading corner (updated at 1:00 p.m. on the publication dates). Details are 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 parts of the indexes are also presented in the *Financial and Economic Statistics Monthly* (published at the end of every month).<sup>36</sup>

The Public Information Division, Public Relations Department, will answer inquiries about index figures (Fax:+81-3-5203-8703). Answers to “Frequently Asked Questions (FAQ)” are provided on the BOJ homepage (available only in Japanese).

## 10.2 Index revision

If an error in “price data” is discovered after the index publication, the CSPI is recalculated according to the following rules:

- (a) If the impact of the error corresponds to an index level change of “all items,” the CSPI is recalculated as soon as possible. If the error is discovered in a past index, the index is revised retroactively. The index correction is announced on the BOJ homepage and to the press.
- (b) When the impact of the error does not meet the above criteria, but changes the index level of “item,” “subgroup,” “group” or “major group” greatly and hinders users’ analyses, the index is revised.
- (c) In exceptional cases, if a revision is required but impossible to conduct due to computing system limitations, or other reasons, the pertinent facts are released.

The BOJ is now planning to develop more flexible retroactive revisions to improve the accuracy of the indexes. After the revision procedure and system maintenance preparations are completed, the indexes will be revised not only to correct “price data” errors, but also to replace “price data” that are impossible to survey on a real time basis because of following reasons:

- (a) Due to prolonged price negotiations between suppliers and users, the prices are determined after the beginning of the contracts and applied retroactively.
- (b) The “price data” are received after the index is published because of the data collection

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<sup>36</sup> 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 Sohgo Service Co., Ltd. (Tel: +81-3-3270-5713).



limitations of the correspondent corporations.

The details, including timing and frequency, will be announced as soon as they are decided.

## 11. Linked index

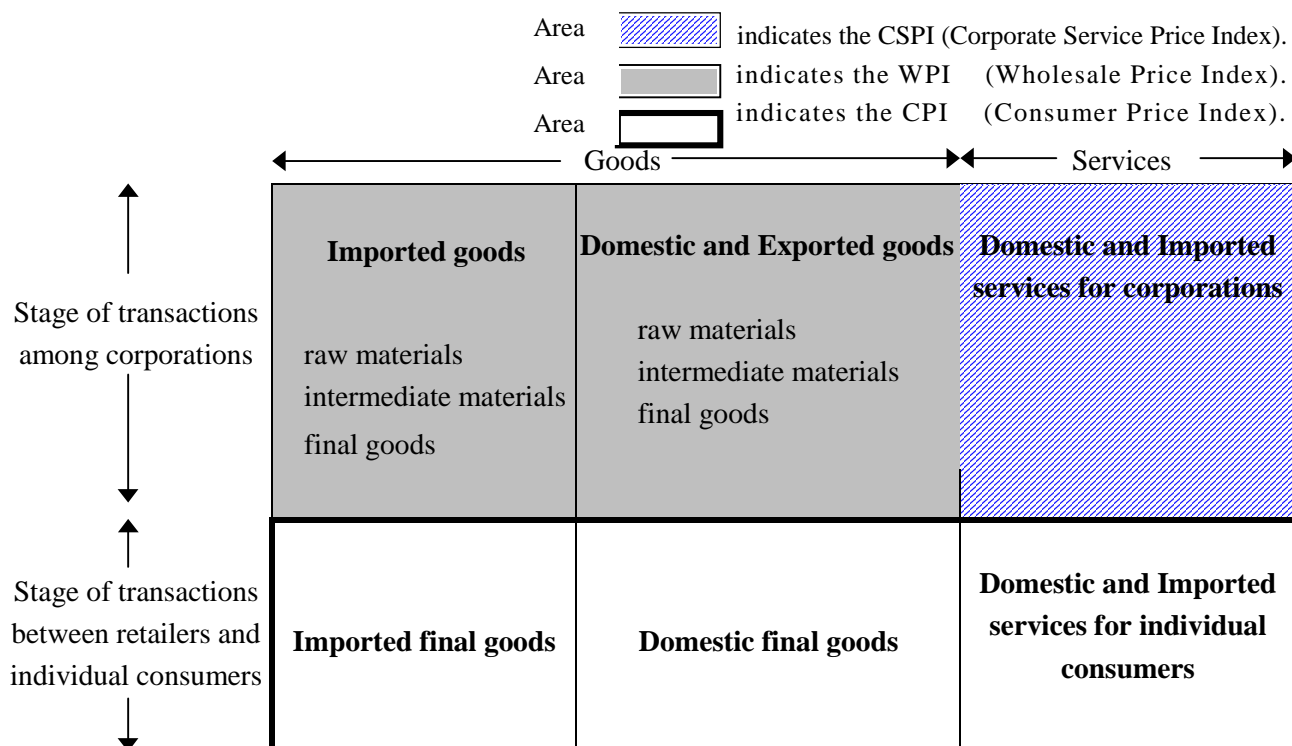
The linked index is calculated to make a continuous index so that a long-term index series is available. For the 1995 Base Linked Index, the index series of past figures is converted into the new (1995 base) index and compiled retroactively. The 1995 Base Linked Index is available from January 1985 for to the index series of “group,” “major group” and “all items.”

The Linked index is calculated by using the link coefficient computed for each index series from the new (1995 base) and old (1990 base) indexes of 1995 on a monthly basis. The annual average indexes in terms of the calendar and fiscal years are obtained from the simple arithmetic means of the monthly indexes. The calculation formula for the 1995 Base Linked Index is as follows:



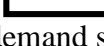
$$\text{1995 base linked index} = \text{1990 base index} \times \frac{\text{(link coefficient)} \times \text{annual average index in 1995 on a 1995 base (= 100)}}{\text{annual average index in 1995 on a 1990 base}}$$



























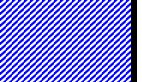









For the link calculation, the classification in each previous base index is rearranged into the “basic grouping” that is used for the 1995 base index, while the “items” and their weights remain unchanged from the original base index.

(a) Relations among price indexes (concept)



(b) Coverage of each price index (based on the I-O Tables)

Area  indicates the CSPI.  
 Area  indicates the WPI.  
 Area  indicates the CPI.

		Intermediate sectors			Final demand sectors		
		Primary industry	Secondary industry	Tertiary industry	Consumption expenditures of households	Exports	Imports
Intermediate input	Primary industry						
	Manufacturing industry						
	Construction industry						
	Electric power industry, etc.						
	Services industry						
Gross value added							

## Corporate Service Price Index Groupings, Items and Weights

## 1. Basic grouping

Figures in parentheses indicate the weight of each grouping and item expressed as one-thousandths of all items.

Major group	Group	Subgroup	Item	
Finance and insurance				
	(73.3)	Financial services		
	(49.4)	Banking services		
		(36.6)	Remittance services	(17.1)
			Finance bills collection services	(1.4)
			Direct debit services	(2.9)
			Electronic banking services	(2.0)
			Foreign exchange and related services	(6.6)
			Stock transfer agency services	(0.6)
			Securities issuance and related services	(5.8)
			Trust business services	(0.2)
		(12.8)	Securities services	
			Underwriting services	(12.8)
		Insurance services		
	(23.9)	Property and casualty insurance services		
		(23.9)	Voluntary motor vehicle insurance	(12.5)
			Compulsory motor vehicle insurance	(3.7)
			Fire insurance	(6.6)
			Marine and other transportation insurance services	(1.1)
Real estate services				
	(96.1)	Real estate rental		
		(96.1)	Real estate rental	
		(96.1)	Office space rental	(69.2)
			Sales space rental	(16.1)
			Hotel rental	(1.6)
			Parking space rental	(9.2)
Transportation				
	(230.3)	Overland freight transportation		
		(85.9)	Railroad freight transportation	
		(1.3)	Railroad freight	(1.3)
			Road freight transportation	
		(84.6)	Less-than-truckload freight	(15.6)
			Truckload freight	(69.0)
		Marine freight transportation		
		(40.9)	Ocean freight transportation	
		(18.4)	Ocean liners	(2.6)
			Ocean trampers	(10.0)
			Ocean tankers	(5.8)
			Coastal and inland waterways freight transportation	
		(10.0)	Coastal and inland waterways freighters	(6.3)
			Coastal and inland waterways ferries (motor vehicle carriers only)	(2.8)
			Coastal and inland waterways tankers	(0.9)
			Marine cargo handling	
		(12.5)	Stevedoring services	(12.5)
		Air freight transportation		
		(4.3)	International air freight transportation	
		(3.4)	International air freight	(3.4)
			Domestic air freight transportation	
		(0.9)	Domestic air freight	(0.9)

Major group	Group	Subgroup	Item	
Transportation (continued)				
	Passenger transportation			
	(55.0)	Railroad passenger transportation		
		(25.1)	Railroad passenger transportation	(25.1)
	Road passenger transportation			
	(14.7)	Buses		(5.6)
			Hired cars	(0.4)
			Taxis	(8.7)
	Air passenger transportation			
	(15.2)	International air passenger transportation		(5.2)
		Domestic air passenger transportation		(10.0)
	Warehousing and other transportation services			
	(44.2)	Warehousing and storage		
		(11.2)	General warehousing and storage	(9.6)
			Refrigerated warehousing and storage	(1.6)
	Packing for freight			
	(13.4)	Packing for freight		(13.4)
	Toll roads			
	(19.6)	National expressways		(13.8)
			Urban expressways	(3.6)
			Other toll roads	(2.2)
Information services				
	(69.0)	Information services		
		(69.0)	Software development	
		(41.2)	Software development	(41.2)
	Other information services			
		(27.8)	Data processing	(23.3)
			Providing databases	(3.0)
			Market research	(1.5)
Communications and broadcasting				
	(69.2)	Communications		
		(68.1)	Postal services	
		(15.0)	Letters	(8.2)
			Postcards	(2.4)
			Other postal services	(4.4)
	Domestic and international telecommunications services			
		(41.0)	Domestic fixed telephone services	(32.4)
			International fixed telephone services	(1.7)
			ISDN (Integrated Services Digital Network)	(1.1)
			Data transmission services	(1.7)
			Domestic leased circuits	(3.9)
			International leased circuits	(0.2)
	Mobile telecommunications services			
		(7.1)	Cellular phone services	(5.9)
			PHS (Personal Handyphone System) services	(0.1)
			Pager services	(1.1)
	Access charges			
		(5.0)	Access charges	(5.0)
	Broadcasting			
		(1.1)	Cable broadcasting	
		(1.1)	Cable broadcasting	(1.1)
Advertising services				
	(64.8)	Advertising services		
		(64.8)	Broadcasting advertising services	
		(18.3)	Television commercials	(16.6)
			Radio commercials	(1.7)
	Other advertising services			
		(46.5)	Newspaper advertising	(17.7)
			Magazine advertising	(7.4)
			Direct mail	(5.2)
			Leaflets	(7.4)
			Advertising in traffic facilities	(5.1)
			Outdoor advertising	(3.7)

Major group	Group	Subgroup	Item	
Leasing and rental				
(90.4)	Leasing and rental			
	(90.4)	Leasing		
		(75.2)	Leasing of computers and related equipment	(27.4)
			Communications equipment leasing	(5.0)
			Office equipment leasing	(7.3)
			Industrial machinery leasing	(10.9)
			Leasing of machinery and equipment for metalworking	(1.9)
			Transportation equipment leasing	(6.6)
			Leasing of machinery and equipment for commercial and other services industry	(11.7)
			Medical equipment leasing	(2.7)
			Leasing of machinery for civil engineering and construction	(1.7)
		Rental		
		(15.2)	Computer rental	(3.8)
			Rental of machinery for civil engineering and construction	(9.7)
			Motor vehicle rental	(1.0)
			Other rentals	(0.7)
Miscellaneous services				
(306.9)	Industrial waste and sewage disposal			
	(25.5)	Industrial waste disposal		
		(19.2)	Industrial waste disposal	(19.2)
		Sewage disposal		
		(6.3)	Sewage disposal	(6.3)
	Motor vehicle and machinery maintenance			
	(109.5)	Motor vehicle maintenance		
		(44.8)	Motor vehicle maintenance	(44.8)
		Machinery maintenance		
		(64.7)	Machinery maintenance	(64.7)
	Professional services			
	(110.0)	Legal and accounting services		
		(23.6)	Attorney services	(4.0)
			Patent attorney services	(1.5)
			Judicial scrivener services	(2.0)
			Certified public accountant services	(4.3)
			Licensed tax accountant services	(11.8)
		Civil engineering and architectural services		
		(54.6)	Architectural design and contract administration services	(29.2)
			Surface surveying	(21.1)
			Subsurface surveying	(4.3)
		Other professional services		
		(31.8)	Certified social insurance and labor specialist services	(9.5)
			Certified real estate evaluation services	(3.2)
			Certified administrative procedures specialist services	(9.9)
			Certified real estate assessor services for registration	(9.2)
	Other services			
	(61.9)	Building maintenance		
		(27.2)	Building cleaning services	(19.4)
			Facility management services	(4.4)
			Sanitation services	(3.4)
		Temporary employment services		
		(11.0)	Temporary employment services	(11.0)
		Security services		
		(14.9)	Security services	(14.9)
		Laundry services		
		(8.8)	Linen supply	(8.8)

## 2. Reference index

### (a) Items included in indexes for basic grouping

Major group	Item
Finance and insurance	
	Banking services
	Trust business services (commission rates)
	Securities services
	Underwriting services (commission rates)
	Property and casualty insurance services
	Property and casualty insurance (commission rates)
	Voluntary motor vehicle insurance (commission rates)
	Compulsory motor vehicle insurance (commission rates)
	Fire insurance (commission rates)
	Marine and other transportation insurance services (commission rates)
Real estate services	
	Office space rental (by area)
	Tokyo area
	Nagoya area
	Osaka area
Miscellaneous services	
	Industrial waste disposal (by type)
	Construction waste disposal
	Sludge disposal
	Liquid waste disposal
	Other waste disposal

### (b) Items not included in indexes for basic grouping

Major group	Item
Transportation	
	Export freight transportation (yen basis)
	Ocean freight transportation
	International air freight transportation
	Export freight transportation (contract currency basis)
	Ocean freight transportation

## Grouping Correspondence between the *I-O Tables* and the CSPI (1995 base)

Underlines indicate sectors excluded from the CSPI.  
Shadows  indicate sectors selected for the CSPI.

(Groupings of the <i>I-O Tables</i> )	(Groupings of the CSPI)
Major group	Major group
Basic sector	Subgroup
<b>Commerce</b>	<b>Finance and insurance</b>
<b>Financing and Insurance</b>	Banking services
<u>Financial service (imputed interest), public</u>	Securities services
<u>Financial service (imputed interest), private</u>	Property and casualty insurance services
Financial service (commission), public <sup>(Note1)</sup>	<b>Real estate services</b>
Financial service (commission), private	Real estate rental
<u>Life insurance</u>	<b>Transportation</b>
Non-life insurance	Railroad freight transportation
<b>Real Estate</b>	Road freight transportation
Real estate agencies and managers <sup>(Note2)</sup>	Ocean freight transportation
Real estate rental service	Coastal and inland waterways freight transportation
<u>House rent</u>	Marine cargo handling
<b>Transport</b>	International air freight transportation
Railway transport by JR (passengers)	Domestic air freight transportation
Railway transport except JR (passengers)	Railroad passenger transportation
Railway transport (freight)	Road passenger transportation
Bus transport service	Air passenger transportation
Hired car and taxi transport	
Road freight transport service	
<u>Transport by private cars (passengers)</u>	
<u>Transport by private cars (freight)</u>	
Ocean transport	
Coastal and inland water transport (passengers) <sup>(Note3)</sup>	
Coastal and inland water transport (freight)	
Port transport service	
International air transport	
Domestic air transport (passengers)	
Domestic air transport (freight)	

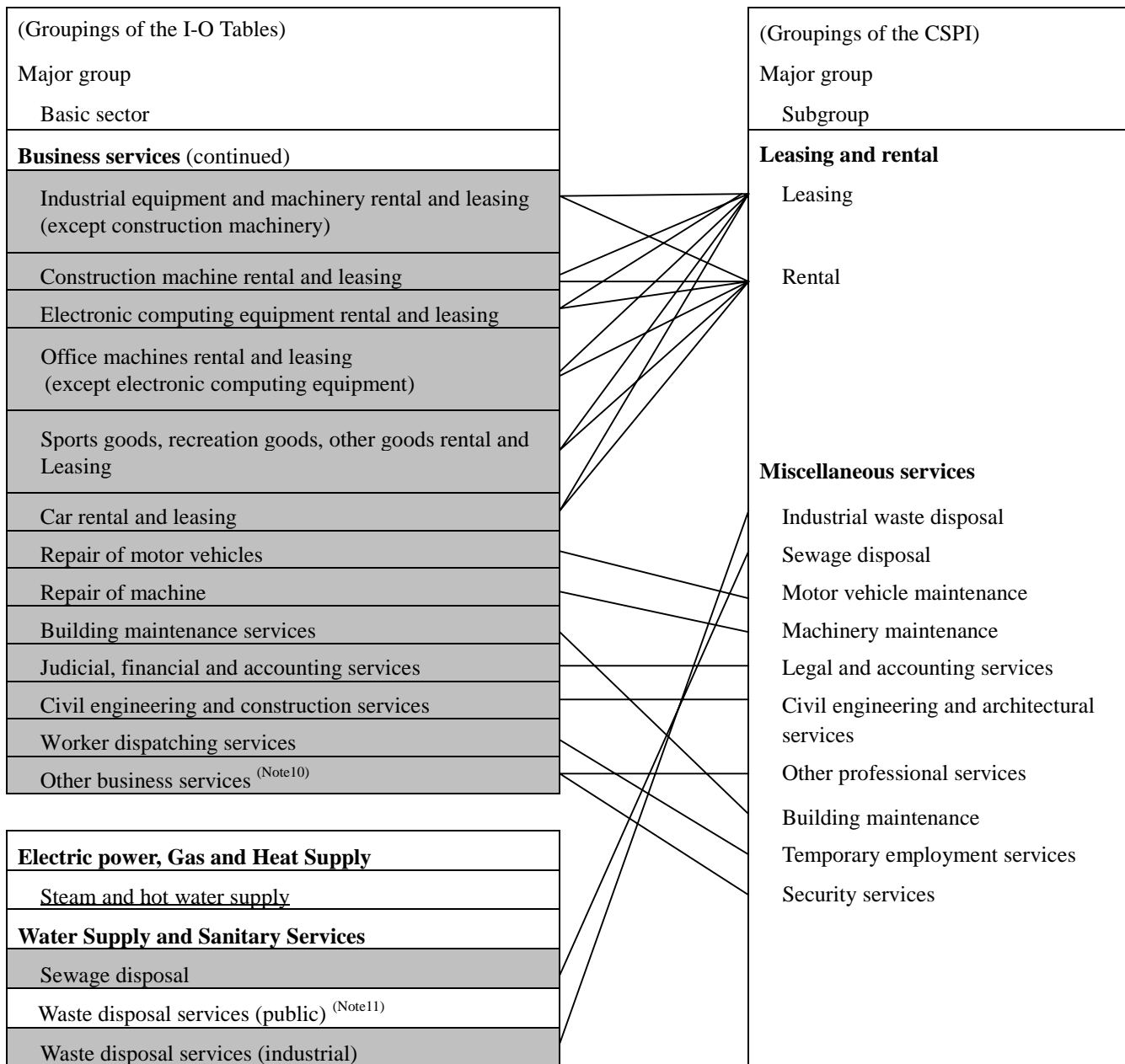
- Notes: 1. Imputed to the group "financial services."  
2. Imputed to the group "real estate rental."  
3. Imputed to the group "passenger transportation."

(Groupings of the I-O Tables)
Major group
Basic sector
<b>Transport (continued)</b>
Aircraft service except air transport <sup>(Note4)</sup>
Freight forwarding <sup>(Note5)</sup>
Storage facility service
Packing and crating service
Facility service for road transport
Port and water traffic control <sup>(Note6)</sup>
Services relating to water transport <sup>(Note6)</sup>
Airport and air traffic control (public) <sup>(Note4)</sup>
Airport and air traffic control (industrial) <sup>(Note4)</sup>
Services relating to air transport <sup>(Note4)</sup>
Travel agency and other services relating to transport <sup>(Note7)</sup>
<b>Communication and Broadcasting</b>
Postal service
Domestic telecommunication (except mobile communication)
Mobile communication
International telecommunication
Other services relating to communication <sup>(Note8)</sup>
Public broadcasting
Private broadcasting
Cable broadcasting
<b>Public Administration</b>
<b>Education and Research</b>
<b>Medical Service, Health and Social Insurance</b>
<b>Other Public Services</b>
<b>Business Services</b>
Television, radio advertising services
Newspaper, magazine, other advertising services
Computer programming and other software services
Data processing and research and information services
News syndicates, and private detective agencies <sup>(Note9)</sup>

( Groupings of the CSPI)
Major group
Subgroup
<b>Transportation (continued)</b>
Warehousing and storage
Packing for freight
Toll roads
<b>Information services</b>
Software development
Other information services
<b>Communications and broadcasting</b>
Postal services
Domestic and international telecommunications services
Mobile telecommunications services
Access charges
Cable broadcasting
<b>Advertising services</b>
Broadcasting advertising services
Other advertising services

- Notes: 4. Imputed to the groups "air freight transportation" and the subgroup "air passenger transportation."  
5. Imputed to the groups "overland freight transportation" and "air freight transportation," and the subgroups "ocean freight transportation" and "coastal and inland waterways freight transportation."  
6. Imputed to the groups "marine freight transportation" and "passenger transportation."  
7. Imputed to the major group "transportation."  
8. Imputed to the group "communications."  
9. Imputed to the group "information services."





Notes: 10. Imputed to the major group “miscellaneous services” after excluding part of the subgroups “other professional services” and “security services.”

11. Added to the item “industrial waste disposal.”

(Groupings of the I-O Tables)
Major group
Basic sector
<b>Personal services</b> <sup>(Note12)</sup>
Motion picture and video production, and supply
Movie theaters
Theater and entertainment facilities
Amusement and recreation facilities
Stadiums and companies of bicycle, horse, motorcar and motoboat races
Sport facility service, public gardens and amusement Parks
Theatrical companies
Other amusement and recreation services
General eating and drinking place (except coffee shops)
Coffee shops
Eating and drinking places for pleasures
Hotel and other lodging places
Cleaning, laundry and dyeing services
Barber shops
Beauty shops
Public baths
Photographic studios
Ceremonial occasions
Miscellaneous repairs, n.e.c.
Places for private lessons
Other personal services

(Groupings of the CSPI)
Major group
Subgroup
<b>Miscellaneous services (continued)</b>
Laundry services

Notes: 12. Imputed to the major group “miscellaneous services” after excluding part of the subgroup “laundry services.”