

CHAPTER III

OVERVIEW OF THE 2005 INPUT-OUTPUT TABLES

§ 1 Basic Structure and Theory of Basic Transaction Table

In the 2nd publication of Japan's Input-Output Tables in 1960, which are compiled jointly by the relevant ministries and agencies, the compliance with National Income Statistics, and the classification categories conforming to those for the Standard Industrial Classification for Japan as well as for the International Standard Industrial Classification (ISIC) were first adopted.

Since then, gradual improvements have been made in compiling Input-Output Tables. The 1975 Input-Output Tables were modified to comply with 68 SNA. The 1995 Input-Output Tables were compiled in accordance with the ISIC (third edition) and the "IMF Balance of Payments Manual" (fifth edition), and were made, though only in part, to conform to 93 SNA. The 2000 Input-Output Tables have also been made to conform to the 93 SNA, such as through posting software products as fixed capital formation and posting capital consumption allowance related to social capital.

Although compliance with revisions to the Standard Industrial Classification for Japan has been promoted, there were no fundamental changes to the framework for compiling the 2005 Input-Output Tables.

In the following, we will explain the basic compilation theories on Input-Output Tables for Japan.

1 Recording Period and Geographical Coverage in the Input-Output Tables

(1) Period Covered

The Input-Output Tables for Japan cover production activities and transactions involving goods and services conducted for one year from January to December (calendar year). The Input-Output Tables have been compiled every five years (years ending with either a 0 or 5) since their first publication in 1955.

(2) Geographical Coverage

The Input-Output Tables cover production activities and transactions involving goods and services conducted in a specified region. The Input-Output Tables for Japan cover production activities and transactions conducted within the country. (Refer to item 6 in this section)

2 Sector Classification

(1) Concept of Sector Classification

The classification of endogenous sectors that include intermediate demand and intermediate inputs in their Input-Output Tables is known as "sector classification."

In some cases, sector classification may encompass such items as the final demand and the gross value added.

(2) Principles for Sector Classification

i) Classification based on production activity (in terms of units)

In principle, sectors are classified by activities for the production of goods and services (in terms of units). The term "establishment" used in such surveys as the "Establishment and Enterprise Census" and the "Census of Manufacturers" is defined as a unit. Therefore, an establishment that involves two or more production activities is classified by its main activity. However, in the classification of Input-Output Tables, an establishment that involves two or more production activities is essentially divided into the appropriate separate grouping based on its activity. This concept of classification by production activity is similar to that used in commodity classification.

For example, the activities of the retail manufacturing industry are recorded in their respective sectors after being divided into manufacturing and retail activities. The activities of a railway company that operates rail and bus transportation are recorded in their respective sectors after being divided into each type of business.

In this way, the Input-Output Tables for Japan are constructed based on sector classifications by production activity, and are thereby referred to as "commodity-by-commodity" tables (A tables).

Note: The following tables are based on sector classifications other than that of an A table.

[1] Table on commodity input by industry = U table

[2] Table on commodity output by industry = V table

[3] Table on industry by industry

ii) Definition of row and column sectors in “commodity-by-commodity” tables

The row sector that comprises the endogenous sectors in the Input-Output Tables represents goods and services produced for one year, classified primarily by commodity and purpose. The column sector represents the aforementioned goods and services classified primarily by industry and production facility.

iii) Relationship between row and column sectors

In principle, the row and column sectors have a one-to-one correspondence. However, the following two cases are divided by commodity under the row sector only, which strictly represents the output structure: (1) a petroleum refinery that produces different goods with different unit prices and usage in one production process and (2) the industrial machinery in an establishment that produces goods with different prices and functions by purchasing and consuming one raw material.

On the other hand, manufacturing activities, including plastic products with similar input structures, are summarized under the column sector despite the fact that they produce a wide variety of products with different unit prices and purposes using different production facilities. In short, the column sector represents classification by production activity, and the row sector represents classification by commodity.

As a result, the Basic Transaction Table displays a rectangular form with more row sectors than column sectors.

In addition to the above, the electric power that is produced through different production facilities and processes, such as thermal power stations and nuclear power stations, is divided under the column sector and summarized under the row sector.

(3) Criteria for Sector Classifications

In principle, the basic sector classification, which is the most detailed item classification of the endogenous sectors in the Input-Output Tables, is based on “production activity (in terms of units).” However, a transactor-based production activity classification was adopted in 1975 in order to conform to 68SNA.

In every publication of the Input-Output Tables, we increase, divide, or integrate sectors in the classification and change the concept and the scope of definition in order to adapt the Input-Output Tables to increases and decreases in domestic production and technical changes, based on time-series and international comparisons.

In the 2005 Input-Output Tables, we discussed revisions of sectors in the establishment of the basic sector classification based on the following criteria.

[1] Similarity of input structures and stability of input coefficients

[2] Similarity of output structures

[3] Size of domestic production and total demand

[4] Consistency with the Standard Industrial Classification for Japan (Rev. 11) and the International Standard Industrial Classification (Rev. 3.1)

[5] Compliance with 93SNA

[6] Similarity of unit prices based on detailed classification (10-digit code)

[7] Time-series comparability and international comparability

[8] Completeness of basic data for estimation

(4) Transactor-Based Production Activity Classification

i) Definition of transactor-based production activity classification

Normally, the Input-Output Tables record transaction activities involving goods and services that are sold at prices that cover their costs. They are mainly commodities provided through production activities of industries, but the following two goods and services provided by the government and public enterprises are recorded in the Input-Output Tables in addition to commodities by industrial production activity.

[1] Goods and services provided free of charge or regardless of their cost

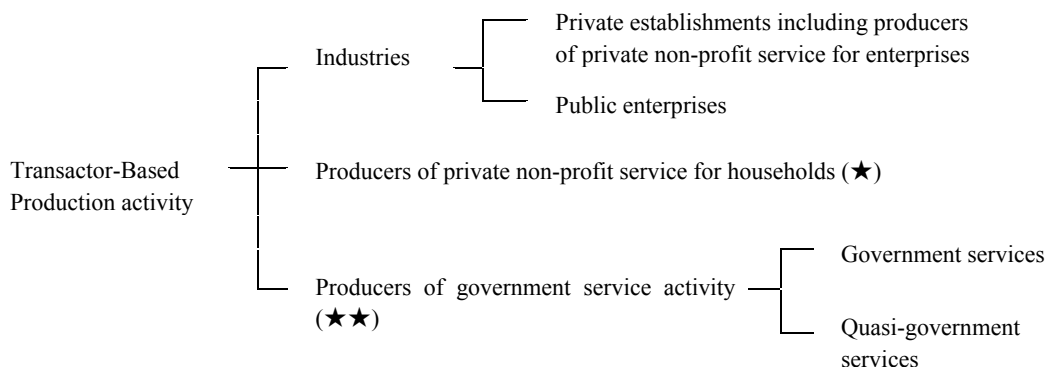
[2] Goods and services that are not sold on the market

The transactor-based production activity classification is introduced to enable understanding of these relationships in the Input-Output Tables. It focuses on transactors that produce and supply goods and services. Moreover, the transactor is categorized according to whether it is an industry, a producer of

private non-profit service for households or a producer of government service activity.

In this sense, the basic sector classification has the following two functions: (1) classification by production activity (in terms of units); (2) transactor-based production activity classification focusing on transactors that produce and supply goods and services.

In addition to the above, there is the case of educational institutions providing school-lunch services. However, some educational institutions have entrusted outside school meal centers to prepare lunchtime meals. In the Input-Output Tables, we classify lunch services by educational institution, not by the institution that actually provided the services, in order to avoid confusion.



Note: Transactor-Based Production activity is marked with a star symbol (s) in the basic sector classification.

No Symbol: Industries

★: Producers of private non-profit service for households

★★: Producers of government service activity

ii) Industries

In principle, “industries” represents establishments that conduct production activities involving goods and services for market sales intended to earn profits. Most are private establishments.

However, the following transactors are categorized by industry despite the fact that their sales prices or charges are set regardless of their cost, or their goods and services are not sold in the market.

(A) Producers of private non-profit service for enterprises

A “producer of private non-profit service for enterprises” must satisfy the three requirements specified below. If such an organization does not provide its services, companies and organizations will have to provide these services themselves. Therefore, the services provided by these organizations are categorized by industry. For example, the Chamber of Commerce and Industry and the Federation of Economic Organizations fall under this category.

- a. Non-profit service for private businesses and organizations
- b. Private research institutions and a wide variety of organizations that provide services such as technical guidance, examinations, and research in order to increase the efficiency and profitability of companies and organizations. Among corporations that are established by special law, authorized corporations that do not receive subsidies from the government are included.
- c. Affiliated business groups or organizations provide contributions and membership fees for operations, and such contributions and membership fees are categorized as payment for services.

(B) Public enterprises

In principle, “public enterprises” refers to a or b below.

- a. Goods and services produced by the above institutions should in theory be equal to those produced by private establishments. The prices and fares are set in proportion to the quantity and quality of services, and people must be able to purchase goods and services of their own free will. In addition, we regard government-affiliated corporations owned and supervised by the government as public enterprises.

We use the following two requirements to determine whether supervision and ownership by the government exists:

- (a) Institutions in which the government holds at least a 50% share or more. In addition to the above, in corporations such as joint-stock corporations and union organizations, the government holds a majority of the voting rights.
 - (b) Corporations for which the government determines their business policies and appoints their executive officers by special law. The term “determination of business policy” used in this case is defined as follows: a competent minister performs general supervision of the corporation and has the authority to approve its budget and business program. In addition, the term “appointment of executive officers” specifically indicates the following: a competent minister has the authority to appoint the heads of the corporation, including the chairperson, administrative director, and CEO.
- b. Part of the special account of the government (the business accounting of the local authorities) under the category in Section a. above belongs to “public enterprises.”

Institutions that provide services to the government, including the Bureau of Engraving and Printing and the Mint Bureau, and postal services, which cover a wide range of customers in addition to the government, are included in this category.

However, social and public services, such as public gardens, health care, education, and culture, which are provided at much lower prices than their actual costs, are classified as “quasi-government services” of “producers of government service activity” and are not included in the public-enterprise category.

In addition to the above, the government has privatized three former government corporations as a centerpiece of administrative reform in order to minimize official restrictions. As a result, if the government owned shares in such corporations as an interim measure, it would have made public its stockholding sequentially, taking into account market trends (The Third Report on Administrative Reform (July 30, 1982) Part 2, Chapter 5, No. 1), thus indicating that the government did not intend to obtain ownership of the corporations. Therefore, the former three government corporations have been treated as private establishments.

In accordance with this, Kansai International Airport Co., Ltd., New Tokyo International Airport Authority (currently the Narita International Airport Corporation) and Teito Rapid Transit Authority (currently the Tokyo Metro Co., Ltd.), which have become privatized based on the Reorganization and Rationalization Plan for Special Public Institutions (December 18, 2001), are handled in such a way.

Note: (1) Japanese National Railways (the present Hokkaido Railway Company, East Japan Railway Company, Central Japan Railway Company, West Japan Railway Company, Shikoku Railway Company, and Kyushu Railway Company, as well as the Japan Freight Railway Company) (abbreviated name: JR), (2) Japan Monopoly Corporation (the present Japan Tobacco Inc.: JT), and (3) Nippon Telegraph and Telephone Public Corporation (the present Nippon Telegraph and Telephone Corporation: NTT), to which the “Law Concerning Enforcement of the Public Corporation and National Enterprise Labour Relations Law” (enforced as No. 83 of the extra edition on May 19, 1959) applies, are referred to as “the three former public corporations.” In addition, East Japan Railway Company, West Japan Railway Company and Japan Tobacco Inc. were completely privatized in 2004.

(C) Other activities defined as industries

- a. Rents for houses and company houses paid by each transactor are subject to imputation as house rent for owner-occupied dwellings and for dwellings supplied by employers, assuming that rent is received from dwellers like in a house for rent. This rent is categorized as “industry” (imputed house rent sector).

It is thought that imputed rent impairs the accuracy of analysis by producing repercussion effects. Therefore, the category of house rent was divided into the following two categories in the 2000 I-O Tables: conventional “house rent” and house rent after imputation, i.e., “imputed house rent.”

- b. Production activities of agricultural and fishery households for personal consumption are treated as “industry,” and in principle included in the estimates.

iii) Producers of private non-profit service for households

The term “producer of private non-profit service for households” refers to an organization that satisfies the two requirements specified below. Religious organizations, labor unions, academic societies, cultural institutions, and political organizations are all included in this category.

- (A) Provides non-profit services to households, free of charge or at prices much lower than actual cost
- (B) Free from supervision or funding from the government

The term “free from supervision by the government” refers to cases other than those that satisfy both of the following requirements:

- a. The government holds at least a 50% share of the producer.
- b. The government has the authority to decide on business policies and appoint executive officers of the corporation by special law.

iv) Producers of government service activity

In principle, the term “producers of government service activity” refers to the following:

- (A) Government institutions, government-affiliated corporations and independent administrative agencies that provide services free of charge or at prices much lower than actual cost in order to carry out their political responsibility or economic duty
- (B) Non-profit organizations that provide services free of charge or at prices much lower than actual cost under government supervision and with government funding. In addition to the above, their business is clearly public because they provide services that embody the government policies and is identical to activities of the government itself. The activities of “producers of government service activity” in this case are roughly divided into the following two services:
 - a. Social services or collective services, such as administration and defense, provided exclusively by the government or government-affiliated corporations and paid by taxes and other revenues
 - b. Individual services, such as education and health care provided free of charge or at prices much lower than actual cost, for social and political purposes, although the producers may collect charges for services

The category “producers of government service activity” is divided into “government services” and “quasi-government services” for straightforward analysis purposes, based on the requirements specified below. The category “government services” is divided into “government services (central government)” and “government services (local governments).”

[Government services] refers to services directly provided by the government and government-affiliated corporations, and there are no categories that provide similar services in the industry sector.

[Quasi-government services] refers to services directly provided by the government and government-affiliated corporations, although there are sectors that provide similar services in the industry sector. However, prices or charges are set at much lower levels than actual costs for social and public services.

For example, social and public services such as public gardens, health care, education, and culture, for which prices and charges are set at a much lower level than actual cost, are included in this category.

(5) Types of Classifications and Classification Codes

i) Structure of classification

The “basic sector classification” is the most detailed classification in the Input-Output Tables. The classifications “minor aggregated sector,” “medium aggregated sector,” and “major aggregated sector” are established by aggregating the basic sector classification.

ii) Basic sector classification (6-digit classification, 7-digit classification) and detailed commodity classification (10-digit commodities)

“Basic sector classification” refers to the most detailed sector classification for publication by

transactors, as well as the types and purposes of their goods and services and their production technologies. In the “basic sector classification,” 6-digit figures and 7-digit figures are used for codes under the column and row sectors, respectively. In addition to the above, there is a detailed commodity classification (10-digit commodities) in the basic sector classification (see note). The detailed commodity classification is a basis for estimation of domestic productions by sector.

We estimate inputs and outputs as well as balance figures based on this “basic sector classification.” In general, the more detailed sector classification we carry out for each production activity, the more accurate results we can obtain in the “basic sector classification.” This methodology also helps stabilize the input coefficients in each sector.

Note: Detailed commodities (10-digit commodities)

Domestic productions are estimated based on basic statistics, including the Survey on Service Industries, Census of Manufactures, and a wide range of current statistical surveys; activities are thus classified as specifically as possible. We can estimate domestic production under the basic sector classification by tallying the value of production by row sector and by column sector according to activity.

A detailed commodity with a 10-digit code number in the tables of total domestic products is the minimum unit of classification when estimating production value. This detailed commodity is an expense item for elements in the basic sector classification. We can refer to this detailed commodity classification as the smallest classification by activity in the Input-Output Tables.

Generally speaking, inputs and outputs can be estimated and balanced easily if a large number of detailed commodities can be obtained for the tables.

iii) Minor aggregated sector classification (4-digit classification)

This classification, which is the most detailed classification that provides input coefficients and inverse matrix coefficients, is established in line with the 4-digit classification of the Standard Industrial Classification for Japan and the International Standard Industrial Classification (ISIC).

iv) Classification of medium and major aggregated sectors

The medium aggregated sector classification is established to satisfy the ordinary needs of input-output analysis. The Basic Transaction Table based on the medium aggregated sector classification is published as a preliminary report.

The major aggregated sector classification is a table for simplified input-output analysis. In addition to the above, a 13-sector classification (model) is performed to explain the Input-Output Tables.

The codes for the classification of the medium and major aggregated sectors do not correspond to those of the basic sector classification.

v) Representation of the Basic Transaction Tables

The numbers of the row and column sectors in the endogenous sectors represent the Basic Transaction Table. For example, the Basic Transaction Table according to the basic sector classification in the 2000 Input-Output Tables has 517 row sectors and 405 column sectors, which is expressed as 517 x 405 Sector Table.

A table with the same number of row and column sectors, such as a 188 x 188 Sector Table, is expressed as 188 Sector Table using the common sector figures.

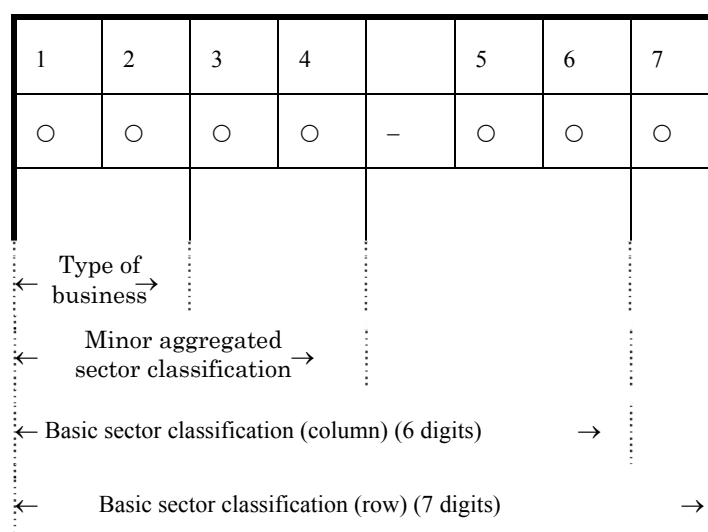
vi) Sector classification code

The codes used in the basic sector classification, or the endogenous sector codes, were completely revised in the compilation of the 1985 Input-Output Tables.

Sector classification codes are defined as follows (refer to Chart 2-1):

- [1] The first 2 digits represent the type of business.
- [2] The first 4 digits correspond to the minor aggregated sector classification.
- [3] The 5th to 6th digits and the 7th digit represent codes for the column sector and row sector, respectively. In principle, codes are indicated as serial numbers.
- [4] Generally, the 5th and 6th digits indicating 09 represent the code for other sectors.
- [5] Generally, the 5th and 6th digits indicating 10 represent the code for the repair sector.

Chart 2-1 Codes for Basic Sector Classification and for Minor Aggregated Sector Classification



vii) Special codes

For users' convenience, the following special classification codes (refer to item 9 in this section) are used for such special treatments as the output and input of scrap and by-products, as well as for trade margins and domestic freight. The following codes are indicated after the last (the 6th or 7th) digit of the basic sector classification code (the codes are referred to as "2 attached" or "3 attached," for example).

<Special classification codes>

- Scrap input 2
- Scrap output 3
- By-product input 4
- By-product output 5
- Trade margin 6
- Domestic freight 7

(6) Exogenous Sector Classification

The items involving the final demand and gross value added in the exogenous sector are closely established in accordance with the System of National Accounts.

i) Final demand sectors

The items involving the domestic final demand in the Input-Output Tables, except for the consumption expenditure outside household, closely correspond to the gross domestic expenditure (expenditure side) in the national accounts. The domestic final demand sectors, except for the elements of exports and imports, are established in accordance with the System of National Accounts, as can be seen in Table 4-1.

We classify exports and imports in order to enable smooth conversion of the national concept into the domestic concept, and to realign and improve the Input-Output Tables in line with the demand items of national accounts.

ii) Gross value added sectors

The gross value added sectors in the Input-Output Tables, except for "consumption expenditure outside household," closely correspond to the gross domestic production (production side) in the national accounts and are established in correspondence with the System of National Accounts, as can be seen in Table 4-2.

iii) Consumption expenditure outside households

Consumption expenditure outside households is also known as "business consumption." A breakdown of business consumption, such as lodging expenses and daily allowances, entertainment allowances, and welfare expenses, is entered as an item of consumption expenditure outside households in the final demand sector (column) by goods and services.

The total amount of lodging expenses and daily allowances, entertainment allowances, and welfare

expenses for the production sector (column) is recorded as consumption expenditure outside households (row) in the gross value added sector. The respective totals of the row and column for consumption expenditure outside households correspond.

In the national accounts, consumption expenditure outside households is not included in the exogenous sector (the gross value added and final demand) as necessary operating expenses in the production activities of enterprises. However, this business consumption is included in the exogenous sector in the Input-Output Tables as a part of the operating surplus and a transfer in kind from the industry sector to the consumption expenditure outside households sector. This methodology helps to stabilize the input coefficients.

Table 2-1 Input-Output Tables and Correspondence to National Accounts (Final Demand Sector)

Input-Output Tables	National Accounts (Cabinet Office)
Consumption expenditure outside households (Column)	(Classified into the endogenous sectors)
Consumption expenditure(private) Consumption expenditure of households Consumption expenditure of private non-profit institutions serving households	Private final consumption expenditure Final consumption expenditure of households Consumption expenditure of private non-profit institutions
Consumption expenditure of general government Collective consumption expenditure of central government Individual consumption expenditure of central government Collective consumption expenditure of local government Individual consumption expenditure of local government	Final consumption expenditure of government Collective consumption expenditure of central government Individual consumption expenditure of central government Collective consumption expenditure of local government Individual consumption expenditure of local government
Gross domestic fixed capital formation (public)	Gross domestic fixed capital formation Gross domestic fixed capital formation public sectors
Gross domestic fixed capital formation (private)	General government Plant and equipment Dwellings Private sectors
Increase in stocks Increase in producers' stocks of finished goods Increase in stocks of semi-finished goods and work-in-process Increase in dealer's stocks of goods Increase in stocks of raw materials and supplies	Plant and equipment Dwellings Changes in inventories Private sectors Public corporations General government
Exports Exports (ordinary trade) Exports (special trade) Exports (direct purchase)	Exports of goods and services Goods Transport, travel, telecommunication, insurance, others (Recorded once again) Direct purchase
(less) Imports Imports (ordinary trade) Imports (special trade) Imports (direct purchase)	Imports of goods and services Goods Transport, travel, telecommunication, insurance, others (Recorded once again) Direct purchase
(less) Custom duties	[Included in "the tax on production and imported goods" of the value added]
(less) Commodity taxes on imported goods	[Included in "the tax on production and imported goods" of the value added]

- Notes: 1. Encircled items in the I-O Tables correspond to the items involving final demand under the major aggregated sector classification.
2. Goods in the national accounts are based on the same concept as goods in the I-O Tables.
3. For breakdowns of the consumption expenditure of general government in the I-O Tables, the depreciation of social overhead capital is separately listed.

Table 2-2 Input-Output Tables and Correspondence to National Accounts(Gross Value Added Sector)

Input-Output Tables	National Accounts (Cabinet Office)
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Consumption expenditure outside households (row)</div> Lodging expenses and daily allowances Social expenses Welfare expenses	(Classified into the endogenous sectors)
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Compensation of employees</div> Wages and salaries Contribution of employers to social insurance Other payments and allowances	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Compensation of employees</div> Wages and salaries Employers' actual social contribution Employers' imputed social contribution
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Operating surplus</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Operating surplus and mixed income</div>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Depreciation of fixed capital</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Consumption of fixed capital</div>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Indirect taxes (except custom duties and commodity taxes on imported goods)</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">Taxes on production and imports</div>
<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">(less) Current subsidies</div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">(less) Subsidies</div>

- Notes: 1. "The value of payment in kind" and "differential rents of company houses" in "wages and salaries" are treated as "other payments and allowances" in the Input-Output Tables, while they are treated as "wages and salaries" in the national accounts kept by the Cabinet Office.
2. Encircled items in the Input-Output Tables are elements of the gross value added corresponding to the major aggregated sector classification.
3. For provision for depreciation of fixed capital in the Input-Output Tables, the depreciation of social overhead capital is separately listed.

3 Timing for Recording

In principle, production activities and transactions are recorded on an accrual basis in the Input-Output Tables, meaning that they are recorded at the time a transaction occurs. With the cash basis, on the other hand, production activities and transactions are recorded at the time earnings from and payments for production activities are actually paid. The equivalence of two aspects in the Input-Output Tables cannot be obtained on a cash basis (the respective totals of the gross added-value sector and the final demand sector (imports deducted) do not correspond) due to a time lag in the flow of accrual and distribution of earnings from production activities. However, the equivalence of two aspects in the Input-Output Tables can be obtained by recording on an accrual basis. The timing for recording transaction activities is as follows:

- [1] Production activities for goods are recorded at the time they are produced, while those for services are recorded at the time they are performed during the year.
- [2] Transactions for intermediate products are recorded as the intermediate transaction value at the time intermediate products are actually consumed in each column sector during the year.
- [3] In the output to the final demand sectors, consumption expenditure, including consumption expenditure outside household, private consumption expenditure, and consumption expenditure of general government, are recorded at the time bargains are concluded, even in cases in which deliveries of applicable goods are delayed.
- [4] Gross domestic fixed capital formation is recorded at the time of delivery, while various types of increases in stocks are recorded at the time legal proprietary rights to products are transferred to producers or distributors.
- [5] Exports (ordinary trade) and imports (ordinary trade) are recorded at the time of customs clearance.
- [6] Goods with a production period of one year or more (long-term products) are recorded as stocks under the domestic production until the ownership is transferred to the final users. The production value of finished goods

of such long-term products is recorded as value of finished goods minus value of semi-finished goods and work in progress. For capital production for the own account (production of goods for personal consumption), even in the case of the goods in progress, the progress levels for a period of one year are recorded as the “gross domestic fixed capital formation,” as the final users retain the ownership. However, in the case of buildings, progress levels in constructions shall be recorded as domestic production in the “gross domestic fixed capital formation” even if the ownership has not been transferred. This principle is applied to animal growths: animals providing services (animals for draft, breeding or races, wool, fruit-trees, mulberry, tea leaves, etc.) are recorded in the “gross domestic fixed capital formation” and growths rendered by other specialized producers are recorded in the “increase in stocks of semi-finished goods and work-in-progress.”

- [7] Services with a production period of one year or more are recorded as produced when the services are offered (completion of production), therefore no stocks are recorded.

4 Valuation in Monetary Terms

The Basic Transaction Table in the Input-Output Tables records the actual transactions involving goods and services conducted during the year. The valuation of each transaction is shown in monetary terms.

Goods have a specific unit of quantity. The valuation of each transaction based on the unit of quantity would allow us to perform a quantitative input-output analysis based on production technologies, free from seasonal fluctuations in prices and regional differences.

However, many services do not have specific units of quantity. The same is true of goods in the sector composed of detailed items, as not all items in one sector (row) have a uniform unit of quantity. In addition to the above, calculation based on a uniform unit of quantity is impossible in the column sector, in which a wide variety of raw materials is entered as inputs. Therefore, the “monetary term” is a common criterion for the valuation of the scale of each transaction activity in compilation of the Basic Transaction Table.

Furthermore, to supplement the Basic Transaction Table in monetary terms, a “table on the value and quantity of selected goods” is compiled as a supplementary table.

5 Basic Structure of Basic Transaction Tables

(1) Sector Classification and Basic Framework of the Tables

i) Types of tables by sector classification

The Basic Transaction Tables include the following types of tables, depending on whether the tables are classified on a commodity (activity) basis or on an industry (establishment) basis: A table, U table, V table, and I x I table.

Some foreign countries compile the Table on Commodity (row) by Industry (column)/U table (table on commodity input by industry) and the Table on Industry (row) by Commodity (column)/V table (table on commodity output by industry) based on the 68SNA. After compiling these two tables, these countries indirectly compile the Commodity (row) by Commodity (column) Table/A table (also referred to as the “C table”), based on either the industry technology assumption or the commodity technology assumption. On the other hand, Japan constructs the A table directly. (Since the first trial calculation of the Input-Output Tables in 1951, the A table has been compiled directly.)

(Note 1) Industry Technology Assumption: It is assumed that goods produced in one industry employ the same structure of manufacturing technology. In concrete terms, when the value added by commodity is estimated, the value-added ratio of Industry “A” is applied to all goods produced in Industry “A,” and the value-added ratio of Industry “B” is applied to all goods produced in Industry “B.” Next, we calculate the value added by industry and by commodity. Lastly, the value added by commodity is calculated by totaling all commodities.

(Note 2) Commodity Technology Assumption: It is assumed that the same goods, even if they are produced in different industries, employ the same structure of manufacturing technology. In concrete terms, when estimating the value added by commodity, we first calculate the production value by commodity regardless of which industry produced the goods. Next, the value-added ratio of Industry “A,” of which the main product is Commodity “a,” is applied to Commodity “a” and the value-added ratio of Industry “B,” of which the main product is Commodity “b,” is applied to Commodity “b.”

ii) Definition of commodity-by-commodity table/A table

The Input-Output Tables for Japan are commodity-by-commodity tables (A tables) (see 2 (2) in this

chapter). However, goods with greatly different uses and unit prices are divided into different row sectors, even if they are produced through one production activity. For example, the commodities of petroleum refineries (row) are divided into gasoline, kerosene, diesel oil, crude oil, and so on, although petroleum processing is regarded as one activity (column). Therefore, the commodity-by-commodity table resembles a commodity (row)-by-activity (column) table.

Information on the preliminary estimation of the added value of manufacturing products and services by industry can only be obtained from the Census of Manufacturers and Survey on Service Industries. Therefore, we estimate the value added by commodity based on the industry technology assumption. Strictly speaking, the value added of goods and services in these sectors is not estimated on a commodity basis.

(2) Price Valuation and Types of Tables (Input-Output Table at Producers' Prices and Input-Output Table at Purchasers' Prices)

i) Price valuation methods

Each transaction is recorded in monetary terms in the Basic Transaction Tables. The treatment of prices is important, as the values for production and transactions change depending on the treatment of prices.

Not all goods of the same type or quantity are traded at the same price in the actual economy. The prices of commodities vary according to factors such as regional and seasonal fluctuations, as well as differences in the structure of supply and demand or transaction patterns. For example, the price of commodity "a" produced in Hokkaido may differ from that of commodity "a" produced in the Kanto district. The price of one commodity produced by one company may differ depending on whether it is in high demand or whether it is for large-scale or small-scale customers.

When each transaction is entered in the Basic Transaction Tables, a commodity may be valued either at the price derived from the actual cost incurred or at the single price, irrespective of customers or transaction patterns. The former is referred to as the "actual price," and the latter as the "uniform price."

Generally speaking, there are the following two valuation methods for prices.

- (A) Based on producers' price or purchasers' price
- (B) Based on actual price or uniform price

The following four price valuation methods can be obtained by combining these two concepts.

- [1] Producers' price valuation based on actual prices
- [2] Purchasers' price valuation based on actual prices
- [3] Producers' price valuation based on uniform prices
- [4] Purchasers' price valuation based on uniform prices

Japan adopts the following two methods of evaluation: [1] producers' price valuation based on actual prices, and [2] purchasers' price valuation based on actual prices. The Basic Transaction Table based on the former is referred to as the "Input-Output Table at producers' prices," and the latter as the "Input-Output Table at purchasers' prices." Japan does not use a valuation method based on uniform prices.

For recording of the value-added tax (consumption tax), the following two methods are used: a gross approach in which all value-added taxes are included, and a net approach in which deductible value-added taxes are not included. We adopt the gross approach in compiling the Input-Output Tables for Japan due to our limited statistical data.

ii) Input-Output Table at producers' prices and Input-Output Table at purchasers' prices

(A) Formats of the two tables and differences between them

The difference between the two prices can be ascribed to the fact that the purchasers' price is inclusive of such distributive costs as trade margins and domestic freight, while the producers' price is not (see Chart 2-2).

We compile both types of tables as the Basic Transaction Tables for Japan. In the Input-Output Table at producers' prices, each transaction is recorded at the producers' delivery price. Trade margins and domestic freight, incurred before purchasers buy products, are added at the intersection of the purchasers' sector (column), the commerce sector (row), and the transport sector (row).

In the Input-Output Table at the purchasers' prices, each transaction is recorded at prices including trade margins and domestic freight. As a result, only "cost trade margins," "passenger

fares,” and “cost transport margins” (see 9 (2) in this chapter) are recorded in the row sector for commerce and transport. Trade margins and domestic freight are not recorded in the row sector for commerce and transport.

In tertiary industries, or the service sector in a broad sense, such as those of construction and electric power, in which trade margins and domestic freight are not applied, transactions valued at producers’ prices are equal to those valued at purchasers’ price.

However, in “7331-011 computer programming and other software services,” “7351-011 Image information production and distribution industry,” “7351-021 Newspapers,” “7351-031 Publishing,” “8519-099 Other business services,” “8619-011 Photographic studios,” and “9000-000 Activities not elsewhere classified,” trade margins and domestic freight are applied, and thus, transactions valued at producers’ prices are not always equal to those valued at purchasers’ price.

(B) Characteristics of use

Use of the Input-Output Table at producers’ prices and the Input-Output Table at purchasers’ prices has the following features.

It is easy to understand the composition of manufacturing costs in each column sector, as the Input-Output Table at purchasers’ prices is recorded at prices that are nearly equal to prices of our recognition of actual transactions. In addition, the Input-Output Table at purchasers’ prices is advantageous in comparison with other accounts in the national accounts, including the income expenditure account and the national balance sheet.

On the other hand, the amount of domestic freight and trade margins differs not only depending on the type of goods and services, but also, in many cases, depending on transaction patterns even if goods and services are identical. Thus, the amount of domestic freight and trade margins is unstable and consequently, to stabilize input coefficients (as technical coefficients) by making the input coefficients as close as possible to the physical quantities, it is more convenient to use the producers’ price as a basis for calculation in the Basic Transaction Table.

iii) Basic price

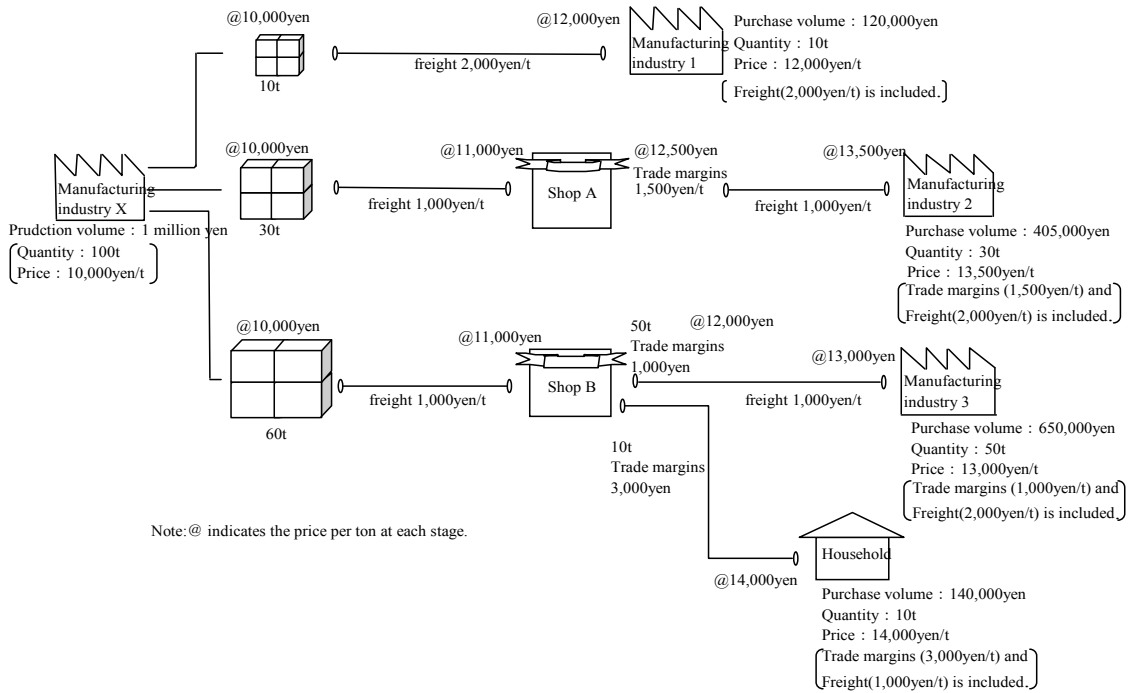
The basic price is the producers’ price minus commodity taxes such as consumption, tobacco, liquor, and other indirect taxes, plus subsidies. The 68SNA recommended that the transaction value be calculated using the basic price.

This 68SNA recommendation is based on the following facts: when commodity taxes are included in the transaction value, the commodity tax rates are not necessarily stable and are subject to variations depending on whether it is household or business consumption. In addition, when the tax rates are different among the commodities classified into the same sector, the transaction values are affected by the composition of the commodity to be purchased. Thus, the input coefficients are also affected by these artificial factors.

In Japan, we discussed compiling a “commodity tax matrix” as a supplementary table for the 1970 Input-Output Tables. However, we could only perform trial calculations of the national commodity tax, due to insufficient data on local commodity tax. We have not discussed the treatment of basic price since then (see 5 (4) in this section and 2 (2) in Section 2 for more on the treatment of consumption tax).

Chart 2-2 Input-Output Table at Producers' Prices and Input-Output Table at Purchasers' Prices

[1] Flow of price setting—temporary example—



[2] Input-Output Table at Producers' Prices — Model —

(unit: 1,000 yen)

		Intermediate demand					Final demand			Total demand	Imports (Less)	Domestic production
		...	Manufacturing Industry 1	Manufacturing Industry 2	Manufacturing Industry 3	Consumption	Investment			
Intermediate input	Commodity "X"	100	300	500	0	1000	100	0	0	1000	0	1000
	Commerce	0	45	50	0	125	30	0	0	125	0	125
	Transport	20	60	100	0	190	10	0	0	190	0	190
Gross value added												
	Domestic production											

Note: This table is based on the figures in Chart 2-2 [1].

[3] Input-Output Table at Purchasers' Prices — Model —

(unit: 1,000 yen)

		Intermediate demand					Final demand			Total demand	Less			Domestic production
		...	Manufacturing Industry 1	Manufacturing Industry 2	Manufacturing Industry 3	Consumption	Investment		Exports	Imports	Trade margins	
Intermediate input	Commodity "X"	120	405	650	0	1315	140	0	0	1315	0	-125	-190	1000
	Commerce	0	0	0	0	125	0	0	0	125	0	0	0	125
	Transport	0	0	0	0	190	0	0	0	190	0	0	190	190
Gross value added														
	Domestic production													

Note: This table is based on the figures in Chart 2-2 [1]. The trade margins and freights are included in the row for the transaction value of Commodity "X."

(3) Treatment of Imports and Table Types

i) Competitive import type table and non-competitive import type table

There are two methods for treating imports in the Basic Transaction Tables. One is the “competitive import type table,” in which imports and domestic products are treated as identical if they are the same type of goods. The other is the “non-competitive import type table,” in which imports and domestic products are treated differently despite the fact that they are the same type of goods.

ii) Table type for Japan: The “competitive import type table,” which is accurately described as a “mixed-type table of competitive and non-competitive imports”

In principle, the Basic Transaction Table for Japan is the “competitive import type table,” in which the input and output of domestic products, as well as imports, are treated collectively. However, the above table can easily be converted into a non-competitive import type table, as the import value of each transaction is recorded as a breakdown item.

In the Input-Output Tables for Japan, key imported goods such as raw materials and soybeans are recorded separately under the row sector for imported goods, regardless of the scale of domestic production. Therefore, the Basic Transaction Tables for Japan is accurately described as a “mixed-type table of competitive and non-competitive imports”.

Table 2-3 represents the “competitive import type table,” the “non-competitive import type table,” and the “mixed-type table of competitive and non-competitive imports.”

Table 2-3 Competitive Import Type Table and Non-Competitive Import Type Table

[1] Perfectly Competitive Import Type Table (Model)

	A	B	C	D	Consumption	Investment	Exports	(Less) Imports	Domestic production
A	10	60	30	40	10	0	0	-100	50
B	20	10	50	10	20	15	10	-35	100
C	5	10	5	50	60	40	40	-50	160
D	5	5	20	15	70	30	30	-25	150
Gross value added	10	15	55	35					
Domestic production	50	100	160	150					

Note: The figure in each grid is the total of domestic products and imported goods, except for the figures in the gross value-added sector and the import sector.

[2] Mixed-Type Table of Competitive and Non-Competitive Imports (Model)

	A	B	C	D	Consumption	Investment	Exports	(Less) Imports	Domestic production
A	5	10	20	10	5	0	0	0	50
A (Imports)	5	50	10	30	5	0	0	-100	0
B	20	10	50	10	20	15	10	-35	100
C	5	10	5	50	60	40	40	-50	160
D	5	5	20	15	70	30	30	-25	150
Gross value added	10	15	55	35					
Domestic production	50	100	160	150					

Note: The Imports of Commodity “A” are recorded separately under the row sector, while the total of their domestic products and imported goods are recorded for Commodities “B,” “C,” and “D.”

[3] Perfectly Non-Competitive Import Type Table (Basic Type) (Model)

	A	B	C	D	Consumption	Investment	Exports	(Less) Imports	Domestic production
Domestic	A	5	10	20	10	5	0	0	50
	B	10	10	30	10	20	10	10	100
	C	5	10	5	40	30	30	40	160
	D	5	5	15	15	55	25	30	150
Imports	A	5	50	10	30	5	0	0	-100
	B	10	0	20	0	0	5	0	-35
	C	0	0	0	10	30	10	0	-50
	D	0	0	5	0	15	5	0	-25
Gross value added	10	15	55	35					
Domestic production	50	100	160	150					

Note: In Japan, a supplementary table (table on imports) enables compilation of the perfectly non-competitive import type table as above for the Basic Transaction Tables.

[4] Non-Competitive Import Type Table (Simplified Type) (Model)

		A	B	C	D	Consumption	Investment	Exports	(Less) Imports	Domestic production
Domestic	A	5	10	20	10	5	0	0	0	50
	B	10	10	30	10	20	10	10	0	100
	C	5	10	5	40	30	30	40	0	160
	D	5	5	15	15	55	25	30	0	150
Imports		15	50	35	40	50	20	0	-210	0
Gross value added		10	15	55	35					
Domestic production		50	100	160	150					

Note: Only the sectoral total of imports is shown. No breakdown by item is included.

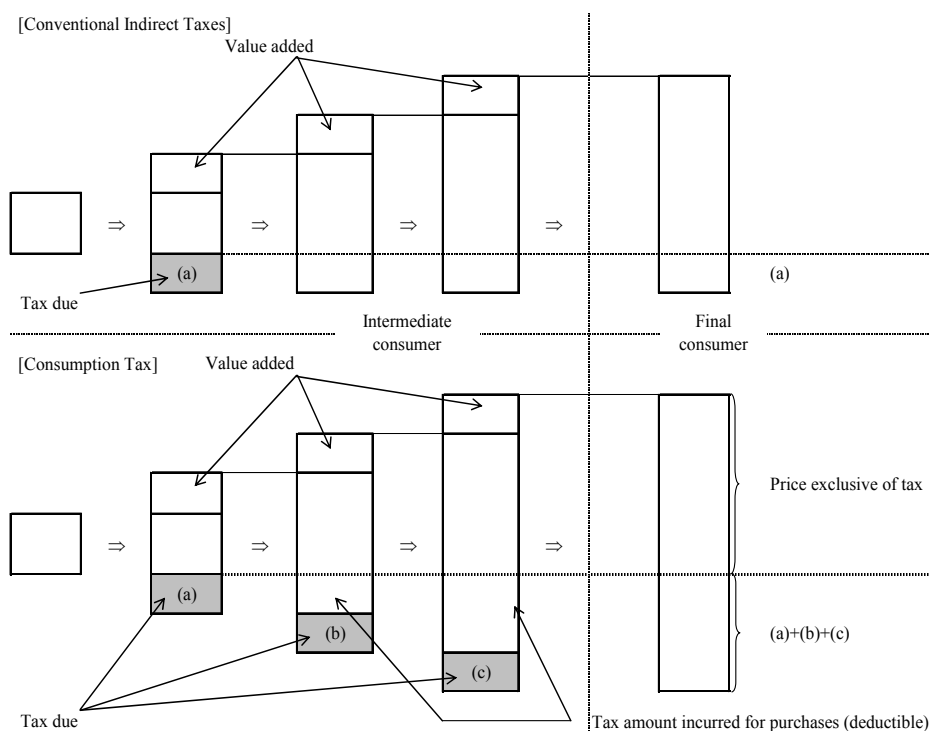
(4) Treatment of Consumption Tax (Value-Added Tax) and Table Types

i) Nature of consumption tax

The consumption tax described in Chart 2-4 differs from individual indirect taxes, such as the former commodity taxes, which are imposed on specific goods and services. In principle, consumption tax is a non-cumulative multistage indirect taxation imposed on each and every transaction of goods and services in Japan. In addition, the tax imposed on business purchases is deducted in order to prevent accumulation of the tax in the intermediate transaction stages.

As prices of commodities in the Input-Output Tables include the former indirect taxes regardless of intermediate or final demand, the tax amount is also indicated as an input cost. However, in principle, the consumption tax imposed on the transaction in the intermediate demand sector, or the tax for purchase, is deducted from the purchasers' side (input side). Consequently, the intermediate input side in the Input-Output Table is valued at the net price (the price exclusive of deductible tax amount). Generally speaking, an indication in line with the above is required.

Chart 2-4 Differences between Conventional Commodity Taxes and Consumption Tax



ii) Table format for consumption tax

The table format for consumption tax is shown in Chart 2-5.

(A) Gross value Input-Output Table

The Input-Output Table compiled based on the value of actual transactions, in which taxes are included, is referred to as the “gross value table” (table including taxes). In principle, tax in the endogenous sector is imposed on the production and sale of the material, while the tax imposed on purchase (input) is deducted to prevent accumulation of the tax. However, the taxes in the endogenous sector are recorded as input value (see “[1] Example of Gross Value Input-Output Table” in Chart 2-5).

(B) Input-Output Table without value-added tax

Taxes, which alter the value of a transaction with no change in transaction volume, obviously have an impact on industrial activities. Consequently, taxes that affect the input coefficients of the transaction value must be excluded from the Input-Output Tables in which stable input coefficients are required. A table compiled after the entire tax amount has been excluded from the transaction value in the Input-Output Tables is referred to as an “Input-Output Table without value-added tax” (see “[2] Example of Input-Output Table without Value-Added Tax” in Chart 2-5).

(C) Net value Input-Output Table

The table compiled based on the following is referred to as the “net value Input-Output Table” (see “[3] Example of Net Value Input-Output Table” in Chart 2-5).

- a. A table that includes the deductible tax amount of the tax for purchase in the exogenous sectors (the gross value added sectors and final demand sectors) after excluding the deductible tax amount from the endogenous sectors
- b. A table that includes a nondeductible tax amount such as the tax for exempt enterprises’ purchases in the input cost as an increase in the purchase price

Chart 2-5 Representation Format for Consumption Tax (Model)

[1] Example of Gross Value Input-Output Table

		Intermediate demand					Intermediate demand total	Final demand				Domestic production	
		A	B	C	D	E		Consumption	Investment	Exports	Imports		
Intermediate input	A		840				840					-210	630
	B			945			945			100			1,045
	C				1,050		1,050		105	200			1,355
	D	105				105	210	840	315	400			1,765
	E			105	105		210	420	105				735
Intermediate input total		105	840	1,050	1,155	105	3,255	1,260	525	700	-210		5,530
Value added		500	200	300	600	600	2,200						
Tax due		25	5	5	10	30	75						
Domestic production		630	1,045	1,355	1,765	735	5,530						

- Notes:
1. The above table is compiled on the assumption that a tax rate of 5% applied to all transactions except for those involving tax-exempt exports.
 2. Not all figures in the grid follow the equation [net of tax (tax excluded) × 1.05 = gross (tax included)], due to nontaxable transactions, exempt enterprises.

[2] Example of Net Value Input-Output Table

		Intermediate demand					Intermediate demand total	Final demand				Domestic production	
		A	B	C	D	E		Consumption	Investment	Exports	Imports		
Intermediate input	A		800				800					-200	600
	B			900			900			100			1,000
	C				1,000		1,000		100	200			1,300
	D	100				100	200	800	300	400			1,700
	E			100	100		200	400	100				700
Intermediate input total		100	800	1,000	1,100	100	3,100	1,200	500	700	-200		5,300
Value added		500	200	300	600	600	2,200						
Domestic production		600	1,000	1,300	1,700	700	5,300						

- Notes:
1. The above table is compiled on the assumption that a tax rate of 5% applied to all transactions except for those involving tax-exempt exports.
 2. The difference between domestic production, which is a total of row sectors, and a total of column sectors is the Tax due.
 3. Such factors as investment allowances are not considered.

6 Domestic Production

(1) Control Totals (CT)

The domestic productions by sector, which is the first estimated figure in the Input-Output Tables, is calculated based on the output of the corresponding industry (the output of goods and the sales value of services). Regarding producers of government service activity and producers of private non-profit service for households, their production values are calculated by tallying the costs of their activities.

The domestic productions by sector are a very important figure that affects figures in the row and column sectors in the Input-Output Tables. The procedure for estimating the Input-Output Tables is as follows: after domestic productions are determined, the values of inputs and outputs are estimated as their breakdown. Therefore, any error made in this estimation, which has an impact on the inputs and outputs of other sectors, will reduce the accuracy of the entire table. For this reason, the domestic productions are also known as the Control Totals (CT).

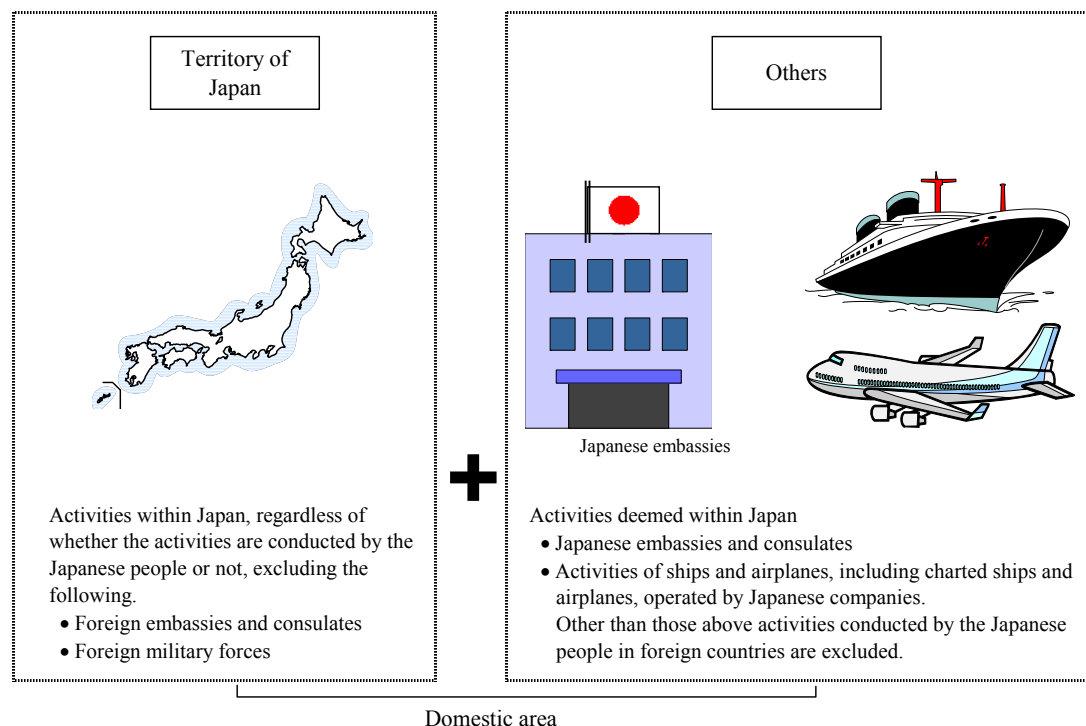
(2) Domestic Concept

The Input-Output Tables cover all transactions involving goods and services, including the production of intermediate goods within a certain period of time (normally a one-year period from January to December). The domestic concept defines the scope of the recording of the aforementioned production activities in the Input-Output Tables.

The “domestic area” is defined here as “the territory including the country’s embassies and consulates as well as military forces in foreign territories, but excluding foreign embassies and consulates as well as military forces in the territory.” The Input-Output Tables cover only production activities conducted within the domestic area of Japan.

For example, production activities conducted by foreign companies in Japan are included in the Input-Output Tables, while production activities conducted by Japanese companies in foreign countries are excluded. Activities conducted by foreign embassies and consulates in Japan as well as by U.S. military forces are not included, although activities conducted by Japanese embassies and consulates in foreign countries are recorded (see Chart 2-6).

Chart 2-6 Domestic Area in the Input-Output Tables



Note: There is a national concept in addition to a domestic concept. In the national concept, production is used to define the scope of production activities conducted by residents of the country.

In addition to a domestic concept, there is also a national concept. The national concept is a concept that targets all the residents of the country, and refers to corporations based in the applicable country and individuals

who are residents of the country. Individuals who are residents refer to all individuals who have been living within the applicable territory for more than one year, and may be of any nationality. On the other hand, individuals who have lived abroad for more than a year are referred to as non-residents

(3) Goods and Services by Non-Profit Activities

Normally, transactions involving goods and services are conducted at a price that will compensate for the cost of their production. However, there are goods and services that the producers of government service activity and private non-profit service for households provide free of charge or at prices that are much lower than their actual cost.

In the Input-Output Tables, which include goods and services by non-profit activities, the domestic productions of producers of government service activity and private non-profit service for households are calculated based on their production costs.

(4) Double Counting in Domestic Production

i) In the same basic sector classification

First, the domestic productions by detailed commodity item are estimated. A detailed commodity item (approximately 3,800 in total) is a detailed classification by commodity or activity (unit of production activity) based on key statistics. Next, the domestic productions by sector are estimated by accumulating the above on a sectoral basis of basic sector classification. For this reason, if one commodity item in a basic classification sector concerned is also used as a raw material for the production of another commodity item in the same sector, the domestic productions for the raw material will be counted twice. The more detailed the classification of commodity item by production process, the greater the extent of such duplication of the production value.

Example of Double Counting in Domestic Production

Basic sector classification: 3251-011 Household air-conditioners
(Detailed items)
Parts of Household air-conditioners and the like: 118.2 billion yen
Household air-conditioners (finished goods): 771.7 billion yen
<hr style="width: 50%; margin: 0 auto;"/> Total: 889.9 billion yen

Note: When parts are assembled to produce finished goods, the amount for parts (118.2 billion yen) is included in the amount for finished goods (771.7 billion yen). Thus, this amount for parts is counted twice in the basic sector classification.

ii) Double counting by aggregating basic sector classifications

In estimation of the domestic production of automobiles, finished automobiles and such parts as auto bodies and engines are included in their respective basic sector classifications. The production value of automobiles as finished goods includes that of auto parts as raw materials, that is, involves duplicated recording in the basic sector classification.

As specified above, the production value in each sector will further overlap as sector classifications are aggregated. Nevertheless, the aggregation of basic sector classification does not change the production value in the entire industry, as the double counting of production value is accumulated at the intersection of the row and column sectors in the same industry.

(5) Treatment of Self-Consumption

When partly finished products in an integrated manufacturing process are produced and consumed entirely and exclusively within their own sector, the production value of said partly finished products is, in principle, not recorded. Even in the case of commodities such as pig iron and crude steel, both of which are consumed immediately in the subsequent stage of an integrated manufacturing process, their production values are separated and recorded by commodity when they have different input and output structures.

When estimating domestic production based on shipment statistics such as the Census of Manufactures by detailed commodity item, the value of in-house production and self-consumption cannot be estimated, as these products that are not shipped are excluded from the statistics. Consequently, the output of these products is not

included in the domestic production. In this way, the treatment of in-house production and self-consumption differs from case to case, depending on the statistics used.

Regarding in-house production and self-consumption goods in households, only the self-consumption value of farm and fishery households is recorded.

(6) Treatment of Manufacturing Commissioned to Other Establishments

The production value, the intermediate input required for production, and the value added of products in each sector are included in the Basic Transaction Table, regardless of whether the products in each sector are manufactured in-house or outsourced. However, in a sector in which the Census of Manufactures is used as basic data for the estimation of domestic production, only income from the processing of goods other than raw materials is included in the production value of the entrusted industry. The production values of non-manufacturing industries that consign production (such as the wholesale and retail trade, including trading companies and department stores) are as follows: sales amount minus purchase amount equals margins. Therefore, the cost of purchased materials required for consignment production is excluded from the intermediate input. As a result, in the production sector for raw materials, the sale of raw materials to such consignors as trading companies for consignment production cannot be transferred to any output sector if no reconciliation is conducted. In the sector for commissioned manufacturing, the production value is underestimated while the ratio of the value added is overestimated.

For value of consignment production from the non-manufacturing industry, the production value that includes the cost of raw materials is calculated by multiplying the income from the processing of goods by the reciprocal of the value-added ratio, as based on the following formula.

$$\text{Production value} = \text{Income by processing goods} \times \frac{\text{Product price}}{\text{Product price} - \text{Cost of raw materials}}$$

(7) Price Valuation of Domestic Production

Domestic productions in the “Input-Output Table at producers’ prices” are valued at producers’ prices based on actual prices. In addition, the input and output values are calculated based on these prices. Some concrete examples follow.

- [1] Finished manufactured goods and the like are valued at producers’ delivery prices, which refers to the factory shipment prices inclusive of cost and profit distribution among headquarters and sales offices. Producers’ delivery prices also include indirect taxes such as consumption tax, which inflate the selling price, while current government subsidies that deflate the selling price are recorded as negative items.
- [2] The activities of the retail manufacturing industry are recorded in their respective sectors after being divided into manufacturing and retail activities.
- [3] In the treatment of secondhand goods, only transaction margins are listed as cost trade margins in the commerce sector of the domestic production (see 9 (2) in this section).
- [4] Such industries as forestry, fisheries, and quarries, in which the areas of establishments are not specified, are valued at the price of the nearest market to the place of production. In addition, freight from the producer to the market is treated as cost transport margins (see item 9 in this section).
- [5] In the valuation of land transactions, the cost of land acquisition is not recorded, and only brokerage commissions and improvement expenses are recorded in their respective sectors of the domestic production.
- [6] Scraps and by-products are, in principle, handled by the “negative input method.” Thus, the values of scraps and by-products obtained from using the “negative input method” are not recorded as domestic production (see item 9 (3) in this section).
- [7] With regard to handling of reuse and recycling, the creation of a “reuse and recycling” sector for the 2000 Input-Output Tables outputs a value that is equivalent to the value of scraps and by-products to the reuse and recycling sector, and the sum and the cost of collection and treatment are output from the relevant sector to each input sector. Scraps and by-products are thus included in the domestic production of the “reuse and recycling” sector. In the 2005 Input-Output Tables, scraps and by-products are not input in the reuse and recycling sector, and only related costs are counted toward the domestic production value (see item 9 (4) in this section).
- [8] Indirect taxes imposed during the process of producing goods are included in the production value of the production sector that pays them. Taxes levied in the process of distribution are included in the

production value of commerce. (Note that light-oil delivery tax is treated as the tax imposed in the production process, taking into account other petroleum products manufactured by the same production process.) Consumption tax is included in the valuation.

- [9] Producers' prices for in-house production and self-consumption are valued at current market prices.
- [10] Fluctuations in stocks of semi-finished goods and work in progress are valued at the average of the opening and closing price for that year.
- [11] Services are valued at the price paid by those who receive the services. In services other than computer programming and other software services, motion picture and video production/distribution, newspapers, publishing, other business services and photographic studios, the producers' prices are equal to the purchasers' prices.
- [12] The production valuation of such sectors as finance, insurance, and house rent is based on their imputed value (see item 9 in this section).
- [13] In principle, the production of producers of government service activity and private non-profit services for households is valued at its total cost.

7 Recording Transactions in Intermediate and Final Demands

(1) Intermediate Demand Sectors

Basically, the figures shown in the grid in the endogenous sector of the Basic Transaction Tables represent the transaction values of goods and services conducted between sectors. However, the transaction value recorded in the endogenous sector is the value of consumption required for the year. Therefore, the transaction value (purchase value) for the year is not recorded directly.

(2) Transactions in Capital Goods

Transactions involving capital goods, that is, goods with a durability of one year or more and for which the unit price is 100,000 yen or more, purchased by any sector, are recorded in the gross domestic fixed capital formation of the final demand sector and are not treated as the transaction value of endogenous sectors. However, there are the following exceptions: elements used as a part of another piece of machinery (built into machinery), purchases by the construction sector as intermediate goods for construction activities (construction bypass), goods treated as cost items for civil engineering work (civil engineering bypass), machinery built into steel vessels (shipbuilding bypass), arms purchased by Self-Defense Forces, and the like.

The fixed capital matrix, which are compiled as supplementary tables, indicate the amount and type of capital goods purchased by their respective sectors.

The allowance for the depreciation of capital goods in each column sector (the depreciation caused by using the capital goods for the year) is recorded under "depreciation of fixed capital" in the gross value added sectors.

Notes:	Built into machinery:	Elements built into another piece of machinery; normally capital goods
	Construction bypass:	Capital formation of such capital goods as elevators and boilers that bypass construction activities. In other words, builders purchase these capital goods as intermediate input.
	Civil engineering bypass:	Such capital goods as bridges and floodgates that require civil engineering work for their construction, despite the fact that they are capital goods. Capital goods treated as items of the construction cost are applicable.
	Shipbuilding bypass:	Such capital goods as boilers and telecommunication equipment installed in ships are applicable.

(3) Stocks

Stocks are treated as "Increase in stocks" in Input-Output Tables.

"Increase in stocks" refer to fluctuations in stocks that remain after subtracting the stocks as of the end of the previous year (for example, the end of 2004) from the stocks as of the end of the year covered (for example, 2005) (year-end balance of year covered minus year-end balance of previous year).

- [1] Products that were produced but were not sold to any sectors or were not used for self-consumption during the year covered are recorded in the "increase in stocks of producers' stocks of finished goods" (refer to [1] in Chart 4-7).

[2] Stocks of semi-finished goods and work in progress concerning production activities during the reference year by producers are recorded in the “increase in stocks of semi-finished goods and work in progress” (refer to [2] in Chart 4-7).

[3] Raw materials that were purchased but not used in the reference year are recorded in the “increase in stocks of raw materials and supplies”. However, the raw materials are recorded at the intersection of the row sector to which the goods made from the raw materials belong, not at the intersection of the industry (row) sector that purchased the raw materials (refer to [3] and [4] in Chart 4-7).

[4] Commodities that were purchased by wholesale and retail trades but were not sold are recorded in the “increase in dealers’ stocks of goods” (refer to [5] and [6] in Chart 4-7).

Stocks of imported goods are divided into the “increase in stocks of raw materials and supplies” and the “increase in dealers’ stocks of goods”.

As specified above, fluctuations in stocks are recorded at the intersection of the row sector to which stocks of applicable goods belong and the respective column sectors of the increase in stocks.

Chart 2-7 Example of Increase in Stocks

Example of the increase in stocks: a producer of wooden furniture purchased domestic and the stocks increased at each stage in the process of producing wooden furniture. stocks in the process of producing wooden furniture.

			Intermediate demand		Final demand				
					Increase in stocks				
					Finished goods	Semi-finished goods	Dealers' stocks	Raw materials	
Intermediate input	Materials	Domestic						[5]	[3]
		Imported			-	-		[6]	[4]
	Wooden furniture				[1]	[2]			

- Notes) 1. The increase in raw material stocks of the wooden furniture is recorded at the intersection of the sector of materials (row) and the increase in raw material stocks ([3], [4]).
2. The increase in goods of dealers’ stocks of wholesalers is recorded at the intersection of the sector of materials (row) and the increase in dealers’ stocks ([5], [6]).

8 Price Valuation of Exports and Imports

(1) Exported Goods by Ordinary Trade

In the Input-Output Table at producers’ prices, the prices of exports in ordinary trade are valued at producers’ ex-factory prices, in the same way as in the case of the prices of goods for domestic demand. On the other hand, in the Input-Output Table at purchasers’ prices, they are valued at FOB (Free on Board) prices.

As Foreign Trade Statistics of Japan published by the Ministry of Finance value exports in ordinary trade at FOB prices, their prices are directly applicable in the Input-Output Table at purchasers’ prices. However, domestic freight and trade margins for transporting goods from the factory to the ship must be deducted from the FOB prices in the Input-Output Table at producers’ prices.

(2) Imported Goods by Ordinary Trade

The prices of imports in ordinary trade in the Input-Output Tables both at the producers’ prices and at the purchasers’ prices are valued at CIF prices (inclusive of freight and insurance: Cost, Insurance, and Freight).

Note that the sum of customs duties, commodity taxes on imported goods, and CIF prices is recorded as the transaction value of imports in each cell of the Basic Transaction Tables.

(3) Imports and Exports by Special Trade and Direct Purchase

The values of imports and exports by special trade and direct purchase, that is, imports and exports of services and the transaction value of goods that are not recorded by ordinary trade, are estimated based on the Balance of Payments Table.

9 Sectors Requiring Special Treatment

In the sectors of the Basic Transaction Tables, there are several specially treated sectors according to the SNA concept or for the analysis and compilation of the Input-Output Tables. This is explained below.

(1) Estimation Method for Activities in the Commerce and Transport Sectors

We compile the Basic Transaction Tables in order to record the current status of transactions between sectors. Most actual transactions are conducted through the commerce and transport sectors. If actual transactions are recorded in line with this flow of transactions, trade relations between sectors will be very difficult to understand.

For example, look at the following flow of commodity transactions that sector "B" purchased Commodity (value: 100) produced by sector "A" through commerce sector as shown in Chart 2-8.

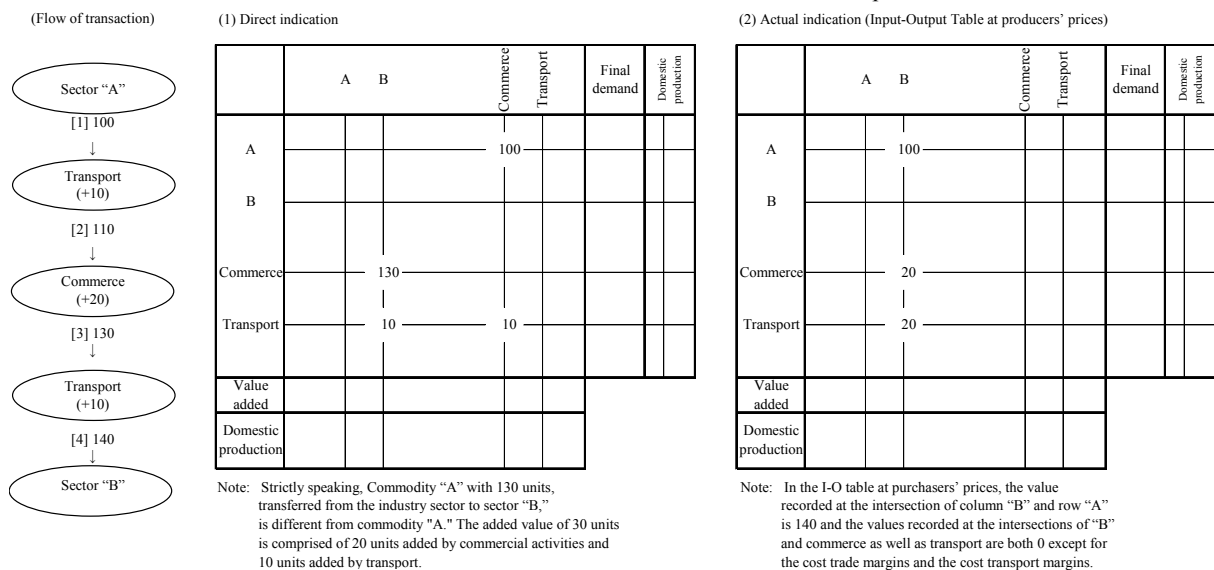
- [1] First, Commodity produced by sector "A" is sold to commerce through transport (freight: 10).
- [2] The purchase price of commerce is 110.
- [3] Next, Commodity is sold to sector "B" through transport (freight: 10) again after commerce adds margins (margins: 20).
- [4] The purchase price of sector "B" is 140.

It is very difficult to determine the relationship between A and B in Chart 2-8 (1), which records the above transaction process directly.

To avoid such a complicated indication, trade margins and domestic freight are collectively recorded by demand sector, as if direct transactions were conducted between sectors (for example, between sector "A" and sector "B") without going through the commerce and transportation sectors in the Input-Output Tables.

Concretely speaking, in the Input-Output Table at producers' prices, the total amount of trade margins and domestic freight added in the process of a transaction is recorded at the intersection of the sector on the purchasers' side (B), commerce, and transport.

Chart 2-8 Treatment of Sectors of Commerce and Transport



(2) Cost Trade Margins and Cost Transport Margins

Special commercial and transport activities that differ from the normal distribution costs specified in (1) above are treated as direct costs. These expenses are recorded at the intersection of the "commerce" and "transport" row sectors as "cost trade margins" and "cost transport margins," that is, the cost for production activities in respective column sectors in the Input-Output Tables both at producers' prices and at purchasers' prices.

i) Cost trade margins

- (i) Imported goods are valued at CIF prices. However, services provided by the agents of foreign trading companies that are involved in the importing of goods are not included in CIF prices, but are treated as a commission paid to the agents as compensation for services. The aforementioned commission paid is recorded in imports (special trade) as import of commerce, but is treated as cost

trade margins that the wholesale sectors input and is recorded as output in the wholesale trade sector (the column sector). Likewise, services provided by the agents of Japanese trading companies that are involved in the exporting of goods are treated as commission received by the agents.

Note: Services provided by the agents of foreign trading companies are recorded as commission paid to the agents in “other trade-related services” in the Balance of Payments Table.

- (ii) In transactions involving secondhand goods, only the transaction margins are recorded as cost trade margins in the Basic Transaction Tables.

In concrete terms, the transaction margins of used cars in households and used buses and trucks under the category of fixed capital formation are referred to as the “cost trade margins.” Secondhand goods themselves are not subject to recording in the Input-Output Tables, as they are not produced in the current year. However, the commercial activities that accompany the transactions in secondhand goods are conducted in the current year. Therefore, only the transaction margins should be recorded (refer to Chart 2-9).

Chart 2-9 Example of Purchasing of a New Car or Used Car in a Household

- [1] New car: Price of passenger motor car = 2.5 million yen
Trade margins = 0.5 million yen
Purchaser’s price = 3 million yen

Consumption expenditure of Households

Passenger motor car	250
Commerce	50

Trade margins

Special code 6 is attached.

- [2] Used car: Price of passenger motor car = 1.5 million yen
Trade margins = 0.5 million yen
Purchaser’s price = 2 million yen

Consumption expenditure of Households

Passenger motor car	
Commerce	50

Cost trade margins

No special codes are attached.

ii) Cost transport margins

- (i) Costs for transportation activity that is part of the production process (that is, transportation activity that forms a part of costs for production activities)
 - a. Costs for transporting such commodities as timber and perishable food from the places of production to the collection points or the wholesale markets where producers’ prices for such commodities are determined
 - b. Costs for transporting raw materials and semi-finished products such as iron and steel, as well as ships, within a large-scale factory for their manufacture
 - c. Costs for transporting such production equipment as construction machinery and scaffolding
- (ii) Costs for transporting goods to be moved, trip cargo, mail, secondhand goods, coffins, waste, and construction waste soil

Waste and construction waste soil, which account for a large portion of the cargo transported by truck, are treated not as scrap but as goods without value, and are thus not recorded as transactions in the I-O Tables. Therefore, costs for transporting waste and construction waste soil are recorded as cost transport margins at the intersection of the waste-generating sector and the transport sector. That is, the disposal of waste and construction waste soil (payment to the carrier) in one industry is regarded as a part of the production costs of the industry.

Transporting goods to be moved and trip cargo is not regarded as a transaction between sectors that generates freight, since they are for purposes of moving from one residence to another or for moving belongings (as in the case of travelers). Such transportation costs are regarded as cost transport margins.

Costs for transporting secondhand goods are treated similarly to cost trade margins.

Note that home delivery services are treated either as distribution costs for domestic freight or as cost transport margins, depending on the type of transaction of the cargo. If home delivery is used as a means of transportation that accompanies a transaction between industry sectors, the costs are regarded as domestic freight. If travelers themselves use home delivery in order to send souvenirs bought on a journey to their home or to friends, the costs are regarded as the cost transport margins of households. In business activities, if a company uses home delivery in order to send documents and electromagnetic tapes between the headquarters and the branch offices, the costs are regarded as the cost transport margins of the company.

(3) Scrap and By-Products

When certain goods are produced, production technologies inevitably produce goods other than those intended. If such goods are produced as products in different sectors, they are referred to as “by-products”; if not, they are referred to as “scraps.”

Because the Input-Output Tables are formulated according to activity-based classifications, at least one product must generally be assigned to each sector. In this regard, scraps and by-products require special handling.

Of the following four methods, this handling in the 1995 and earlier Input-Output Tables was generally based on the “negative input method” and partly on the “lump” and “transfer” methods.

- [1] Lump method
- [2] Transfer method
- [3] Negative input method (Stone’s method)
- [4] Separation method

However, from the 2000 Input-Output Tables, based on anticipated growth in recycling activities, the “reuse and recycling” sector, including the cost of such activities, was first established. Since generated scraps and by-products are included in costs, this new sector required handling different from the conventional negative input method.

Explained below are representations by these four methods and the representation of the “reuse and recycling” sector in the 2000 Input-Output Tables, with an example of the “petrochemical sector producing 100 units of synthetic resin as its main product and 10 units of LPG as a by-product, and selling the petrochemical product to the resin sector and LPG to households, respectively.” (refer to Chart 2-10)

i) Lump method

Under this method, the main product (synthetic resin) and by-product (LPG) are treated as a single entity, not differentiated. Domestic production in the petrochemical sector is as follows: resin (100) + LPG (10) = 110. The LPG (10) sold to the household sector is recorded as a sale for the petrochemical sector.

Since this treatment assumes that LPG production in the petrochemical sector does not affect the LPG sector, it may be acceptable if the amounts of by-products are negligible.

In the basic transaction tables for Japan, the lump method applies, for example, to “stable manure” in the “livestock” sector and “cultivation of fruit trees” in the “fruit” sector.

ii) Transfer method

LPG (10), the by-product in the petrochemical sector, is provisionally output (transferred) to the LPG sector and output through the LPG sector to household consumption.

LPG produced by the petrochemical sector is included in domestic production, both for the petrochemical sector and for the LPG sector.

In the basic transaction tables for Japan, the transfer method is used for “advertising” in newspaper, magazine, and broadcasting.

For the purposes of analysis, demand for resin by this method does not affect LPG, but demand for LPG induces petrochemical production.

iii) Negative input method (Stone’s method)

Under this method, the production of the petrochemical sector is deemed as that of synthetic resin (100). LPG (10) produced as a by-product is treated as minus input (i.e., sold by) from the LPG sector. Viewed from the LPG sector (row), the minus is attributed to the petrochemical sector, the generating sector of by-product (column), while the plus is recorded in the household consumption sector, the consumption sector (column). Thus, the production of LPG as the by-product balances out to zero.

Under this method, LPG produced in the petrochemical sector is not recorded in either the row or column of domestic production. This method is also referred to as “Stone Method” after the originator of the method.

For the purposes of analysis, demand for resin under this method increases the supply of LPG, reducing production in the LPG sector. However, LPG demand—not LPG produced as by-product in the petrochemical sector, but LPG produced as a primary product in the LPG sector—is calculated for repercussion effects, not directly affecting petrochemical production.

This method may reflect actual economic conditions if LPG as a by-product is more competitive than LPG produced by specialty enterprises. However, it may cause problems involving inadequate balance of supply and demand unless production in the LPG sector is negative if there is significant demand for resin and low demand for LPG.

Furthermore, in the iron scrap and non-ferrous metal scrap sectors, from which no LPG is produced, problems may arise with the import coefficient (ratio of import to domestic demand) exceeding “1,” or with meaningless computation results.

iv) Separation method

Under this method, production activities in the petrochemical sector are divided into those for the primary product (synthetic resin) and the by-product (LPG), and the results are recorded in their respective sectors.

Production of synthetic resin and that of LPG are, essentially, inseparable. Even if provisionally separated, their production structures should maintain certain ratios; but different demand ratios for synthetic resin and LPG may suggest seemingly different production structures.

v) Presentation method applied to the 2000 Input-Output Tables (presentation method for the “reuse and recycling” sector)

Under this method, minus input is first applied to LPG produced as by-products from the petrochemical sector, then production is input, in a lump sum, to the newly established “reuse and recycling” sector. The amount to which the cost of collection and treatment is added is eventually output from that sector to household consumption, the final demand sector.

Under the minus input method, imports and exports of scraps and by-products are recorded directly in their respective competing sectors; but under this method, they are recorded as a lump sum to “reuse and recycling,” thereby stabilizing the import coefficient.

However, since all scraps and by-products are input under this method in a lump sum to the “reuse and recycling” sector and output from there to demand sectors, it becomes impossible to maintain the basic principle of the Input-Output Tables: that “one product should be treated in one sector.” The breakdowns are therefore indicated in the attached “Table on Scraps and By-products.” Based on this table, scraps and by-products can be reclassified by the conventional minus input method for relevant analysis objectives, while the concept of “reuse and recycling” is treated only as the cost of collection and processing.

Chart 2-10 Representation Formats for Scrap and By-Products

[1] Lump method

	... Petrochemical	Synthetic resin	LPG	...	Household consumption	...	Domestic production
Petrochemical		100			10		110
LPG							
Domestic production	110						

[2] Transfer method

	... Petrochemical	Synthetic resin	LPG	...	Consumption expenditure of households	...	Domestic production
Petrochemical		100	10				110
LPG					10		(10)
Domestic production	110		(10)				

[3] Negative input method

	... Petrochemical	Synthetic resin	LPG	...	Household consumption	...	Domestic production
Petrochemical		100					100
LPG	-10				10		(0)
Domestic production	100		(0)				

[4] Separation method

	... Petrochemical	Synthetic resin	LPG	...	Consumption expenditure of households	...	Domestic production
Petrochemical		100					100
LPG					10		(10)
Domestic production	100		(10)				

[5] Presentation method applied to the 2000 Input-Output Tables (presentation method for the "reuse and recycling" sector)

	... Petrochemical	Synthetic resin	LPG	...	Reuse and recycling	...	Household consumption	...	Domestic production
Petrochemical		100							100
LPG	-10				10				(0)
Reuse and recycling							18		(18)
collection and processing cost					5				
Employees compensation					3				
Domestic production	100				(18)				

(4) Imputation

In cases in which transactions are not apparently conducted but utilities are actually produced and there are people who receive these utilities, “imputation” is conducted. “Imputation” is for valuing utilities at the market price and calculating such value as domestic production for the sectors producing the utilities.

The output sectors, which receive the utilities, are listed below.

i) Strictly financial sectors

The activities of the financial sector are roughly divided into the following:

[1] Reception and management of deposits and savings, as well as loan business

..... The financial (imputed interests) sector

[2] Issue and underwriting of financial securities, trust services, and credit guarantee

..... The financial (commission) sector

Of the above two, “imputation” is conducted in the former financial (imputed interests) sector. The domestic productions of the financial (imputed interests) sector are calculated as follows:

Imputed interest = Interest received on loans - Interest paid on deposits and savings

Each industry sector, or the intermediate demand sectors in the Input-Output Tables, receives the imputed interest that is distributed in proportion to the lendings outstanding.

Financial institutions provide such services as the provision of longer-term loans by changing the liquidity of deposits to borrowers, loan routes for companies, and the concentration of funds on companies. Principally, it is thought that borrowers (those with demand for funds) benefit from the imputed interest. In the case of housing loans, however, those who obtained such loans in order to purchase their houses are included in the “house rent” sector (endogenous sector), as all houses owned by households are calculated based on the imputed rent. Therefore, the imputed interests in proportion to the lendings outstanding for housing loans to households are recorded in the “house rent” (imputed rent) sector.

Note that the imputed interests are recorded only in the endogenous sectors, and such loans as car and educational loans are not recorded as output in households, although such loans represent the lendings outstanding to households. This is to ensure consistency with 68 SNA.

ii) Life and casualty insurance

We will treat the sector for life and casualty insurance as producing imputed insurance services calculated based on the following:

(Premiums received + Earnings from asset management) -

(Loss paid + Increase in reserves)

All imputed services for life insurance are recorded as consumption expenditure of households, while those for casualty insurance are recorded in the endogenous sectors in addition to consumption expenditure of households.

iii) Depreciation of fixed capital for the government buildings

Regarding governmental buildings in the government services and education sectors that are not depreciated, their imputed depreciation is recorded in the “depreciation of fixed capital.”

Therefore, the domestic productions of these sectors are as follows:

Total expenses + Depreciation of fixed capital (imputed depreciation)

iv) House rent for owner-occupied dwellings and dwellings supplied by employers

Although the tenants of owner-occupied and company houses do not actually pay rent, these houses are regarded in the national accounts as rental dwellings for which tenants pay rent.

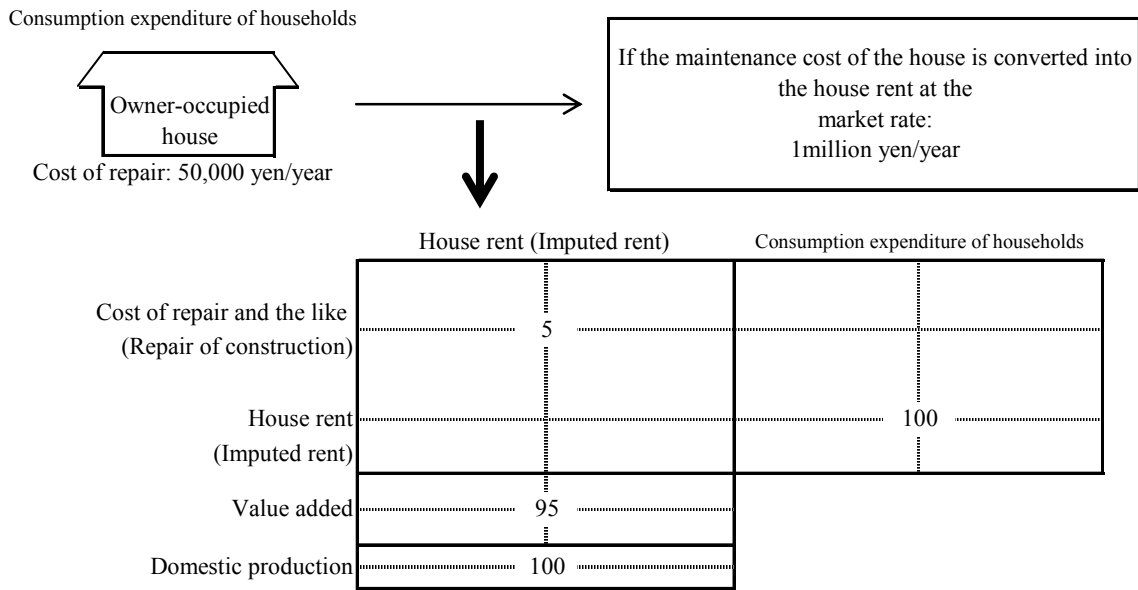
The imputed house rent and the house rent are represented in Chart 2-11.

The rent for owner-occupied and companies’ houses is imputed as the production value of the house rent sector after being estimated at the gross rent at the market rate and the full value is recorded in the household budget. However, there is an exception in production of the residential repair cost which applies nursing insurance. The breakdown of the input is recorded in the value added, except for the maintenance cost of the house.

(5) Dummy Sectors

Among the respective sectors within the endogenous sector of the I-O Tables based on production activities, some sectors are not considered independent industrial sectors. “Dummy sectors” are established to accommodate the aforementioned activities in order to facilitate compilation of the Basic Transaction Tables.

Chart 2-11 Representation Format for Imputed Rent and House Rent



In the dummy sectors, the identification code “P” is attached at the end of the basic sector classification code.

Note that consumption expenditure outside households are not treated as an independent item in the national accounts but are included in the endogenous sector, and that the sectors for activities not classified elsewhere do not exist as industries, and as such are dummy sectors in a certain sense.

In the 2000 Input-Output Tables, the following dummy sectors have been established:

i) Office supplies

Office supplies commonly used in each sector, including pencils, erasers, and lined paper, are collectively treated as consumable supplies in business accounting. Therefore, each sector that produces the above products transfers them to the office supplies sector. Each demand sector receives them in a lump as input from the office supplies sector (refer to Chart 2-12).

Special treatment of the office supplies sector as a dummy sector allows us to regard the sector as performing independent production activities. Note that the domestic production in the Input-Output Tables will increase by the value of office supplies, although there will be no changes to the gross value added.

Chart 2-12 Representation Formats for Office Supplies

[1] When the office supplies sector is not established

Industry “A”	
Raw material 1	30
Raw material 2	20
Pencils	5
Lined paper	5
Value added	40
Domestic production	100

[2] When the office supplies sector is established

	Industry "A"	Office supplies	Domestic production
Raw material 1	30		
Raw material 2	20		
Pencils		5	
Lined paper		5	
Office supplies	10		10
Value added	40	0	
Domestic production	100	10	

- Notes: 1. Pencils and lined paper are transferred to the sector of office supplies. The demand sector (Industry "A") purchases the composite commodity of office supplies.
 2. There is no value added in the office supplies sector.
 3. The domestic production in the Input-Output Tables will increase by the value of office supplies in the dummy sector.

ii) Self-activities sectors

(i) Definition of the self-activities sectors

In some cases, companies cover the activities in one industrial field in-house. For example, companies cover such activities as transport, packing, in-house education, in-house research and development, advertising, and data-processing services themselves, or in-house.

As the Input-Output Tables are classified by production activities, strictly speaking, the aforementioned self-activities should be recorded in the respective sectors for transport, education, research, and data processing. However, these activities are absorbed as part of the activities of the respective sectors. Therefore, it is almost impossible for us to gain an understanding of the entire input structure by separating them.

Until the 1985 Input-Output Tables, we had separated the self-activities of companies from their original activities in order to compare the former with the latter and to analyze the repercussion effects on production. Thus, we had recorded self-activities independently in the dummy sector. However, we discussed whether representations of self-activities were required at the time of compilation of the 1990 Input-Output Tables. At that time, the self-activities sectors other than the self-transport by private cars sector were abolished.

(ii) Representation formats of self-transport sectors

Each demand sector purchases commodities referred to as "self-activities," which consist of aggregated goods and services, after the goods and services required for self-activities are produced in the self-activities sectors (dummy sectors). Only endogenous expenses are estimated as input costs.

The following chart (Chart 2-13) represents cases in which the self-activities sectors are not established and the self-activities sectors are established. Special treatment of the self-activities sectors as dummy sectors allows the sectors to be regarded as independent production activities. Note that the domestic production in the Input-Output Tables will increase by the value of self-activities.

Chart 2-13 Representation Formats of Self-Transport Sector

[1] When the self-transport sector is not established

	Industry "A"		Domestic production
Raw material 1	25		
Raw material 2	20		
Petroleum	15	Comprised of 5 for raw material and 10 for transport	(15)
Value added	40		
Domestic production	100		

[2] When the self-transport sector is established as a dummy sector

	Industry "A"	Self-transport	Domestic production
Raw material 1	25		
Raw material 2	20		
Petroleum	5	10	(15)
Self-transport	10		(10)
Value added	40	0	
Domestic production	100	(10)	

Note: If Industry "A" spends 10 units of petroleum for self-transport, another 10 units of the self-transport sector will be recorded in the total domestic products in addition to the 10 units of petroleum invested.

iii) Scrap iron, non-ferrous metal scrap, and used paper

In principle, scrap and by-products are treated as minus input, and are input the same amount to the "reuse and recycling" sector. The amount to which the cost of collection and treatment is add is output from that sector to each input sector. In this case, by-products can be recorded in the sectors (row) in which the products are primarily produced. In the case of scrap iron, non-ferrous metal scrap, and used paper, however, there is no sector in which these are the main products. Therefore, their output and input cannot be recorded. We will establish the row sectors for scrap iron, non-ferrous metal scrap, and used paper as dummy sectors.

Other scrap should be recorded in the sectors for similar raw materials. For example, the scrap of glass bottles should be recorded in the sector for other glass products.

(6) Usership and Ownership

i) Concepts of usership and ownership

There are two methods for treating the current expenses of production facilities in the goods rental and leasing sectors: "Usership" and "Ownership."

With "Usership," the cost of using production facilities is recorded in the sector that uses them, regardless of who owns them and who directly pays the cost. As for rented production facilities, we record the rental expense composed of the cost of maintenance and depreciation, as well as the net rental (the amount after deduction of the cost of maintenance and depreciation from the gross rental), in the sector that uses the production facilities as the cost or the operating surplus (the portion of the net rental). Therefore, the goods rental and leasing sectors are not viable.

On the other hand, with “ownership,” the cost of using production facilities is recorded in the sector that owns the production facilities, in line with actual conditions. Thus, the goods rental and leasing sectors are established. With “ownership,” the gross income generated by the rental and leasing of goods is the domestic production in the goods rental and leasing sectors. Payment for rented goods is recorded in each production sector as intermediate input from the goods rental and leasing sectors.

ii) Advantages and disadvantages of analysis

We have compiled the I-O Tables for Japan based on “usership,” in that the sectors in the I-O Tables are established based on production activities and the value added by sector is calculated in the manner described above. This method involves the advantages of enabling unified treatment of production and capital for production, and increasing the stability of input coefficients.

However, most production facilities are installed through rental or leasing services. Goods rental and leasing accounts for an important share of all industries. Therefore, we must establish the goods rental and leasing sectors to record their domestic production value and value added.

iii) Treatment in the I-O Tables for Japan

Until compilation of the 1985 tables, the following goods rental and leasing sectors had been estimated based on “ownership”: “Electronic computing equipment rental and leasing,” “Office machines rental and leasing (except electronic computing equipment),” and “Car rental and leasing,” as well as “Real estate rental service.” On the other hand, the industries included in “General goods rental and leasing” and “Industrial equipment and machinery rental and leasing” in the Standard Industrial Classification for Japan had been estimated based on “usership.”

However, as previously noted, with a growing share of the goods rental and leasing sectors after the 1990 tables, we had to establish the sectors as independent of each other. It becomes more difficult to estimate the sectors based on “usership” due to the basic statistics currently used. Therefore, we have decided to treat all industries in the goods rental and leasing sectors based on “ownership.”

The differences in the representation formats of “usership” and “ownership” are shown in Chart 2-14. Financial leases are treated as activities of goods rental and leasing, and leased properties are recorded based on “ownership.”

Chart 2-14 Representation Formats of Usership and Ownership

Example: When Industry “A” rents industrial machinery at the rental expense of 100 from the company of goods rental and leasing.

[1] Usership (recorded as if Industry “A” owns the machinery)

Industry “A”	
Repair of machine	(15)
Operating surplus	(65)
Depreciation of fixed capital	(20)
Domestic production	(100)

Note: The cost of the rental services is added to the cost for the original activities of Industry “A.”

[2] Ownership (The company of goods rental and leasing is recorded as the owner of the machines.)

Industry "A" Goods rental and leasing	
Repair of machine	15
Goods rental and leasing	100
Compensation for employees	50
Operating surplus	15
Depreciation of fixed capital	20
Domestic production	100

Note: Represented in the same way as in normal purchase of services

(7) Activities of Government and Private Non-Profit Institutions serving Households

Government activities are divided primarily into three categories by transactor (see item 2 in this section): (1) public enterprises in industry; (2) producers of private non-profit services for households; and (3) producers of government service activities. These activities are specially treated in the I-O Tables, as the basic principle of their activities differs from that of private companies (refer to Chart 2-15).

- i) The operating surpluses of the producers of government service activity and the producers of private non-profit service for households are not recorded, as their domestic productions are calculated based on their total expenses.
- ii) The charges that enterprises or households paid for the services of corresponding sectors are recorded in the sectors of the payers (or the enterprises or households that paid the charges). The remainder is then recorded in the the "collective consumption expenditure of central government", the "individual consumption expenditure of central government", the "collective consumption expenditure of local government", the "individual consumption expenditure of local government," or the "consumption expenditure of private non-profit institutions serving households" in the corresponding sectors.

Chart 2-15 Representation Format of Activity of Producers of Private Non-Profit Services for Households

Example: A private university conducts an activity of 100, 60 of which are income from tuition.

	Private university	Consumption expenditures of Households	Consumption expenditures of private non-profit institutions serving households	Domestic production
Good 1	10			
Good 2	10			
Private university		60	40	100
Compensation of employees	80			
Operating surplus	0			
Domestic production	100			

(8) Activities Not Elsewhere Classified

- i) Definition of "activities not elsewhere classified"

The sectors for "activities not elsewhere classified" are established to record in a lump all transaction activities that belong to no sector. The sectors of activities not elsewhere classified play a role as the

aggregator of residual errors in estimation of the row and column sectors.

ii) **Balancing equivalence of two aspects and activities not elsewhere classified in the Input-Output Tables**

The residual errors in estimation of the row and column sectors include those in the endogenous and exogenous sectors. In the Input-Output Tables for Japan, the sectors of activities not elsewhere classified are regarded as endogenous sectors. The discrepancy in the respective totals of “activities not elsewhere classified” in the row and column sectors, that is, the final overall error, is balanced at the intersection of the row sector of operating surplus and the column sector of activities not elsewhere classified.

§ 2 Characteristics of the 2005 Input-Output Tables

1 Basic Framework of the 2005 Input-Output Tables

(1) **Duration, Scope, and Timing of Recording**

Production activities and transactions of goods and services for Japan in the year 2005.

The accrual basis was used to determine the points in time at which productions and transactions occurred.

(2) **Evaluation Methods**

Transaction magnitudes are evaluated at their monetary values.

i) Domestic productions are valued at “actual prices.”

ii) Imports in ordinary trades are valued at CIF prices (Note); exports in ordinary trades are valued at FOB prices (Note).

(Note) • CIF price (inclusive of freight and insurance: Cost, Insurance and Freight)

• FOB price (inclusive of expenses up to loading on board: Free On Board)

(3) **Basic Structure of Basic Transaction Tables**

i) As before, Basic Transaction Tables are Commodity (row)-by-Commodity (column) (Note) tables, compiled directly from primary statistical data such as the Census of Manufactures and Survey on Service Industries.

(Note) “Commodity” here refers to goods and services. It can also refer to the activities that produce commodities

ii) In addition to Input-Output Tables at producers’ prices, Input-Output Tables at purchasers’ prices in which the respective transaction values include trade margins and domestic freights have been compiled.

iii) Consumption taxes are valued in accordance with the so-called “gross method,” in which consumption taxes are attached to all transactions.

The amounts of consumption taxes payable are included in the “indirect taxes” of the gross value-added sectors.

iv) The “competitive and non-competitive mixed import type” has been adopted for imports. Under this method, the transaction amounts of imports are indicated separately.

v) The “Reuse and recycling” sector is newly established in the 2000 Input-Output tables. Therefore, scrap and by-products are treated as minus input, and are input the same amount to the “reuse and recycling” sector. The amount to which the cost of collection and treatment is add is output from that sector to each input sector.

(4) **Sector Classification**

i) **Basic Classification and Aggregate Classification**

(A) The basic sector classifications are comprised of 520 row sectors and 407 column sectors.

(B) Aggregate sector classifications are comprised of the Minor Aggregated Classification (190 sectors), Medium Aggregated Classification (108 sectors), and Major Aggregated Classification (34 sectors) (please refer to Chapter 5). In addition, 13 sector tables have also been established as a template for the Input-Output Tables.

ii) **Final Demand Sector and Gross Value Added Sector**

(A) As before, for the final demand sector and the gross value added sector, “Consumption expenditures outside households” is established.

(B) Indirect taxes imposed on the gross value added sector exclude tariffs and commodity taxes on imported goods, both of which are subsumed under the export sectors. Amounts equivalent to the consumption taxes imposed on domestic transaction stages involving exports through trading companies, etc. are recorded in the reconciliation sections of the final demand sectors.

(5) Special Treatment

i) Imputation

Imputations are conducted for the following:

- [1] Imputed interests in financial sector
- [2] Imputed insurance services for life and non-life insurances
- [3] Capital consumption reserves concerning social overhead capitals
- [4] House rents of owner-occupied dwellings and company housing units

ii) Establishment of dummy sectors

The following dummy sectors have been established to account for commodity characteristics and to improve the convenience of compiling and utilizing tables.

- [1] Office supplies
- [2] scrap iron, non-ferrous metal scraps, and used paper
- [3] Self-transport (passenger and freight)

iii) Handling of goods rental and leasing

For the goods rental and leasing industry, estimates are produced by the “ownership” approach. Financial leases are also treated as goods rental leasing rather than financial transactions. In addition, “real estate rental and leasing” and “Worker dispatching services” are also estimated by the “ownership” approach.

(6) Compilation of Supporting Tables

The following supporting tables have been compiled, as before, for the 2005 Input-Output Tables.

- [1] Table on Trade Margins
- [2] Table on Domestic Freights
- [3] Table on Imports
- [4] Table on Scrap and By-Products
- [5] Table on Value and Quantity
- [6] Table on Employees Engaged in Production Activities (by occupation)
- [7] Employment Matrix (Table on Employees Engaged in Production Activities [by occupation])
- [8] Fixed Capital Matrix (Table on Fixed Capital Formation)
- [9] Table on Commodity Output by Industry (Make table)
- [10] Table on Self-Transports

2 Characteristics of the 2005 Input-Output Tables

(1) Modifications in Sector Classifications

Taking into consideration the revisions made to the Standard Industrial Classification for Japan in March 2002, sector classifications were reviewed in order to more accurately comprehend changes in the economic structure.

Major modifications made to the 2005 Input-Output Tables based on the basic sector classifications are as follows (refer to the [Industry Sectors Classification Comparison Table for 2000-2005](#) and [Reference] 4).

- i) “[Postal service and mail delivery](#)” which joins the existing “Postal service” sector with mail delivery activities by private businesses, was newly established.
- ii) “[Internet-based services](#)” was newly established, as there had been no corresponding sector before. This sector includes “[server hosting services](#),” which used to be included in “Other services relating to communication.”

- iii) The vacuum equipment and vacuum component manufacturing industry, which used to be included in “Pumps and compressors” and “Chemical machinery,” now collectively make up the newly established “**Vacuum equipment and vacuum component**” sector.
- iv) “Theater and entertainment facilities” and “Theatrical companies” were consolidated into “Performances(except otherwise classified),theatrical companies.”
- v) As management of nursery schools and home-based nursing care establishments, etc. by joint-stock companies and limited companies became acknowledged, “**Social welfare (profit-making)**” was newly established.
- vi) Since the domestic production value of “Coal mining” decreased, “Crude petroleum and natural gas” and the column sector “Coal” were consolidated, and “Coal mining, crude petroleum and natural gas” was formed. “Coal” continues to be represented as a row sector.

Table 4-3 shows a comparison of the numbers of sector classifications in the 2005 Input-Output Tables with those in the 1995 and the 2000 Input-Output Tables.

Table 2-3 Development of the Number of Sector Classifications

	1995 Tables	2000 Tables	2005 Tables
(1) Basic sector classification (row)	519	517	520
(1) Basic sector classification (column)	403	405	407
(2) Minor Aggregated Classification	186	188	190
(3) Medium Aggregated Classification	93	104	108
(4) Major Aggregated Classification	32	32	34

(2) Points to be Noted for Utilization

The figures for the 1995 and 2000 Input-Output Tables listed here (Explanatory Notes) are reference figures obtained through reclassified estimates; in other words, nominal values.

Although no major differences have been made to the basic framework of the Input-Output Tables compiled every five years, several changes have been made in sector setups, as well as concepts, definitions, and scopes of respective sectors. This makes it difficult to compare the newest tables with earlier tables. This point should be duly noted. In order to analyze changing economic structures, etc. with historical comparisons of these Input-Output Tables, it is necessary to unify the sectors, concepts, definitions, etc. between the past tables and the newly compiled tables by reconfiguring past tables or newly created tables to compile Linked Input-Output Tables. For the 2005 Input-Output Tables, 1995-2000-2005 Linked Input-Output Tables are planned on being published during FY2009.

While several features of the 2005 Input-Output Tables are listed in (1) of this section, additional points to be noted are indicated as follows:

[1] Handling of the “Reuse and recycling” sector

In the 2000 Input-Output Tables, the “Reuse and recycling” sector was newly established, and “scraps and by-products” were input collectively towards this sector and further output through the sector to respective output sectors. Thus, a value that consisted of adding costs related to collection and processing were added to input of “scraps and by-products” was counted as the production value.

In the 2005 Input-Output Tables, however, only costs related to collection and processing of “scraps and by-products” were counted towards the “reuse and recycling” sector, and “scraps and by-products” were counted based on the “negative input method,” in that same way as they had been up until the 1995 Input-Output Tables.

[2] Handling of the “Activities not elsewhere classified” sector

The concept/definition/scope of “Activities not elsewhere classified” was considered as being “activities for producing goods and services that do belong to any other sector,” and it was also deemed that this sector “plays a role as the aggregator of residual errors in estimation of the row and column sectors.” An example of outputs toward the “Activities not elsewhere classified (column)” sector is the “Financial service (imputed interest)” sector.

In the method for estimating the “Activities not elsewhere classified” sector, the total of the values for the

“Activities not elsewhere classified (row)” sector serves as the domestic production value, and discrepancies between the total for the “Activities not elsewhere classified (column)” sector and domestic production value are balanced by reconciling the transaction amount at the intersection of “Activities not elsewhere classified (column)” and the “operating surplus” sector, as in the past.

In the 2005 Input-Output Tables, the amount of outputs to “Activities not elsewhere classified (column)” in the “Financial service (imputed interest)” was approximately 2 trillion yen, and came to account for approximately half of the domestic production of the “Activities not elsewhere classified” sector. Due to this reason, the total value of the “Activities not elsewhere classified (column)” sector exceeded the total value of the “Activities not elsewhere classified (row)” sector, and upon conducting reconciliation at the intersection of the “Activities not elsewhere classified (column)” sector and “operating surplus” sector, a minus value was counted toward this intersection.

[3] Depreciation of fixed capital Accounting for Social fixed capital depreciation, and Consumption Expenditure of government

The 2000 Input-Output Tables incorporated social fixed capital depreciation of roads and dams for the first time. This incorporation increasingly affects the figures for domestic production as well as Depreciation of fixed capital in gross value added and consumption expenditure of government in final demand, both of which include social fixed capital depreciation.

However, since certain areas of social fixed capital depreciation had already been incorporated in the 1995 Input-Output Tables, it is impossible to compare figures for “Social fixed capital depreciation” newly incorporated in the 2000 Input-Output tables while excluding those prior to the 1995 Input-Output tables. Users should keep this point in mind.

[4] Transactions in Cellular Phones and Changes in Consumption Expenditure Outside Households (row and column)

With regard to “Cellular phones,” the mode of operation of mobile telecommunications carriers makes the price system complex, resulting in a huge gap between the producers’ price and purchasers’ price.

In the 2005 Input-Output Tables, this gap is treated as a direct expense of the “Mobile telecommunications” sector to be allocated as part of the “Consumption expenditure outside households (row).” The equivalent is set aside as purchases of the “Consumption expenditure outside households (column)” from the “Cellular phone” sector.