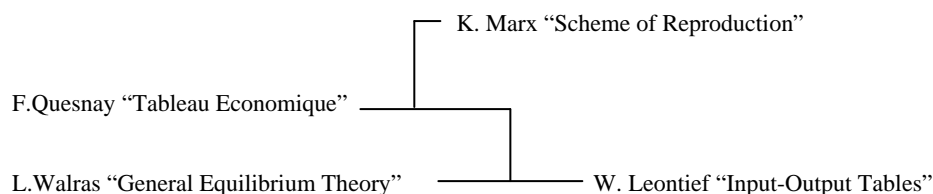


Appendix1 The history of Input-Output Tables for Japan

1 The history of Input-Output Tables

The Input-Output Tables is developed by Dr. W. Leontief(1906~1999), the winner of Nobel Memorial Prize in Economic Science. He was born in Sankt-Petersburg in Russia, and invited to the Harvard University in the United States. In 1931, he started to make Input-Output Tables about the US economy. He announced the plan in the magazine, "Review Economics and Statistics" in 1936. It is said that the Input-Output Tables was an attempt of adjusting "General Equilibrium Theory" of L. Walras (1834~1910) to real national economy, and an attempt of making "Tableau Economique" of F. Quesnay (1694~1774) for the US economy.



This technique of Leontief's Input-Output Analysis was admitted by U.S. Department of Labor, Bureau of Labor Statistics. After 1941, the technique was developed with the support of Bureau of Labor Statistics. When the economic forecast for the post World-War-II was made by the Planning Committee of U.S. War Production Board, the Input-Output Analysis showed higher degree of accuracy than other analysis techniques. Then, the utility and importance of the Input-Output Analysis came to be admitted widely. Since then, the theory of the Input-Output Analysis has been researched by U.S. government offices including the army, navy and air forces of the United States, and many countries has come to compile the Input-Output Tables and utilized the Input-Output analysis for the national economy of each country in the world without the distinction between socialism and liberalism.

2 The history of Input-Output Tables for Japan

The first compilation of the Input-Output Tables for Japan dates back to 1955 for the reference year. When the Economic Planning Agency (current Cabinet Office) and the Ministry of International Trade and Industry (current Ministry of Economy, Trade and Industry) and others compiled provisional tables respectively. There after, the Input-Output Tables came to be compiled as a joint work by the related ministries and agencies every five years.

A. 1951 Input-Output Tables

The 1951 Input-Output Tables was compiled abridged tables for the year 1951 by the Economic Planning Agency (EPA) and the Ministry of International Trade and Industry (MITI) respectively, and published in 1955. At the same time, the Ministry of Agriculture and Forestry (current the Ministry of Agriculture, Forestry and Fisheries) compiled the abridged tables focused on the sector of agriculture and forestry.

The tables compiled by the EPA and by the MITI covered all industries respectively, and the consisted of 9 sections. The Input-Output Tables compiled by the consisted of 182 sections. But both tables were compiled in accordance with different classifications, concepts, definitions, and different methods of estimation. As a result, inevitable differences in figures between both tables were found.

The differences might be unavoidable, because both tables were compiled with different purposes. But, it was not desirable to have to have two different kinds of information for the same economy for the same reference year. Therefore, the Statistics Council of the Administrative Management Agency (current Ministry of Internal Affairs and Communications) was reported as of 30 June 1955 that the related ministries should compile the integrated and unified Input-Output tables.

B. 1955 Input-Output Tables

After the publication of 1951 Input-Output tables, the Ministry of International Trade and Industry compiled 1954 abridged extension tables and 1955 preliminary tables. The Economic Planning Agency also compiled 1953 Input-Output tables and 1955 abridged tables. As the Input-Output tables shifted from the experimentation phase to the stage of practical use, it came to be requested strongly to compile the Input-Output Tables with high accuracy. In response to the report of the Statistics Council and the requests on accuracy, the related ministries submitted the integrated budgetary appropriation for the compilation of 1955 tables. And, the meeting of the related ministries was taken place on March 1957, and the meeting decided to compile the next Input-Output tables as a joint work.

Therefore, the working group was organized by 6 ministries and agencies, i.e., the Administrative Management Agency, the Economic Planning Agency, the Ministry of Agriculture and Forestry, the Ministry of International Trade and Industry and the Statistics Bureau in charge of tabulation. The meeting discussed the setting, concept, and definition of sector classification, the method of evaluation of production, and the availability of the basic data, etc. Based on the result, it had been come to start full-dress collaboration work since April 1958.

The joint work continued from 1958 F.Y to 1959 F.Y., and it was decided that the reference year was to be 1955 year.

The reasons were as follows.

- In 1958, almost all the data available were for the year 1955.
- Economic situations in 1955 were comparatively normal.
- The bench-mark year of national income statistics and other economic indexes were expected to be 1955.

As a result of work over a period 2 fiscal years, the preliminary tables were published in June 1960, and the final tables were published in June 1961 respectively.

C. 1960 Input-Output Tables

The 1960 Input-Output Tables was the first publication which was compiled by a joint work of the related ministries. In those days, however, they did not necessarily recognize that compilation would continue in the following phases. But, the 1960 Input-Output Tables had problems to be improved in respect of the consistency with national income statistics, which was the main account of the SNA, and sector classification. In addition, there were remarkable change in industrial structure according to technical innovation, and they needed materials for reviewing the Input-Output Tables as of the doubling national income plan. Therefore, the compilation of the Input-Output Tables for new reference year came to be requested strongly.

As the background of such situations, the budgetary appropriation for compiling 1960 Input-Output Tables was admitted. At the same time, the present system of the Input-Output Tables was established as being compiled by the joint work of the related ministries every five years.

The work was executed as continuous project for 2 fiscal years, 1962 to 1963. Then, the role of the Statistics Bureau of the Prime Minister's office, which had been in charge of data processing by computer, was succeeded by The Ministry of International Trade and Industry. And, the Ministry of Transport (current the Statistics Bureau of the Ministry of Land, Infrastructure, Transport and Tourism) and the Ministry of Labour (current the Ministry of Health, Labour and Welfare) participated newly in joint work in addition to the ministries participated in compiling the 1955 Input-Output Tables. Thus, the 1960 Input-Output Tables was compiled by joint work of seven ministries and agencies. Under the cooperation of the experts and ministries concerned, detailed reviews were done for desirable Input-Output Tables to be useful as basic statistics standard tables that were able to be used over a long period of time.

As a result, the frame of Input-Output Tables, which had consistency with SNA, came to be compiled. And, the sector classifications, concepts and definitions were basically improved in respect of comparability of long term time series and international comparability.. As a rule, the sector classification was adopted on the basis of the Standard Industrial Classification for Japan and the International Standard Industrial Classification of all Economic Activities.

D. 1965 Input-Output Tables

The 1965 Input-Output Tables did not change greatly compared with the 1960 Input-Output Tables established as the standard of SNA. The basic frame did not change so as not to spoil the time series analysis, the basic frame did not change. But, it changed only to improve remaining issues, and establishment, division, and integration of sectors were undertaken according to appearance of new industries and growing industries.

The publication of result tables was made in July 1965. As methods of use were upgrade, the basic transaction tables, consisting of 456 row sectors×339 column sectors based on basic sector classification, were published for the first time.

And, after the publication of 1965 Input-Output tables, the 1960-1965 extension tables were compiled for the first time for time-series comparison with the 1960 Input-Output tables.

E. 1970 Input-Output Tables

The 1970 Input-Output Tables were basically compiled by using the frame of 1960 Input-Output Tables in the same way as the 1965 Input-Output Tables. But, International Standard Industrial Classification of all Economic Activities has revised in 1968, and 68SNA was presented. Therefore, the 1970 Input-Output Tables were improved in handling of sector classification. As a supplementary table, Fixed Assets Matrix was newly compiled.

F. 1975 Input-Output Tables

The characteristics of 1975 Input-Output Tables was that endogenous sectors were divided into 3 groups, ①industry, ②producers of government services, ③producers of the private nonprofit services to household. Particularly, as for producers of government services including a part of government services, which were not classified as production activities, were coded to the endogenous sectors, and “the producers of government services” were divided into “public” services and “non-public” services.

And, it was expanded from the system of 7 ministries to the system of 11 ministries till then. In other words, for the compilation of 1975 Input-Output Tables, the Ministry of Finance (current Department of the Treasury), the Ministry of Education (current the Ministry of Education, Culture, Sports, Science and Technology), the Ministry of Health (current the Ministry of Health, Labour and Welfare) and The Ministry of Posts and Telecommunications (current the Ministry of Internal Affairs and Communications) participated newly in a joint work.

G. 1980 Input-Output Tables

Compared with the 1975 Input-Output Tables, the 1980 Input-Output Tables had no substantial changes except the concept of producers of government services corresponding to division, integration of the sectors according to the increase and decrease in the amount of production, and the arrangement of “non-public” of producers of government services corresponding to 68 SNA.

And, the Administrative Management Agency took over the works of data processing by computer from the Ministry of International Trade and Industry.

And, the result was published in the form of magnetic tape in advance of the publication in the form of hardcopy, when the figures were fixed.

H. 1985 Input-Output Tables

After 1980, Japanese Industries structure had changed fairly rapidly. And, the Standard Industrial Classification for Japan was revised in January 1984 and enforced in April 1985. Therefore, the sector classification, mainly the manufacturing sector, was substantially revised, taking into consideration the compilation and use of tables.

The sector codes of basic classification were systematically arranged, and the endogenous sectors were revised all over on domestic sector.

I. 1990 Input-Output Tables

The method of estimation of service sector was improved on the 1990 Input-Output Tables. For example, based on the 1985 Input-Output Tables, service sector was divided and new sector was established on the 1990 Input-Output Tables, and basic materials concerning the service industry to estimate was enhanced. As for “Rental and Leasing of Goods and Services”, the estimation by the former user principle was renewed to the estimation by the owner principle, and the self-activity sector was renewed.

J. 1995 Input-Output Tables

The basic framework of the 1995 Input-Output Tables followed the former ones, but the sector classifications such as was set up corresponding to the outline of the recommendations of 93 SNA and to the revision of Standard Industrial Classification for Japan (1993, Oct.), and service sector was expanded, and the basic materials for estimation was also enhanced.

The method of accounting indirect taxes was changed to that of accounting inclusive consumption tax.

K. 2000 Input-Output Tables

The basic framework of the 2000 Input-Output Tables followed the former ones, and corresponded to the outline of the recommendations of 93 SNA. To reflect economic social structure of Japan in recent years, new sector classifications, such as “Reuse and recycling” and “Nursing care”, were set up.

Mechanical balance-adjustment “Lagrange’s method of indeterminate Multipliers” was used for aggregation of preliminary figures. Though, this method had the problem in processing techniques, it contributed to the early release of preliminary reports.

According to the reorganization of ministries and agencies in January 2001, the 2000 Input-Output Tables was accomplished as a joint work of ten office, ministries, and agencies including the Ministry of Internal Affairs and

Communications (The name changed from the Ministry of Internal Affairs and Communications as of September 10, 2004) instead of the former joint work of 11 ministries and agencies.

Table 2-4 Supplementary tables yet compiled

	'55	'60	'65	'70	'75	'80	'85	'90	'95	'00	'05
1 Table on Trade Margins and Table on Domestic Freights		○	○	○	○	○	○	○	○	○	○
2 Table on Imports		○	○	○	○	○	○	○	○	○	○
3 Table on Scrap and By-products		○	○	○	○	○	○	○	○	○	○
4 Table on Value and Quantity	○	○	○	○	○	○	○	○	○	○	○
5 Fixed Capital Matrix				○	○	○	○	○	○	○	○
6 Table on Employees Engaged in Production Activities(by Occupation)		○	○	○	○	○	○	○	○	○	○
7 Employment Matrix				○	○	○	○	○	○	○	○
8 Table on Commodity Output by Industry (Make table)						○	○	○	○	○	○
9 Table on Self-Transports						○	○	○	○	○	○

Appendix2 Flow of the Input-Output Tables for Japan

	1951	1955	1960	1965	1970	1975
Number of sectors (Basic sector classification)	Row9×Column9 (Economic Planning Agency) Row182×Column182 (Ministry of International Trade and Industry) Row62×Column62 (Ministry of Agriculture, Forestry and Fisheries)	Row310×Column278	Row453×Column339	Row467×Column339	Row541×Column405	Row554×Column405
Transactions within own sector	All are included in principle.	All are included in principle, except for those values of parts and semi-finished goods that are consumed within sector.	Same as 1955.	Same as 1955.	Same as 1955.	Same as 1955.
Scrap and By-products	Those are in principle dealt with by Transfer method. For MITI table, scrap is classified under the scrap sector.	Transfer method	Those are in principle dealt with by Stone's method.	Same as 1960.	Same as 1960.	Same as 1960.
Valuation	Actual producers' prices.	Uniform producers' prices.	Actual producers' prices (tables valued at actual purchasers' prices are also compiled.).	Same as 1960.	Same as 1960.	Same as 1960.
Imports	Competing and non-competing inclusive (mixed method)	Mixed method. Simplified non-competing type tables are also estimated.	Competing. Non-competing imports are also compiled.	Same as 1960.	Same as 1960.	Mixed method (A partial non-competing tables are also compiled.).
Consumption expenditure outside households	Treated as an endogenous sector.	Same as 1951.	Treated as an exogenous sector.	Same as 1960.	Same as 1960.	Same as 1960.
Public school, hospital services and others	The output is treated as government consumption expenditure. Treated as industrial sector.	The output is treated as household consumption expenditure. Treated as industrial sector.	The output is treated as government consumption expenditure. Treated as industrial sector.	Same as 1960.	Same as 1960.	The portion borne by the households is treated as household consumption expenditure, while the balance is treated as government consumption expenditure.
Public administration and defense	Treated as government consumption expenditure.	Same as 1951.	Endogenous sector for public administration and defense is set up, but only value added items are estimated. The output is treated as government consumption expenditure.	Same as 1960.	Same as 1960.	Same as 1960, however, for these sectors are treated intermediate consumption expenditure.
Imputed services of financial institutions	All are charged to the households for convenience purpose.	Same as 1951.	Charged to the depositors who receive the service either in the industrial or household sector.	Same as 1960, but are omitted at intersections between financial sectors.	Charged to the current depositors which first receive the services, and the balance charged to the industrial or household sector. But the services are again omitted between financial sectors.	Same as 1970, but are not shown in the final demand sectors. Charged to intersections between financial sectors.
Re-exports and re-imports	Included in exports and imports sectors.	Same as 1951.	Excluded from the exports and imports sectors.	Imports and exports are included to re-exports and re-imports sectors.	Re-exports and re-imports of vessels are excluded with the balance treated as unidentified items.	Same as 1970.
Custom duties	Inclusive of indirect taxes is treated in the household sector.	Same as 1951.	The "(less) Custom duties" sector is set up in final demand and treated minus input at each import items. Import items are broken down in detail and compiled respectively.	Same as 1960.	Same as 1960.	Same as 1960.

	1980	1985	1990	1995	2000	2005
Number of sectors (Basic sector classification)	Row541×Column406	Row529×Column408	Row527×Column411	Row519×Column403	Row517×Column405	Row520×Column407
Transactions within own sector	Same as 1955, but production for farm and fishery households is computed irrespective of self-product or selling.	Same as 1980.	Same as 1980.	Same as 1980.	Same as 1980.	Same as 1980.
Scrap and By-products	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.	Those are output to the newly created "Reuse and recycling" sector, and further output through the sector to respective input sectors.	Only costs related to collection and processing of scraps and by-products are counted towards the "Reuse and recycling" sector. Counted based on the negative input method as in Input-Output Tables up until 1995.
Valuation	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.
Imports	Same as 1975.	Same as 1975.	Same as 1975.	Same as 1975.	Same as 1975.	Same as 1975.
Consumption expenditure outside households	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.
Public school, hospital services and others	Same as 1975.	Same as 1975.	Same as 1975.	Same as 1975. Medical service is treated as the industrial sector.	Same as 1995.	Same as 1995.
Public administration and defense	Same as 1975.	Same as 1975.	Same as 1975.	Same as 1975. The final government consumption expenditure divides into individual and collective expenditure respectively.	Same as 1995. Social overhead capital consumption incorporates.	Same as 2000.
Imputed services of financial institutions	Same as 1975. Lending and imputed interest are treated in intermediate consumption of industrial sectors.	Same as 1975.	Same as 1975. Housing loan are treated in intersection between housing charges and financial sector.	Same as 1990. nonbank financing of household estimates and records in Activities not elsewhere classified.	Same as 1995.	Same as 1995.
Re-exports and re-imports	Same as 1970.	Same as 1970.	Same as 1970.	The value of imports and exports of vessels are excluded. With the exception of the value of vessels, the re-exports and re-imports value are deducted from the exports value and imports value respectively.	Same as 1995.	Same as 1995.
Custom duties	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.	Same as 1960.

APPENDIX 3 CONTENTS

The Japanese Input-Output Tables are published in three volumes. The contents of each volume are described below.

[Vol. I] Data Report (1)

Part 1 Transaction Tables (Basic Sector)

1 Output Table

2 Input Table

Part 2 Table on Domestic Products by Sector and Commodity

[Vol. II] Data Report (2)

Part 1 Transaction Tables and Coefficient Tables

1 190-sector Tables

1) Output Table

2) Input Table

3) Input Coefficient Table

4) Inverse Matrix Coefficient Table

5) Domestic Production Induced by Individual Final Demand Items

6) Gross Value Added Induced by Individual Final Demand Items

7) Import Induced by Individual Final Demand Items

8) Imports Coefficient, Inputs Coefficients of Imported Goods and Services, Total Import Coefficients and Total Value added Coefficients

2 108-sector Tables

1) Output Table

2) Input Table

3) Input Coefficient Table

4) Inverse Matrix Coefficient Table

5) Domestic Production Induced by Individual Final Demand Items

6) Gross Value Added Induced by Individual Final Demand Items

7) Import Induced by Individual Final Demand Items

8) Imports Coefficient, Inputs Coefficients of Imported Goods and Services, Total Import Coefficients and Total Value added Coefficients

Part 2 Supplementary Tables

1) Trade Margin

2) Domestic Freight

3) Import

4) Scrap and By-products

5) Value and Quantity

6) Persons Engaged in Production Activities (by Employment Status)

7) Employees Engaged in Production Activities (by Occupation)-Employment Matrix

8) Fixed Capital Formation

9) Commodity Output by Industry

10) Self-Transport

[Vol. II] Explanatory Report

Part 1 the Compilation Process of the 2005 Input-Output Tables

Part 2 the 2005 Input-Output Tables: Sector Classification, Concept, Definition and Scope

Part 3 Estimation Methodology by the Individual Sector

Part 4 Application of Input-Output Tables

[Tables 1] 34-sector Tables

[Tables 2] 13-sector Tables