Part1 Compilation of the International Input-Output Table, Indonesia-Japan, 1985

権利	Copyrights 日本貿易振興機構（ジェトロ）アジア経済研究所 / Institute of Developing Economies, Japan External Trade Organization (IDE-JETRO) http://www.ide.go.jp
シリーズタイトル(英)	I.D.E. statistical data series
シリーズ番号	57
journal or publication title	International Input-Output Table Indonesia-Japan 1985
page range	1-12
year	1991
URL	http://hdl.handle.net/2344/00009242

PART I

COMPILATION OF THE INTERNATIONAL INPUT-OUTPUT TABLE INDONESIA-JAPAN, 1985

PART I

COMPILATION OF THE INTERNATIONAL INPUT-OUTPUT TABLE, INDONESIA-JAPAN, 1985

Chapter 1 PURPOSE AND BACKGROUND

This project was initiated for the purpose of providing the public with comprehensive statistical data on the inter-industrial relationship between Indonesia and Japan. Especially, as the 1975 Indonesia-Japan International Input-Output Table has already been published, the 1985 table can be expected to contribute to studies on the structural changes in the economic relationship between the two countries which have occurred between these years.

The bilateral input-output table is designed so that it can systematically depict how the two countries are dependent on each other at the industrial level. For instance, we can see at a glance, from the bilateral input-output table, how each domestic industry used intermediate goods supplied by specific industries from the partner country as well as those supplied by the domestic industries. Furthermore, by assuming the stability (or linearity) of the technical relationship between the input (imported as well as domestic) and the output figures, the table can serve as an effective analytical tool for the study of the economic repercussion effect between the two countries. For instance, we can estimate how an increase in demand for a certain commodity ultimately affects production in specific industries in the partner country and also its balance of payments.

The international input-output table, Indonesia-Japan, 1985 has been born under these background mentioned above.

Chapter 2 GENERAL OUTLINE

2.1 The scheme of the table

Figure 2.1 illustrates the system of the international input-output table for Indonesia-Japan, 1985. This table is often referred to as the Indonesia-Japan bilateral input-output table due to the fact that it mainly shows transactions between the two countries, and the abbreviated term "BIO table" is sometime used in this book for convenience.

The first column of Figure 2.1 shows input structure of Indonesian industries (n sectors) . 1-1 is an n x n matrix which shows the inter-industrial flow of domestically produced goods and services in Indonesia valued at producers' price in Indonesia. 2-1 (n x n) depicts the flow of imported goods from Japan into Indonesian industries valued at producers' price in Japan. 3-1 (1 x n) is the sum of international freight and insurance for each column in 2-1. 4-1 (n x n) is the Indonesian import matrix from the rest of the world at CIF. The sum of the import commodity taxes and duties paid by Indonesian industries on imported goods from Japan and the rest of the world is given in 5-1 (1 x n) . 6-1 is the value-added (m sectors) for Indonesian industries with a size of m x n.

Turning to look at the second column, 1-2 (n x n) describes the flow of imported goods from Indonesia into Japanese industries at producers' price of Indonesia, which is regarded as the intermediate part of the import matrix of Japanese industries from Indonesia in contrast with 2-1. The same interpretation given to the Indonesian column (the first column in Figure 2.1) is applied for the rest of this column (2-2, 3-2, 4-2, 5-2, 6-2) .

The third, forth, and fifth columns comprise the final demand block of the table. 1-3 shows the flow of Indonesian goods and services for final use (k sectors) in Indonesia and 2-3 demonstrates the flow of Japanese goods for final use in Indonesia, both with the size of n x k. In contrast, 1-4 (n x k) is the Japanese consumption matrix of Indonesian goods, and 2-4 (n x k) is that of the domestically produced goods and services in Japan. Interpretation of the rest of the third and the forth columns can be done in a manner similar to that for the intermediate demand columns.

[Figure 2.1] System of the international input-output table, Indonesia-Japan, 1985

Output / Input		Intermediate Demand		Final Demand			Statistical Discrepancy	Total Outputs
		Indonesia	Japan	Indonesia	Japan	Export *		
Intermediate Inputs	Indonesia	1-1	1-2	1-3	1-4	1-5	1-6	
	Japan	2-1	2-2	2-3	2-4	2-5	2-6	
International Freight & Insurance		3-1	3-2	3-3	3-4			
Imports from the Rest of the world		4-1	4-2	4-3	4-4			
Import Duties and Import commodity tax		5-1	5-2	5-3	5-4			
Value Added		6-1	6-2					
Total Inputs								

*Actually this is composed of 10 column-vectors.
□ blocks are not used.

1-5 and 2-5 are the export matrices of Indonesia and Japan, respectively, to countries or regions with the size of n x p each.

1-6 and 2-6 (both n x 1) are used for statistical discrepancies which are inevitably generated by linking two national I-O tables.

2.2 Definitions and Conventions

2.2.1 Valuation of Transactions

For the domestic transaction of Japanese products and input of Japanese goods into Indonesian industry or the final demand sector, prices are valued at producers' price in Japan, while for domestic transaction of Indonesian products and input of Indonesian goods into Japanese industry or the final demand sector, prices are valued at producers' price in Indonesia.

In reference to the transactions between the rest of the world and either Indonesia and Japan, exports originating from either of these two countries are evaluated by producers' price in the respective country. On the other hand, imports from the rest of the world are evaluated at the CIF price.

2.2.2 Unit of Value and Exchange rates

The price unit used in the table is 1,000 US$ instead of the Indonesian ruphia or Japanese yen which are used in the national tables for these countries.

The Indonesia ruphia-US dollar and Japanese yen - US dollar exchange rates used were 1110.11 Rp/US$ and 238.54 yen/US$, respectively.

2.2.3 Sector Classifications

(1) Endogeneous sectors

The basic classification for endogeneous part is composed of 128 sectors. This volume provides the tables of both 70 x 70 medium groups and 7 x 7 major groups as well as the table of 128 x 128 basic sectors.

The designation of aggregation for endogeneous sectors is shown in Table 2.2.

〔Table 2.2〕

(Name of Major Groups : 7 sectors)	(Basic sectors)	(Medium Groups)
Agriculture, Livestock, Forestry, and Fishery	23	18
Mining and Quarrying	4	4
Manufacturing	70	36
Electricity, Gas and water supply	2	1
Construction	5	1
Trade and Transportation	8	2
Services	16	8
Total	128	70

(2) Exogeneous sectors

Items for final demand part and value added part are listed below.

Items for Value Added	Items for Final Demand
• Wages and Salaries	• Consumption expenditures for households
• Operating surplus	• Consumption expenditures for government
• Depreciation of fixed capital	• Gross fixed capital formation
• Net indirect tax	• Increase in stocks
• Current subsidies	• Exports to China, Hong Kong, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, United States, and the rest of the world

(3) Sectors for international freight and insurance, import duties and import commodity taxes

One sector each is provided for "international freight and insurance" and "import duties and import commodity tax".

(4) Sector for statistical descrepancy

The concept of this sector is explained in 3.7 (Chapter 3).

The exact sector classifications and the corresponding coding system are shown in the APPENDIX at the end of this book.

2.2.4 Treatment for the import and export of services

The destination of service exports originating from Indonesia or Japan is supposed to be the rest of the world (ROW) in the table because of limited data availability, and all the figures related to this are included in the respective sectors for the rest of the world as destination. Consequently service imports of Indonesia from Japan and vice versa are also included in the rest of the world and the blocks of Indonesia x Japan and Japan x Indonesia in the table do not contain the figures corresponding to them.

2.2.5 Special treatments

There are some conceptual differences between the original input-output table for Indonesia and that for Japan, and special treatments (appropriate modifications) are supplemented to the Japanese table to be consistent with the Indonesian table in concept.

The items specially treated are listed below and detailed explanations are given in 3.6 (Chapter 3).

(1) Consumption expenditures of private non-profit institutes
(2) Business consumption (Consumption expenditures outside households)
(3) Dummy sectors
(4) Public administration

2.3 Compilation Stages

The compilation project for the International Input-Output Table, Indonesia-Japan 1985, was initiated in April 1987.

To achieve this project, the Central Bureau of Statistics (CBS), Jakarta, Indonesia and the Institute

of Developing Economies (IDE), Tokyo, Japan, have conducted a joint effort while maintaining close contact in every aspect. The works has been progressing steadily with annual targets set year by year.

Projects for each year were ;

[AY1987] To conduct the special survey (surveys on imported component of inputs and on distribution of imported goods to domestic users)

[AY1988] To estimate import matrices by country of origin

[AY1989] To adjust for conceptual differences between the original input-output tables for Indonesia and Japan, and to link these two tables with the results of work done beforehand with reconciliation.

[AY1990] To prepare all of the materials for publication

The main areas of the work done in the compilation are introduced below and the detailed methods are described in Chapter 3 .

(1) Construction of the Bilateral Uniform Input-Output Classification (BUIO)

To construct the Bilateral Uniform Input-Output Classification (BUIO) for this Input-Output table, the Indonesian Input-Output Classification (IIO, 170 sectors of intermediate rows/columns) and the Japanese Input-Output Classification (JIO, 529 sectors of intermediate rows and 408 sectors of intermediate columns) were compared to be made correspondence between them in terms of definition. Based on this correspondence, the draft of the BUIO was built up through comparison of the statistics of the trade between Indonesia and Japan. The converter systems of IIO-CCCN and JIO-CCCN were used to do this. The final version of the BUIO was appeared after reconciliation of the table.

(2) A survey on the imported component of inputs and on the distribution of imported goods to domestic users

In order to construct the bilateral input-output table in non-competitive type, what the country of origin was of imported raw materials which each domestic user input and how much it purchased in value, and what I/O sector absorbed each imported goods from specific country (especially from the counter-country, i.e., Indonesia or Japan) , were surveyed.

(3) Estimation of the Japan-Indonesia and the Indonesia-Japan import matrices

In order to match the system of the bilateral I/O table as described in 2.1, each of Indonesian import matrix and Japanese import matrix was decomposed into two import matrices, from the counter-country (In -donesia or Japan) and from the rest of the world. For this decomposition, the results of the special survey were utilized in addition to the foreign trade statistics.

(4) Estimation of the export matrices

Based on the export data in the detailed CCCN classification of the foreign trade statistics for each country, the export columns in the original Indonesian and Japanese I/O tables were decomposed into 10 export columns by regions ; China, Hong Kong, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, USA, and the rest of the world.

(5) Conversion of the tables into the common currency (the US dollar)

The original input-output tables for Indonesia and Japan recorded figures in their respective national currencies (the Rupiah and Yen) , so the US dollar was used as a common currency. Because of the floating exchange rate system, each of the exchange rates of the two currencies, relative to the US dollar, were taken as the average of the monthly averages of the exchange rate in 1985 as reported by IMF (International Financial Statistics).

(6) Estimation of international freight and insurance

To match the system of the bilateral I/O table, the freight and insurance (IF) contained in the import value of CIF level were estimated for removal. For the Indonesian side, CBS estimated the ratio of IF' s portion in CIF from the import statistics recorded in FOB and in CIF which CBS had compiled.

For the Japanese side, IDE estimated this ratio from information in "Compilation of an Input-Output Table Focused on the International Freight Transport" from the Japan Maritime Research Institute (JMRI) and other related non-published materials. Furthermore, interviews with the experts in JMRI produced several useful comments which were embodied in the estimation.

(7) Linkage of the tables

The final stage was to link all of the tables prepared beforehand into one bilateral input-output table, in a consistent manner.

Chapter 3 EXPLANATORY NOTES ON COMPILATION AND ESTIMATION

This chapter presents a detailed description of the methods used in the estimation and compilation work, the outlines of which are described in Chapter 2 .

3.1 Bilateral Uniform Input-Output Sector Classification (BUIO)

To construct the Bilateral Uniform Input-Output classification (BUIO) for this international input-output table, the Indonesian Input-Output Classification (IIO, 170 sectors of intermediate rows/columns) and the Japanese Input-Output Classification (JIO, 529 sectors of intermediate rows and 408 sectors of intermediate columns) were compared to be made correspondence between them in terms of definition.

Based on this correspondence, the draft of BUIO was built up through comparison of statistics figures of trades between Indonesia and Japan in 1985 which were officially reported by the Governments (Customs Office) of each country. The converter systems of IIO-CCCN and JIO-CCCN were used to do this. (CCCN=Customs Co-operation Council Nomenclature, a kind of classification for customs).

The criteria for BUIO were (1) to maintain the original classifications (IIO, JIO) in as in detailed a manner as possible, and at the same time (2) to avoid too much difficulty in disaggregation of each original classification.

The final version of the BUIO came out after reconciliation of the compilation.

As a result, the 128 BUIO full size sectors and the two groups of 70 and 7 aggregated BUIO sectors were constructed.

3.2 Import Matrices for Indonesia by Country of Origin

The Indonesian Input-Output Table has been compiled regularly by the Central Bureau of Statistics (CBS) every five years and prepared for the years 1971, 1975, 1980 and 1985. According to the treatment of imports, the tables are differentiated into competitive and non-competitive types. The 1971 and 1975 Input-Output Tables were constructed based on the competitive import type, where goods and services which were used as intermediate demand and as final demand as well still have not been separated, according to their origin, from domestic production or import. Fortunately, the last two tables for 1980 and 1985 were compiled in the non-competitive type where transactions of imported and domestic goods and services are estimated separately.

From the table of non-competitive type import can be derived import matrix of Indonesia which will be of benefit to the compilation of the International Input-Output Table, Indonesia-Japan.

3.2.1 Indonesian Import Matrix (Total Import Matrix)

The total import matrix for Indonesia shows all transactions of imported goods and services, by commodity groups (I-O classification) and domestic users. In the Indonesian I-O Table, the import matrix was estimated at two different prices, i.e., at landed cost price (c.i.f.+import commodity tax and import duty), and at purchaser price (landed cost+domestic trade and transport margin).

The main data source of imported goods was foreign trade statistics compiled by CBS, whereas for services, the Balance of Payment prepared by the Bank Indonesia were utilized. To compile the total import matrix for Indonesia, two studies were undertaken,

a. A study on the destination of CCCN in I-O sectors, where the CCCN of each commodity has to be identified for sectors which are very likely utilizing the commodity. The study can be done since data on imported goods are available by CCCN. The import matrix can be constructed using the conversion of CCCN to I-O code.

b. A study on the imported component of input, especially for the manufacturing industry, which

utilized the result of 1986 Economic Census conducted by CBS. Since data on manufacturing industry from the Economic Census is presented by 5 digit ISIC, the conversion of ISIC to I-O code was also used. Results of the study were utilized to improve the import matrix constructed above.

The compilation of International Input-Output Table, Indonesia-Japan 1985, requires the identification of imports by country of origin. Therefore, this study also requires further breakdown of the Indonesian Import Matrix. In this case, it is suggested that the import matrix be separated into two import matrices, one for Japan and one for the rest of the world.

3.2.2 Special Survey for Import Matrix by Country of Origin

The main objective of this special survey is to obtain information on origin country of imported component of input especially used by manufacturing industries. For this purpose, two kinds of special surveys have been conducted :

a. Special Survey on Imported Component of Input by Country of Origin

This special survey enumerated a sample of 450 manufacturing establishments. The questionnaire used in the survey was designed particularly to distinguish the imported component of input by country of origin, specifically, Japan, USA, Taiwan, South Korea, and the Rest of the World. This survey was conducted in September 1987 in the main provinces of Indonesia, Jakarta, West Java, Central Java and East Java, which were chosen because it was considered that most of the big companies were located in these areas. The enumerators were selected from the staff of Provincial Statistical Offices and directly supervised by the official of the CBS.

To obtain an optimum result of the survey, the sampling design employed was as followings :

(1) Based on the Indonesian I-O Table, 1980, determine the top k manufacturing sectors (I-O sectors) by using descending order of total value of imported inputs.

(2) Conversion of these k manufacturing sectors into 5 digit industrial code, in order to get n industrial groups (5 digits ISIC).

(3) Distribute proportionally sample of 450 establishments to the n industrial groups over four provinces using the number of establishments. A directory of companies by 5 digit industrial group was referred to in order to determine establishment names. This directory was obtained from the result of the 1986 Economic Census.

The processing procedures of the result of the survey were designed in order to obtain the ratios of each origin country's share to each imported component of input. This enabled each of the imported goods used by the domestic sectors to be identified by country of origin.

b. Special Survey on Destinations of Imported Goods

This special survey covered a sample of 100 importers. The questionnaire used in the survey was designed to obtain information on the distribution of imported goods to domestic users (I-O sectors). The survey was conducted around October 1987, only in Jakarta and the surrounding areas, where most of the big importers are located. The enumerators were selected from the staff of the CBS.

The sampling design of the survey was designed to do or determine the following :

(1) By using the 1985 Import Statistics, determine the 100 CCCN codes with the biggest import values in descending order.

(2) Collect all import documents for the selected CCCN above, by relying on documents of July 1987.

(3) A sample of 100 import documents were determine by selecting documents with the biggest import value for each of the 100 CCCN. The names of the importers were obtained through those documents.

In the processing of the survey results, a worksheet was applied which was formatted for the value of imported goods by CCCN code, country of origin and domestic users (in I-O code). From the worksheet, then, could be derived the final table of imported goods transactions by commodity group (I-O code), by country of origin and by domestic users (I-O code).

3.2.3 Indonesian Import Matrices By Country of Origin

According to the system applied to Indonesia-Japan Bilateral Input-Output Table (cf. Figure 2.1 in Chapter 2), the total Indonesian import matrix as mentioned in 3.2.1 should be separated into the Import Matrices, for Japan (Japan x Indonesia) and for the Rest of the World (ROW x Indonesia). The

import matrix for Japan shows all of the transactions of imported goods originating from Japan, by commodity groups (I–O code) and domestic users (I–O sector). The import matrix for the Rest of the World also shows the same kind of transactions for imported goods from the Rest of the World.

The summation of these import matrices for Japan and for the Rest of the World should be equaled to the total Indonesian Import Matrix. In addition, due to a lack of information, imported services could not be separated by country of origin. In this case, all service transactions were included in the matrix for the Rest of the World.

The data used for compiling these import matrices for Japan and for the Rest of the World were (i) the total Indonesian import matrix at landed cost price by CCCN code and I–O sector, (ii) imported goods from Japan by CCCN (derived from CBS, Foreign Trade Statistics) and (iii) the results of the Special Survey.

The steps of work done in compiling the import matrix for Japan can be described as follows :

(1) Imported goods from Japan for the i-th CCCN (Row) are proportionally allocated to I–O sector of destination (Column) using distribution pattern of the i-th CCCN (Row) in the total Indonesian import matrix.

$$M_{ij}^{J} = \frac{M_i^J}{M_i} \times Mij$$

$$M_{ik}^{J} = \frac{M_i^J}{M_i} \times Mik$$

where i=the CCCN index
j=the I–O sector index
k=the final demand index
Mi=the value of imported goods at i-th CCCN (Row-wise total)
M_i^J=the value of imported goods at i-th CCCN from Japan
Mij=the value in the total Indonesian import matrix (the cross-point of i-th CCCN Row & j-th I–O sector column)

It is assumed that the distribution of imported goods from Japan has the same pattern as that of the whole imported goods.

(2) The import matrix for Japan can be obtained by aggregating the rows of CCCN which are included in the same I–O code.

(3) The results of the two special surveys mentioned before were utilized to improve the matrix by replacing corresponding cells with new figures.

The import matrix for the Rest of the World was automatically given as the difference between the total Indonesian import matrix and the Import Matrix for Japan as mentioned above.

According to the conceptual framework of the bilateral I–O table, the import matrix should be stated in producers' prices of the supply-side country (i.e. Japan). The procedures of transforming landed cost price to producers' price can be described as follows:

(1) Separation of tariffs (import commodity tax and import duty) from the matrix by using the ratio of the tariff to the landed cost price for each CCCN.

$$Tij = \frac{Ti}{Li} \times Lij,$$

where Ti=the tariff of the i-th CCCN (Row-wise total)
Li=the landed cost value of the i-th CCCN (Row-wise total)
Lij=the landed cost value of the cross-point of the i-th CCCN (Row) & the j-th I–O sector (Column)

From this step, the matrix of CIF prices can be derived by deducting Tij from Lij.

(2) Separate international freight and insurance from the matrix by using ratio of freight and insurance to CIF price for each CCCN.

$$FIij = \frac{FI_j}{Ci} \times Cij,$$

where FIi=international freight and insurance of the i-th CCCN (Row-wise total)
Ci=the CIF value of the i-th CCCN (Row-wise total)
Cij=CIF value of the cross-point of the i-th CCCN (Column) & the j-th I–O sector (Row)

From this step, the matrix at FOB prices can be obtained by deducting FIij from Cij. To obtain the import matrix by bilateral uniform I–O classification (BUIO), the rows of CCCN should be aggregated again to the same BUIO code.

(3) Transformation of the FOB matrix to the producers' price matrix can only be done for the matrix for Japan. The Japan domestic trade and transport margin (TTM) ratio for each I-O code (derived from the 1985 Japan I-O Table) have been utilized for the transformation. Due to the technical problem, the matrix for the Rest of the World was kept in CIF prices.

3.3 Import Matrices for Japan by Country of Origin

3.3.1 Japanese Import Matrix

The Japanese input-output table, 1985, published by the Government of Japan, was compiled both in non-competitive and competitive types. Accordingly, the world x Japan import matrix is available from this to compile the import matrices by country of origin.

The import matrix for Japan is the same size in sectors as Japanese input-output table and is valued at CIF. This matrix was divided into two import matrices, Indonesia x Japan and the rest of the world (ROW) x Japan with information from the special survey (noted in 3.3.2) incorporated as component blocks of the bilateral input-output table.

3.3.2 Special Survey for Import Matrices by Country of Origin

While the special survey for Indonesian import matrices by country of origin was conducted by CBS, IDE utilized the result of the survey on the destination of imported goods conducted by the Ministry of International Trade and Industry (MITI) of Japan.

The MITI survey was conducted based on CCCN to determine the destinations of imported goods by country of origin and obtained information on about 1000 commodities (CCCN).

3.3.3 Japanese Import Matrices by Country of Origin

The special survey provides the import ratio by each I/O sector (of 408 Japanese column sectors) and by country of origin (11 countries or regions, i.e., China, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, USA, and the rest of the world) for each CCCN (ROW).

With these ratios, the import values of the foreign trade statistics were distributed to the input sectors. For goods for which the special survey could not obtain information, the ratios of the values in the I/O sectors to the total of the corresponding I/O row sectors in the total import matrix for Japan were used. (This process assumes an identical ratio for all of the column sectors that use imported goods classified under the same row sector.)

Then the first stage of the import matrix by country of origin was derived as is shown in Table [3.3.3.A] .

[Table 3.3.3.A]

		Intermediate Demands			Final Demands		(Japan I/O sectors)
		1	2	----	1	2 ----	
$CCCN_1$	$Country_1$	$X^1_{1,1}$	$X^1_{1,2}$	----	----		
	$Country_2$	$X^1_{2,1}$	$X^1_{2,2}$	----	----		
	$Country_{11}$	$X^1_{11,1}$	$X^1_{11,2}$	----	----		
$CCCN_2$	$Country_1$	$X^2_{1,1}$	$X^2_{1,2}$	----	----		
	$Country_2$	$X^2_{2,1}$	$X^2_{2,2}$	----	----		
	$Country_{11}$	$X^2_{11,1}$	$X^2_{11,2}$	----	----		
$CCCN_3$							

where a of $X^b_{a,c}$ denotes country
b of $X^b_{a,c}$ denotes CCCN code
c of $X^b_{a,c}$ denotes I/O sector of column

Next, summing up the CCCN rows belonging to the same I/O sectors, the import matrix of the second stage was derived and is shown as Table [3.3.3.B] .

[Table 3.3.3.B]

	Intermediate Demands			Final Demands			(Japan I/O sectors)
	1	2	----------	1	2	----------	
IO_1 Country$_1$	$Y^1_{1,1}$	$Y^1_{1,2}$	----------	----------			
Country$_2$	$Y^1_{1,1}$	$Y^1_{2,2}$	----------	----------			
Country$_{11}$	$Y^1_{11,1}$	$Y^1_{11,2}$	----------	----------			
IO_2 Country$_1$	$Y^2_{1,1}$	$Y^2_{1,2}$	----------	----------			
Country$_2$	$Y^2_{2,1}$	$Y^2_{2,2}$	----------	----------			
Country$_{11}$	$Y^2_{11,1}$	$Y^2_{11,2}$	----------	----------			
IO_3							

where a of $Y^b_{a,c}$ denotes country
b of $Y^b_{a,c}$ I/O sector of row
c of $Y^b_{a,c}$ denotes I/O sector of column

Table [3.3.3.C] shows the first eleven rows of Table [3.3.3.B] . $Y^1_1.$, $Y^1_2.$, ·····, $Y^1_{11}.$ in the right end of the table are the control totals which come directly from the foreign trade statistics at Japanese I/O sector level, and $Y^1_{\cdot 1}$, $Y^1_{\cdot 2}$, ·····are also control totals from the total import matrix for Japan. Because of utilizing the special survey' s results, generally speaking, some of column-wise totals are not equal to the corresponding control totals, while each row-wise total is exactly the same as the corresponding control total. Accordingly, a kind of reconciliation has been applied to the matrix shown in Table [3.3.3.C] to make each row-wise/column-wise total be equivalent to the corresponding control total in a consistent manner.

The import matrices by country of origin for the bilateral I/O table were obtained by summing up all of the country-rows except for the Indonesia-row in the same Japanese I/O sector at the CIF value.

[Table 3.3.3.C]

	Japanese I/O sectors						(Japan I/O sectors)
	Intermediate Demands			Final Demands			
	1	2	----------	1	2	----------	
IO_1 Country$_1$	$Y^1_{1,1}$	$Y^1_{1,2}$	----------	----------			$Y^1_1.$
Country$_2$	$Y^1_{2,1}$	$Y^1_{2,2}$	----------	----------			$Y^2_1.$
Country$_{11}$	$Y^1_{11,1}$	$Y^1_{11,2}$	----------	----------			$Y^1_{11}.$
	$Y^1_{\cdot 1}$	$Y^1_{\cdot 2}$	----------				

The import matrix, Indonesia x Japan, was further processed to be at producers' price of Indonesia after this step. (see 3.3.5)

3.3.4 Treatment for Special Imports and Direct Imports

There was no information available on the disaggregation of Special Imports and Direct Imports by country or region of origin. Treatments for these imports were done for the bilateral I/O table by recording them all in "the rest of the world" x Japan matrix. This means that all of the Special and Direct Imports are supposed to come from the world except for Indonesia.

3.3.5 International Freight and Insurance, and Indonesia x Japan Matrix at Producers' Price of Indonesia

Import matrices for Indonesia x Japan and the rest of the world x Japan derived from the process in 3.3.2 and 3.3.3 are still valued at CIF. Finally according to the system used for the bilateral I/O table

(cf. 2.1 in Chap. 2), the table for Indonesia x Japan should be evaluated at the producers' price of the supply-side country (i.e. Indonesia).

To do this, freight and insurance related to the foreign trade of Japan were estimated in terms of the ratio to the CIF value by commodity and by country of origin in as much detail as possible with information from JMRI (noted in 2.2.6), however, due to the limited amount of data available, estimation only covered several of the countries/regions which were to be involved in the 1985 Asian International Input-Output Table (to be published in 1992).

Consequently, the rest of the world x Japan matrix was left at CIF level and the Indonesia x Japan matrix was further processed using the estimated ratio so as to be valued at FOB, and the amount of freight and insurance reduced from each sector of the matrix were summed up by column and treated as one row vector.

The amounts for imports at FOB price contain transportation and trade margins (TTM) which were paid for services in these fields of activities (from factory to port). To convert the Indonesia x Japan matrix at FOB level to that at producers' price in Indonesia, TTM ratios for goods imported from Indonesia were estimated by CBS to treat TTM as Japanese imports from Indonesian TTM sectors.

Finally, the Indonesia x Japan matrix evaluated at producers' price of Indonesia was derived.

The bilateral uniform input-output sectors (BUIO sectors) relating to TTM are listed below.

BUIO Sectors relating to TTM

[BUIO code]	[Description]
105	Wholesale and retail trade
106	Railway transport
107	Road transport
109	Inland water transport
110	Air transport
111	Services related to transport
112	Storage facility services

3.4 Indonesian Export Matrix by Destination Country

In the Indonesia-Japan Bilateral I-O Table, the Indonesian export matrix will show all transactions of Indonesian exported goods by BUIO (row-wise) and by country of destination (column-wise). Data on exported goods by CCCN and by country of destination was also gathered from foreign trade statistics compiled by CBS, whereas data on exported services was derived from the Balance of Payments. However, due to the limited information available, data on exported services cannot be decomposed by country of destination, and all of this data were entered to in the corresponding row sector of "the rest of the world" column.

The Indonesian export matrix was comprised of ten destination columns, China, Hong Kong, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, USA and the Rest of the World. On the other hand, the column for exports to Japan was substituted by the Japan import matrix (Indonesia x Japan). To be consistent with the total export figures as shown in the 1985 Indonesian I-O table, a column for Statistical discrepancy should be provided, as a balancing item (see 3.7).

The Indonesian export matrix was stated in FOB prices. The Indonesian TTM ratios were utilized to transform the matrix into the table of producers' price for Indonesia.

3.5 Japanese Export Matrix by Destination Country

The same procedure mentioned in 3.4 for Indonesia was applied to decomposition of the export column of the original Japanese I-O table. The treatment of services was also the same.

3.6 Special Treatments for the Japanese I-O Table

Treatments of sectors are, in some parts, conceptually different between the Indonesian and Japanese I-O tables. These parts were the sectors for ; Business Consumption, Government, and the so-called Dummy sectors (Office Supply, Self-Education, Self-Research, Self-Transport of passenger, and Self-Transport of cargo). These were adjusted to make the two tables consistent in concept, by applying special treatments only for Japanese I-O table.

3.6.1 Consumption Expenditures of Private Non-Profit Institutes

The definition of the sector in the Japanese I-O table is such that values recorded here are equivalent to the amount of self-consumption of private non-profit institutes providing services for households, i.e., the amount resulting from deducting the amount of sales to other sectors from the amount of total production.

The Indonesian I-O table puts these amounts into corresponding row sector for Consumption Expenditures of Households.

Accordingly, this sector was added up to Consumption Expenditure of Households and was eliminated in the Japanese I-O table for the bilateral I-O table.

3.6.2 Business Consumption (Consumption Expenditures Outside Households)

The Japanese I-O table has a Business Consumption sector (consumption expenditures outside household) in value-added and final demand sectors.

This sector contains special expenses such as company sponsored entertainment expenses, welfare expenses (except those included in compensation for employees) such as the costs paid by companies for phisical checkups for employees, accomodation and per-diem expenses endured on business trips, while these kinds of expenses are treated as costs for productions of column sectors and contained in cells of intermediate parts of the Indonesian I-O table.

Adjustment of the Japanese table was done in such a way that values in the column vector for Business Consumption (BC) in the final demand block were distributed horizontally (i.e. row-wise) to intermediate columns in propotion to the ratio of the value in at the cross point of the corresponding column and the BC row vector in the value-added block to the total of BC. After that, BC row vector and BC column vector were deleted from the Japanese table.

3.6.3 Dummy Sectors

The Japanese I-O table provides several sectors as dummies for convenience, the values of which appear only in intermediate transactions. They are sectors of Self-Education, Self-Research, Self-Transportation (Passengers, Cargo), and Office Supplies.

The "Self-" sectors are for activities in education, research, or transportation operations conducted within a company free from the aid of external services.

Goods belonging to the Office Supply (OS) classification are treated such that at first production sectors supply them to the sector of the OS (column) and then the OS (row) distributes them to the demand sectors.

On the other hand, the Indonesia I-O table does not have these dummy sectors and figures of these kinds are included in each intermediate cell in the table.

Adjustment of these dummy sectors was done for the Japanese I-O table in a similar manner as that for Business Consumption.

3.6.4 Public Administration

Public Administration in the Japanese I-O table is considered as a Government service producer. Accordingly, related sectors such as Public Administration of the Central Government, and that of Local Government, have intermediate inputs/demands, while the Indonesian I-O table treats them as the "major source of demand", that is, the Public Administration column has only value-added part and all of the outputs are recorded in Consumption Expenditure of Government.

Furthermore, all of the Public Administration purchases in the Indonesian table are, regardless of intermediate input, consumption expenditures, or gross domestic fixed capital formation, entered in the Government purchase sector in the final demand part.

The Japanese I-O table was modified to be consistent with the Indonesian table.

3.7 Reconciliation and Statistical Discrepancy

After all the blocks (matrices) for the bilateral table had been prepared, linking was performed to produce one bilateral input-output table with several reconciliations.

On balancing the table, some row-wise totals of intermediate sectors were not equal to their corresponding control totals (CT) which came directly from both the Indonesian and the Japanese tables only by summing

up the CTs of these tables under the same BUIO sector. Main cause of these discrepancies was the estimation method for the import matrices for Japan x Indonesia and Indonesia x Japan. These import matrices might be interpreted as the export matrices of Indonesia x Japan and Japan x Indonesia, respectively. However, they are not in line with the other export blocks, the data of which were based on the export statistics of the "supply-side" countries. In contrast, they were estimated based on the total import matrix (or equivalently, the import statistics) of "demand-side" countries. Moreover, due to the limitations imposed by a lack of sufficient data, all service imports, which should have been included in these import matrices, were recorded in the import matrices for the rest of the world (ROW) x Indonesia and ROW x Japan.

Due to the treatment mentioned above, the bilateral table had to bear discrepancies, which were recorded in the specially provided column, "Statistical Discrepancy", since the amount of discrepancy, by sector, was not big enough to be significant compared with the control total and was within tolerances with regard to the intended use of the table.