Part 1. Compilation of the Asian international input-output table

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Introduction

Compilation of international I-O tables is an artistic practice. A number of statistical experts from various countries are involved, exchanging considerable amounts of valuable information and technical expertise.

Roughly speaking, the compilation process goes through three distinctive phases:

(1) Adjustment of presentation format

(2) Preparation of sector concordance and supplementary data

(3) Linking of the tables

What follows is a step-by-step illustration of how the Asian international I-O table is compiled. The first part presents a schematic description of the format adjustment for every constituent national table. The second part briefly explains construction of the system of sector concordance, followed by a sketch of estimation methods for supplementary data. Finally, the linking procedure is illustrated, with detailed explanations of the manual balancing/reconciliation work.

The chapter is appended with records of the general survey on national tables of project member countries, which was conducted by IDE in 2003-4 in order to establish a common rule for the format adjustment of the tables. The table of cross-national sector concordance is also provided at the end.

I. Adjustment of presentation format

Despite the fact that input-output tables constitute the central apparatus of the System of National Accounts, each national table of an individual country exhibits more or less different features and characteristics, reflecting the country's economic idiosyncrasies and availability of data. Such a variety in the form, however, poses a practical difficulty when compiling international input-output tables. For even though the international table is composed of the segments taken from each national I-O table, the interpretation of the data should be mutually consistent and comparable for any part of the whole.

Accordingly, one of the most complicated, nerve-racking tasks of compilation is the adjustment of national tables to conform to a common format. In general, it is the

detailed, information-rich table that has to concede to less-detailed ones, as the other way round would require a costly (yet often unrewarding) effort of obtaining supporting data. Therefore, there always exists a trade-off between the level of uniformity and the level of information, and hence careful and thorough consideration is called for in making adjustment rules.

In what follows, a schematic description of the format adjustment of national tables is presented. It is a comprehensive illustration of every adjustment actually made to the constituent tables of the 2000 AIO project, and thus is expected to offer a handy guideline for future reference when compiling international I-O tables.

—List of adjustment targets for each national table—

	CHINA	INDONESIA	JAPAN	KOREA	MALAYSIA	TAIWAN	PHILIPPINES	SINGAPORE	THAILAND	U.S.A.
1. Conversion of valuation (P.17)										
1.1 Basic price to producer's price								X		
1.2 Private Consumption Expenditure					X			X		X
1.3 Export vectors					X			X		
1.4 Import matrix/vector			X	X			X		X	X
2. Negative entries (P.25)				X						
3. Dummy sectors (P.26)	X		X	X	X			X		X
4. Machine-repair (P.37)	X		X				X			X
5. Financial intermediaries (P.40)			X		X			X	X	
6. Special treatment of import/export (P.42)										
6.1 Water transportation										X
6.2 "Pure import" of gold										X
6.3 Re-export					X					
6.4 Telecommunication				X						
7. Computer software products (P.45)						X				
8. Producers of government services (P.46)									X	X

1. Conversion of valuation

***** Note: Numbers in the diagrams shown in parentheses represent that they will ultimately disappear as a result of adjustment.**

1.1 Basic price to producer's price

General principle of the AIO tables

The table should be valued at producer's price.

Table(s) to be adjusted

Singapore

Current presentation

The table is valued at basic price. All commodity taxes are included in an independent row vector of 3177 "Commodity taxes" in the value added.*1

*1 "3177 Commodity taxes" includes: com. taxes on domestic products, imported com.taxes, import duties, and GST.

Adjustment procedure

(1) The amount of commodity taxes levied on each taxable goods (Liquors, Tobacco, Petroleum, Motor vehicles, etc.) is taken from reliable sources.*2

(2) These figures are split into those levied on domestic transactions and those levied on imported goods, using CT ratios of equivalant SIO sectors.
example: "Liquors" = SIO 022 "Alcoholic drink"

(3) The figures derived in (2) are allocated rowwise and added on to the rows of the corresponding SIO sectors*3, using their output distribution ratios.*4

Liquors	**250**	**x d_{022} / (d_{022}+m_{022})**
		x m_{022} / (d_{022}+m_{022})
Tobacco	**160**	**x d_{023} / (d_{023}+m_{023})**
		x m_{023} / (d_{023}+m_{023})
Petroleum	**90**	**x d_{036} / (d_{036}+m_{036})**
		x m_{036} / (d_{036}+m_{036})
Motor Veh	**280**	**:**

*2 From "Public Finance Yearbook of Statistics," Department of Commerce

*3 The cells of "Changes in stock" with negative values are excluded from assigning taxes, since commodity taxes are considered to be levied only in the year of production.

*4 Note, however, that if the industry has zero or considerably small amount of entry in SIO 3177 that sector should be precluded from calculation of distribution ratio so as to receive no allocation of taxes. See the example of industry C below.

	A	B	C	・・・	Z	PCE		CT	
:									
022 Alcoholic Drk	60	100	80	・・・	40	240	・・・	800	**(=d_{022})**
	0.08	**0.13**	**0.00**	・・・	**0.05**	**0.30**			
Tax on 022	+16	+26	+0	・・・	+10	+60		**+200**	
023 Tobacco	80	50	24	・・・	20	200	・・・	1200	**(=d_{023})**
	0.07	**0.04**	**0.00**	・・・	**0.02**	**0.17**			
Tax on 023	+8	+5	+0	・・・	+2	+20		**+120**	
:									
:									
022 Alcoholic (imp)	16	20	6	・・・	0	40	・・・	200	**(=m_{022})**
	0.08	**0.10**	**0.00**	・・・	**0.00**	**0.20**			
Tax on 022	+4	+5	+0	・・・	+0	+10		**+50**	
023 Tobacco (imp)	10	25	5	・・・	20	35	・・・	400	**(=m_{023})**
	0.03	**0.06**	**0.00**	・・・	**0.05**	**0.09**			
Tax on 023	+1	+2	+0	・・・	+2	+4		**+40**	
:									
3177 Com.taxes	78	92	0	・・・	63	388			
CT									

(4) Each column total of allocated commodity taxes (both domestic and import [highlighted]) is subtracted from SIO3177. This leaves 3177 as a row vector of GST.*5

*5 If, however, the subtraction results in a negative value, this negative figure is redistributed along the same column over to the intersections with the four taxable items.

As a result of this operation, the row totals of taxes become lower than the figures from the original source. The differences are made up for by increasing the taxes on PCE by the appropriate amounts.

	A	B	C	···	Z	PCE		CT	
:									Tax
022 Alcoholic Drk	60	100	80	···	40	240	···		totals
Tax on 022	**+16**	**+26**	**+0**	···	**+10**	**+60**			**+200**
023 Tobacco	80	50	24	···	20	200	···		
Tax on 023	**+8**	**+5**	**+0**	···	**+2**	**+20**			**+120**
:									
036 Petroleum	85	100	60	···	90	100	···		
Tax on 036	**+12**	**+18**	**+0**	···	**+15**	**+18**			**+80**
:									
092 Motor Vehcl	65	55	30	···	70	950	···		
Tax on 092	**+26**	**+18**	**+0**	···	**+28**	**+130**			**+250**
:									
:									
022 Alcoholic (imp)	16	20	6	···	0	40	···		
Tax on 022	**+4**	**+5**	**+0**	···	**+0**	**+10**			**+50**
023 Tobacco (imp)	10	25	5	···	20	35	···		
Tax on 023	**+1**	**+2**	**+0**	···	**+2**	**+4**			**+40**
:									
036 Petroleum (imp)	12	3	8	···	2	25	···		
Tax on 036	**+1**	**+0**	**+0**	···	**+0**	**+2**			**+10**
:									
092 Motor Veh (imp)	15	4	12	···	6	60	···		
Tax on 092	**+3**	**+0**	**+0**	···	**+1**	**+10**			**+30**
:									
3177 Com.taxes	78	92	0	···	63	388			
	-71	**-74**	**-0**	···	**-58**	**-254**			
CT									

Sum up and subtract
-> 3177 becomes GST only

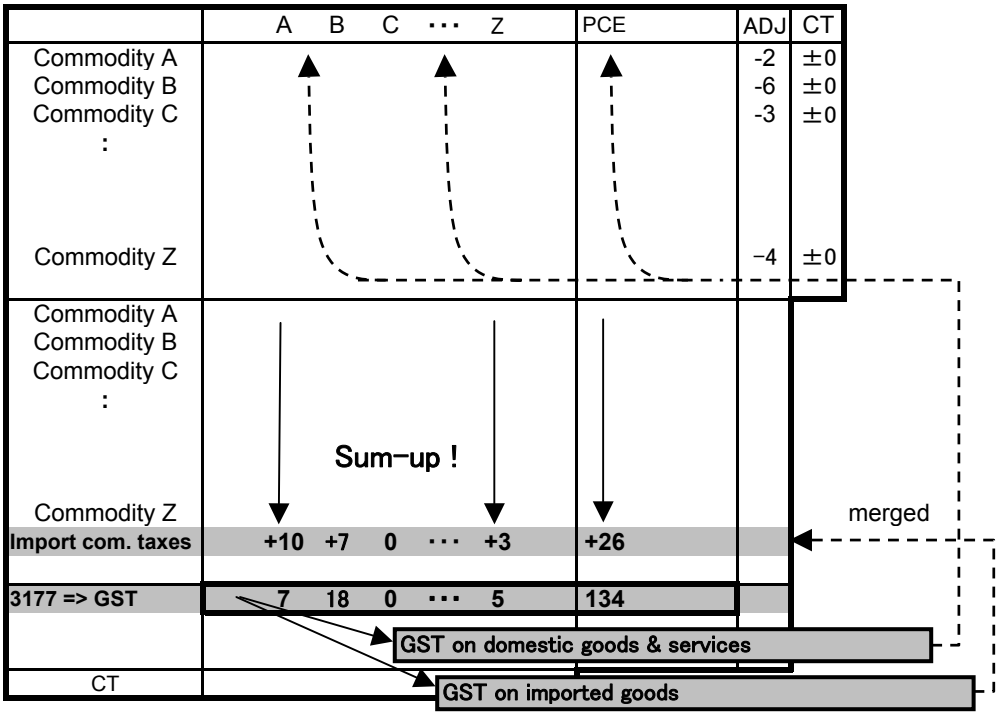
(5) An adjustment column is set up to counterbalance the increase in row totals by tax add-on, to keep CTs unchanged.

	A	B	C	···	Z	PCE		ADJ	CT
:									
022 Alcoholic Drk	**↑16**	···		···	**↑10**	**↑60**	···	**-200**	**±0**
023 Tobacco	**↑8**	···		···	**↑2**	**↑20**	···	**-120**	**±0**
:									
036 Petroleum	**↑12**	···		···	**↑15**	**↑18**	···	**-80**	**±0**
:									
092 Motor Vehcl	**↑26**	···		···	**↑28**	**↑130**	···	**-250**	**±0**
:									
:									
022 Alcoholic (imp)		···		···			···		
023 Tobacco (imp)		···		···			···		
:									
036 Petroleum (imp)		···		···			···		
:									
092 Motor Veh (imp)		···		···			···		
:									
3177 => GST	**7**	**18**	**0**	···	**5**	**134**			
CT									

(6) import commodity taxes are aggregated columnwise to form a row vector.

(7) The row vector of GST is split into two vectors: one for taxes levied on domestic goods & services and the other for imported goods, again using CT ratios.

(8) GST on domesitc goods & services is distributed over to the domestic transactions, using the input structure of each sector. GST on imports is merged with the vector of import commodity taxes.



1.2 Private Consumption Expenditures

General principles of the AIO tables

PCE should be valued on a national basis, commodity by commodity.

Table(s) to be adjusted

Malaysia, Singapore, U.S.A.

Current presentation

Malaysia/Singapore

	Expenditures in the domestic market	Expenditures abroad
Resident	included	included
Nonresident	included*1	not included

*1 Singapore PCE also includes under this category the expenditures of tourists on imported goods, such as branded commodities (Louis Vuitton, Gucci, etc..)

U.S.A.

	Expenditures in the domestic market	Expenditures abroad
Resident	included	not included
Nonresident	included	not included

Adjustment procedure

Malaysia/Singapore

	Expenditures in the domestic market	Expenditures abroad
Resident	included	included
Nonresident	included	not included

⇩

not included

U.S.A.

	Expenditures in the domestic market	Expenditures abroad
Resident	included	not included ⇨ **included**
Nonresident	included	not included

⇩

not included

Malaysia/U.S.A.

(1) The ratio of nonresidents' expenditures, by commodity, is constructed by referring to the Direct Sales (exports) vector of the Japan I-O table.

(2) Along the PCE there is an adjustment scalar in a negative value representing nonresidents' total expenditure in domesitc markets. This figure is expanded to a column vector, using the ratios prepared in (1).

For the Malaysian table, the figure is given at the intersection of PCE and 094 "Import commodities (row)", and for the U.S. table, of PCE and S00600 “Rest of the world adjustment to final uses (row).”

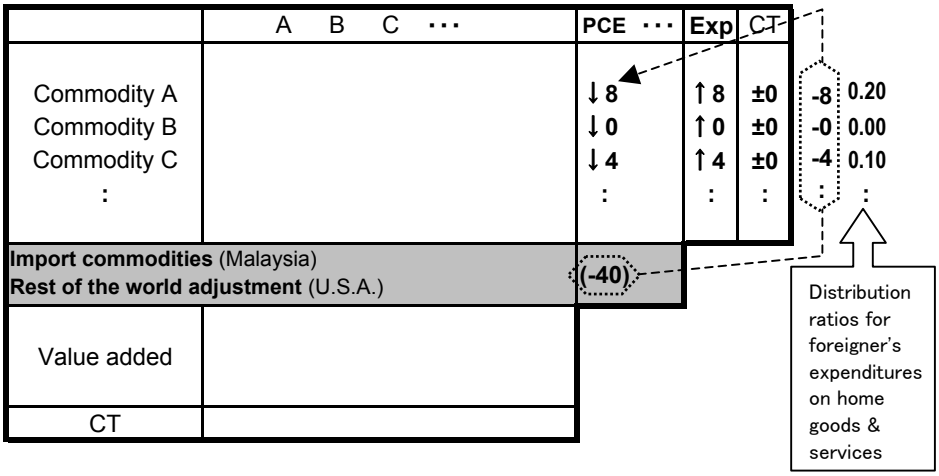
(3) The column vector (negative values) thus derived is added on to the original PCE.

(4) The inverse values of that column vector are added on to the export vector as direct sales to nonresidents.

(5) The adjustment scalar is deleted.

(6) (For the U.S. table only) the entries at the intersection with F07C00 “Nondefense consumption expenditure” and "Imports" are deleted.*2

*2 These values represent the Army Corps of Engineers' overseas construction programs and donations for overseas relief activities, respectively. They are not in accordance with the accounting frameworks of the Asian tables, and thus simply deleted.



U.S.A. (continued)

(7) The ratio of residents' expenditures abroad, by commodity, is constructed by referring to the Direct Purchases (imports) vector of the Japan I-O table.

(8) There is an adjustment scalar in a positive value representing residents' total expenditure abroad at the intersection of S00300 "Noncomparable imports" and PCE. This figure is expanded to a column vector, using the ratios prepared in (1).

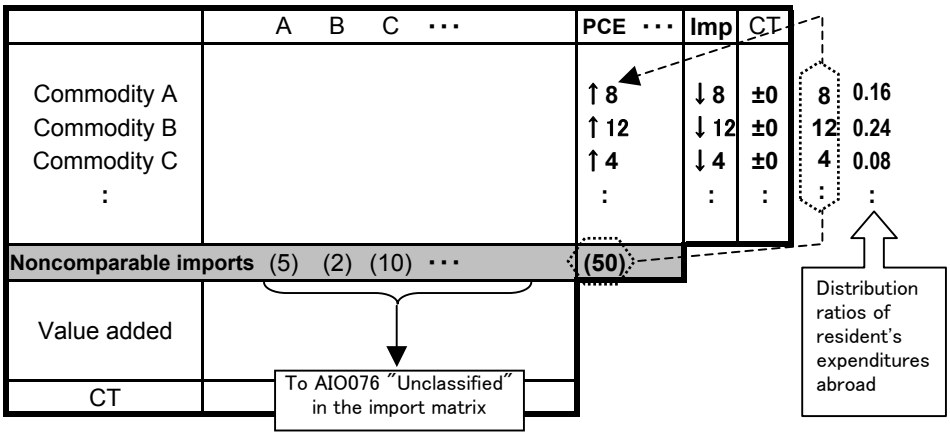
(9) The column vector thus derived is added on to the PCE.

(10) The inverse values of that column vector are added on to the import vector as residents' direct purchases abroad.

(11) The adjustment scalar is deleted.

(12) Other entries in intermediate uses and final demand of “Noncomparable imports” are classified into AIO076 "Unclassified” in the import matrix.*3

* 3 “Noncomparable imports” as intermediate inputs represent the values of goods and services purchased by U.S. residents on business trips abroad. The sector also includes the types of commodities not produced in the U.S. (e.g., coffee beans).



Singapore

(1) Nonresidents' expenditures, by commodity, is constructed as follows:*4

(1)-1 The figures for nonresidents' expenditures in broad categories (like "Shopping," "Accommodations") are taken from "Tourist Expenditure Survey 2000," for the expenditures on domestic goods and on trade margins, respectively.*5

(1)-2 The expenditures on trade margins are aggregated and located against the "Wholesale and Retail Trade" vector (row).

(1)-3 The expenditures on domestic goods are expanded, where necessary, like "Shopping," into further details by commodity, using the ratio derived from sample data on the expenditures of Rotary delegates to Singapore.

(2) All the figures thus derived in the process above are subtracted from the original PCE.

(3) The vector of nonresident expenditures on domestic goods, together with those on trade margins, are added to the export vector as direct sales of goods and services to nonresidents.

*4 The Singapore table also seems to have an adjustment scalor at PCE x 174 "Other goods & services (row)" in its import matrix, yet this figure cannot be used, as it does not match the data shown in the Tourst Expenditure Survey.

*5 Tourists' expenditures on imported goods (Gucci, Louis Vitton etc.) are to remain in the import part of PCE in order to maintain consistency with the National Account, although the entries can be conceptually regarded as reexports.

1.3 Export vectors

General principle of the AIO tables

Export vector(s) should be valued at producer's price.

Table(s) to be adjusted

Malaysia, Singapore

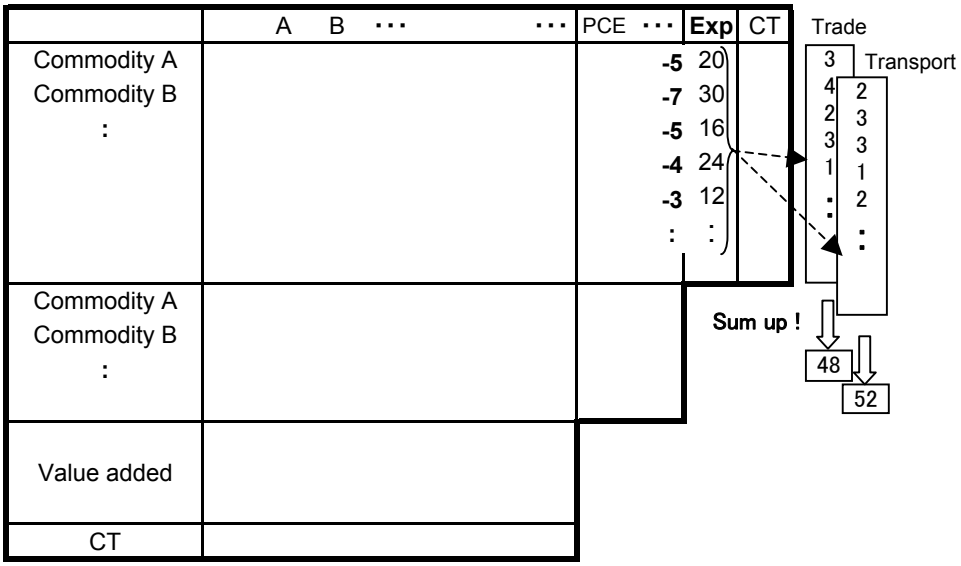
Current presentation

The export vectors are valued at FOB.

Adjustment procedure

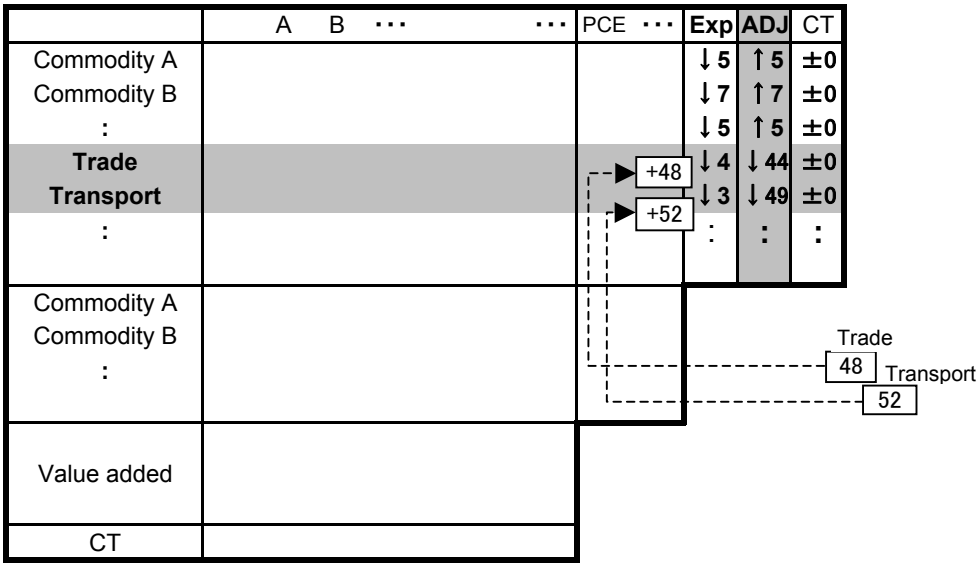
(1) TTM ratio is applied in order to separate the values of TTM on the exported goods (from factories to ports) from the FOB values.

(2) The TTM vectors thus derived are aggreagated columnwise, each TTM sector independenty, into scalars.



(3) Each TTM is added onto the corresponding TTM row vector, at the intersection with the export vector.

(4) An adjustment column is set up to counterbalance the increase in row totals, to keep CTs unchanged.



1.4 Import matrix/vector

General principle of the AIO tables

Import matrix/vector should be valued at CIF, not including import duties and import commodity taxes.

Table(s) to be adjusted

Japan, Korea, Philippines, Thailand, U.S.A.

Current presentation

Japan, Korea, Philippines, Thailand: CIF with duties and import commodity taxes

U.S.A. (vector):

Import duties are included along the entries in the import vector. At the same time, its total amount is placed at the intersection of 420000 “Wholesale trade (row)” and “Imports” in a positive value, to cancel out each duty entry. *1

*1 As a result, the total value of import vector is given at CIF.

The equivalent amount of this excess value is added on to the value added, at the intersection of the V00200 “Indirect business tax and nontax liability” and “Wholesale trade (column)” sector, to keep the balance with the final demand.

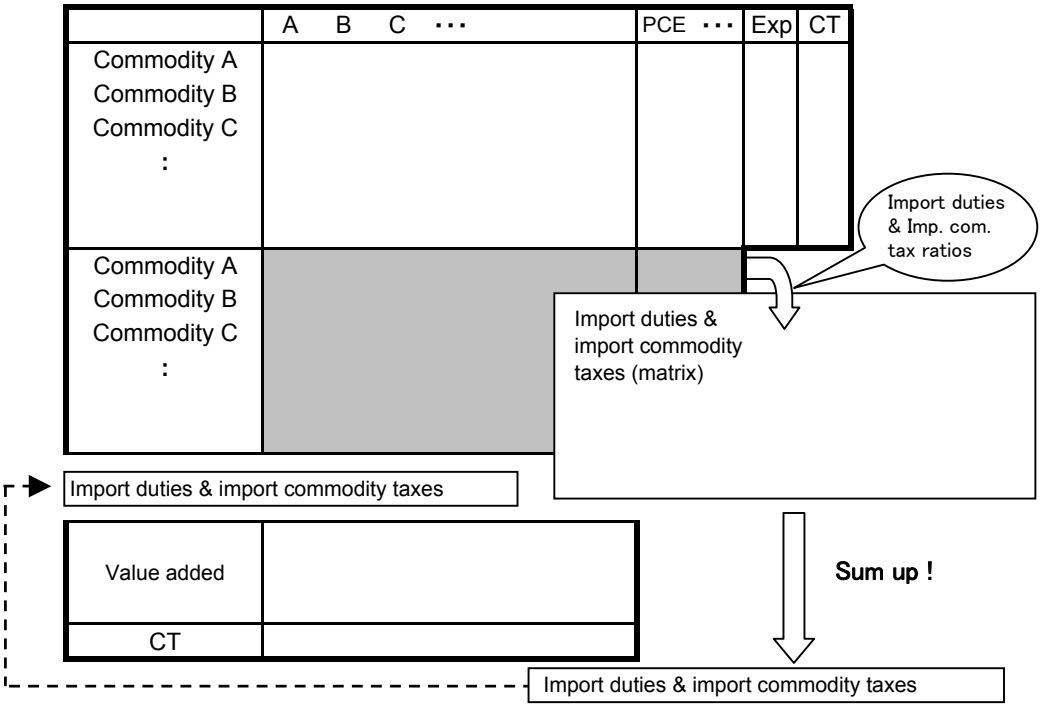
Adjustment procedure

Japan, Korea, Philippines, Thailand

(1) A column vector of import duites and import commodity taxes ratios is constructed, if not available from the table.

(2) These ratios are applied in order to separate the values of duties and import commodity taxes from the current import matrix.

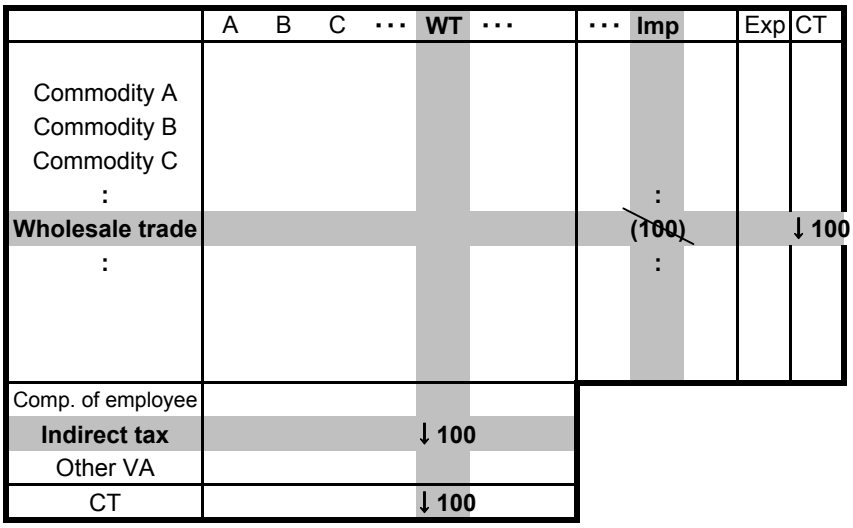
(3) The matrix of duites and import commodity taxes thus derived is aggregated columnwise, to obtain a row vector, which is to be independently presented.



U.S.A.

(1) The entry at the intersection of 420000 “Wholesale trade (row)” and “Imports” is deleted. The row CT is decreased by the same amount.

Also, corresponding value is deducted from intersection of “Indirect business tax ...” in the value added and “Wholesale trade (column)”. The column CT is decreased as well to resume the row-column balance of “Wholesale trade” sector.



(2) The composition ratio of import duties vector is derived as follows:

(2)-1 Using the HS-IO concordance and the values of customs duties obtained from the Foreign Trade Statistics, import duty ratio is calculated for each I-O item, where;

Import duty ratio = customs duty/(customs duty + import from FTS)

(2)-2 The values of import duties for I-O are derived by multiplying each entry in the “Imports” vector by the ratios prepared above.*2

Import duties (value) for I-O = "Imports" vector in I-O x Import duty ratio

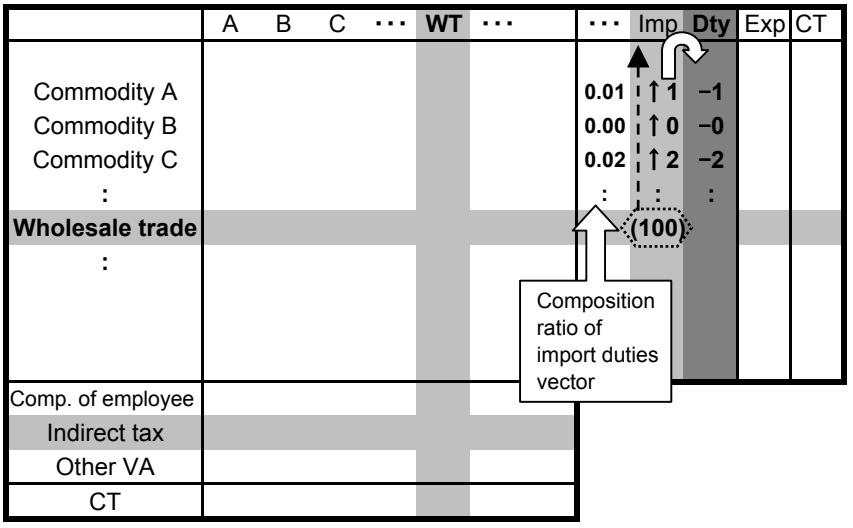
*2 This operation is necessary, since the import data from the Foreign Trade Statistics, aggregated to I-O classification, do not necessarily match those in the Imports vector of the I-O table.

(2)-3 The composition ratio of the above product is calculated.

Composition ratio = Import duty for I-O / ΣImport duites for all I-O sectors

(3) The Import duties vector is derived by expanding the total import duties (originally given in the "Imports" vector--already deleted), using composition ratio calculated in (2).

(4) The import duties vector is separated out of the “Imports” vector and independently presented (as negative values), leaving the import values at CIF.



2. Negative entries

General principle of the AIO tables

No negative entry, except for those arising as a result of the generation of scrap and by-products, and dealings of second-hand goods, should exist in intermediate transactions.

Table(s) to be adjusted

Korea

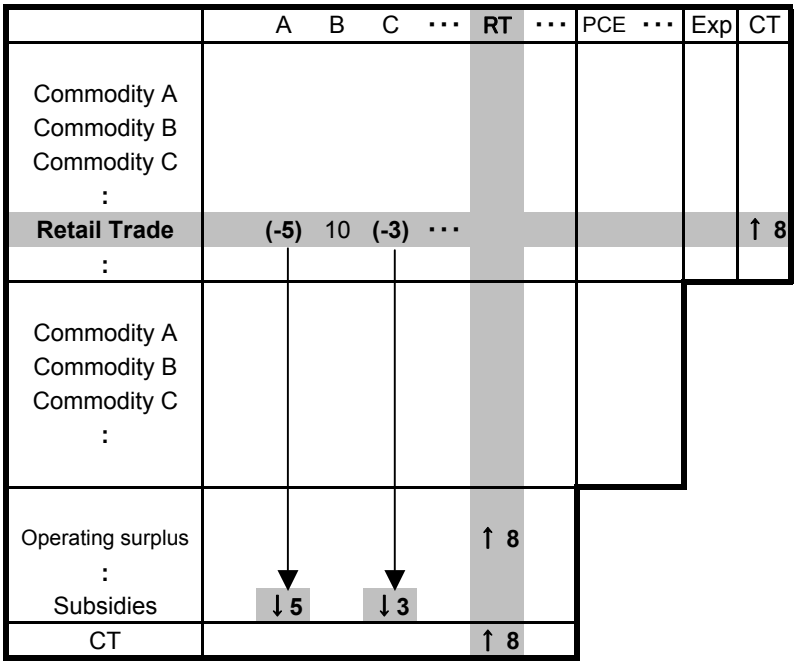
Current presentation

There are negative entries along "Retail trade (row)" where government subsidies are associated.

Adjustment procedure

(1) Since the negative trade margins represent the subsidies given to the sectors that have those negative inputs, the negative values are shifted to Subsidies in value-added items.

(2) The resulting increase in the CT (total output) of the trade sector is matched by the corresponding inscrease in its Operating surplus (and thus total input).



3. Dummy sectors

General principle of the AIO tables

No dummy sector should exist in the table.

Table(s) to be adjusted

China, Japan, Korea, Malaysia, Singapore, U.S.A.

Current presentation

China: There is a standalone Scrap & waste sector (2343085: row and column), and Rural industry sector (0101005F: row and column) in the table.

Japan: There are standalone Business consumption (9110-00: in final demand and in value added), In-house research (8222-01), Office supplies (8900-00P), and Scrap (1811-012P, 2612-011P, 2712-011P: rows) in the table.

Korea: There are standalone Business consumption (403), In-house research (380), and Office supplies (402) in the table.

Malaysia, Singapore: There is a standalone Imputed interest sector (column only) in the table. (Malaysia: 094, Singapore: 156)

U.S.A.: There are standalone Scrap (S00401: row only), Used and secondhand goods (S00402: row only), Royalties (533000), Management of companies (550000), General government industry (S00500) in the table.

Adjustment procedure

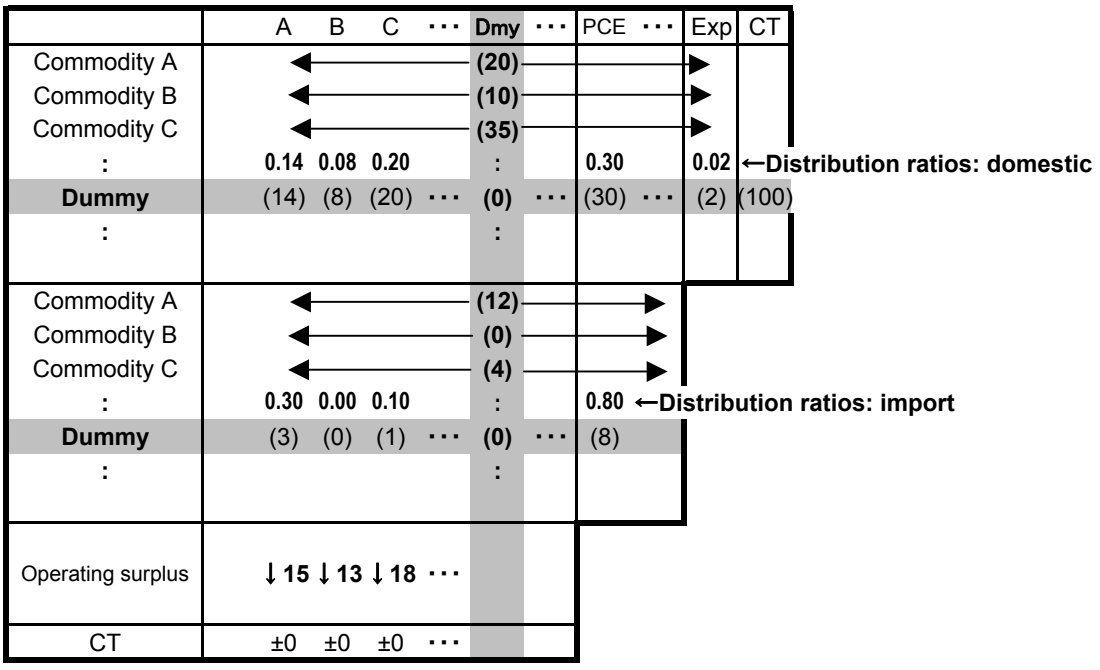
Business consumption, In-house research, Office supplies: Japan, Korea

(1) The column vector of the dummy is expanded into a matrix, using the output ratios derived from its row vectors (domesitc transaction and import matrix independently).

(2) Once the matrix is derived, the column and row vectors are deleted.

(3) The matrix thus derived is added into the table.

(4) The resulting increase in total intermediate input of each sector is offset by the decrease in its Operating surplus by the same amount.



Scrap: China

Currentry, the uses of scrap and by-products are put along a row. The equivalent amount to the row total is given at Operating surplus as a sole input.

(1) It is assumed that scrap and by-products are generated by sectors that have more scrap input. Therefore, its Operating surplus is distributed to other sectors, using the composition of the scrap row vector.

	A	B	C	・・・	SW	・・・	PCE	・・・	Exp	CT
Commodity A										
Commodity B										
Commodity C										
:										
scrap & waste	(20)	(50)	(30)	・・・						200
:	**0.10**	**0.25**	**0.15**	・・・						**1.00**
Commodity A										
Commodity B										
Commodity C										
:										
:										
Operating surplus	**↑20**	**↑50**	**↑30**	・・・	**(200)**					
:										
CT	**↑20**	**↑50**	**↑30**	・・・	(200)					

(2) The resulting increases in column CTs are matched by the increases in row CTs, which defines the distribution ratios for the row vector. After the columnwise distribution of the row vector, the row and column of scrap & waste sector are deleted.

	A	B	C	・・・	SW	・・・	PCE	・・・	Exp	CT	
Commodity A	**↑2**	**↑5**	**↑3**							**↑20**	**0.10**
Commodity B	**↑5**	**↑12**	**↑7**							**↑50**	**0.25**
Commodity C	**↑3**	**↑7**	**↑4**							**↑30**	**0.15**
:	:	:	:							:	
scrap & waste	(20)	(50)	(30)	・・・		・・・				(200)	
:											
Commodity A											
Commodity B											
Commodity C											
:											
:											
Operating surplus	**↑20**	**↑50**	**↑30**	・・・							
:											
CT	**↑20**	**↑50**	**↑30**								

scrap(/by-products): Japan

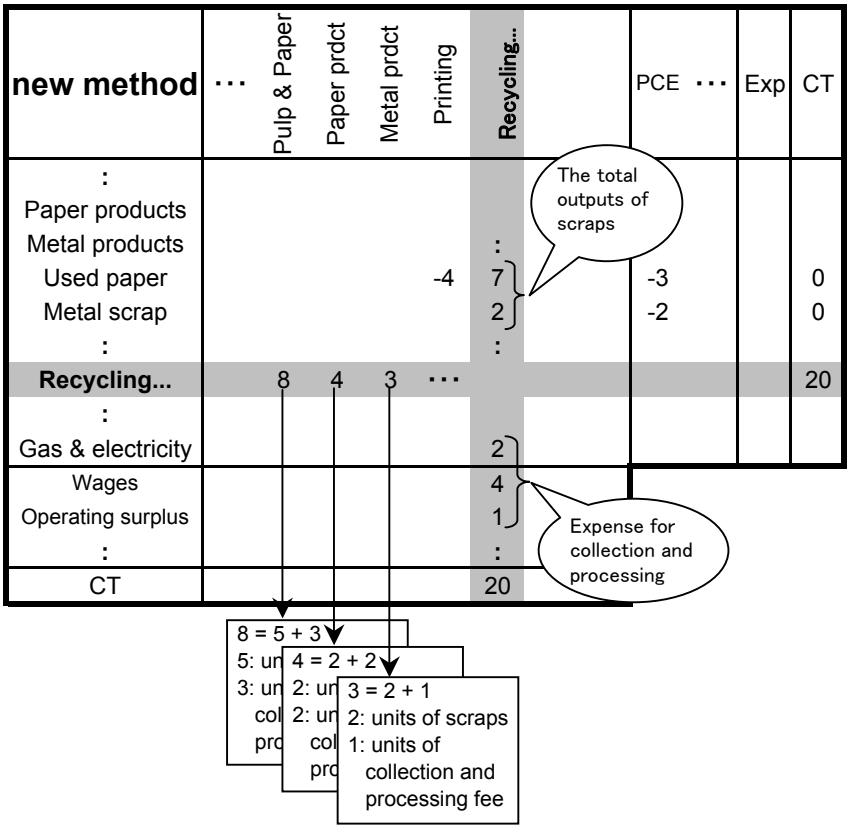
From the 2000 I-O table, a new sector, "Recycling of reproducible resources (3921-01)" is introduced.

The inputs and outputs of scrap/by-products are collectively recorded into this sector. The sector also records the activities of collection and processing of scrap/by-products.

<Comparison with the old method: an illustrative example>

Industry "Pulp and paper": uses 5 units of used paper
Industry "Paper products": uses 2 units of used paper
Industry "Metal products": uses 2 units of metal scrap
Industry "Printing": generates 4 units of used paper
"Household (PCE)": generates 3 units of used paper and 2 units of metal scrap

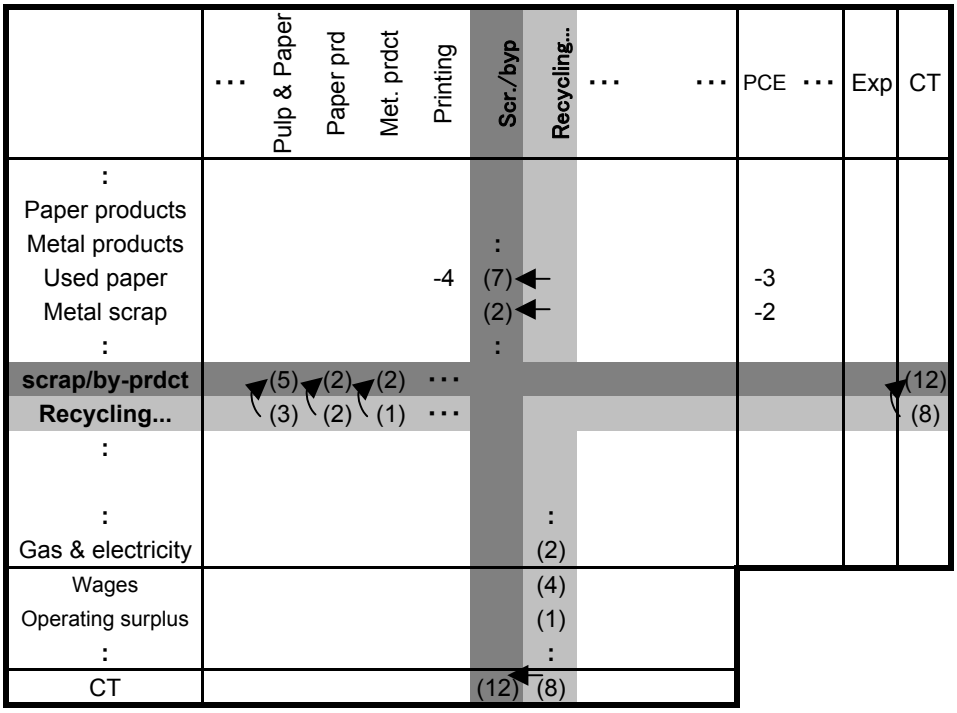
old method	・・・	Pulp & Paper	Paper prdct	Metal prdct	Printing	・・・	PCE	・・・	Exp	CT
:										
Paper products										
Metal products										
Used paper		5	2		-4		-3			0
Metal scrap				2			-2			0
:										
Value added										
CT										



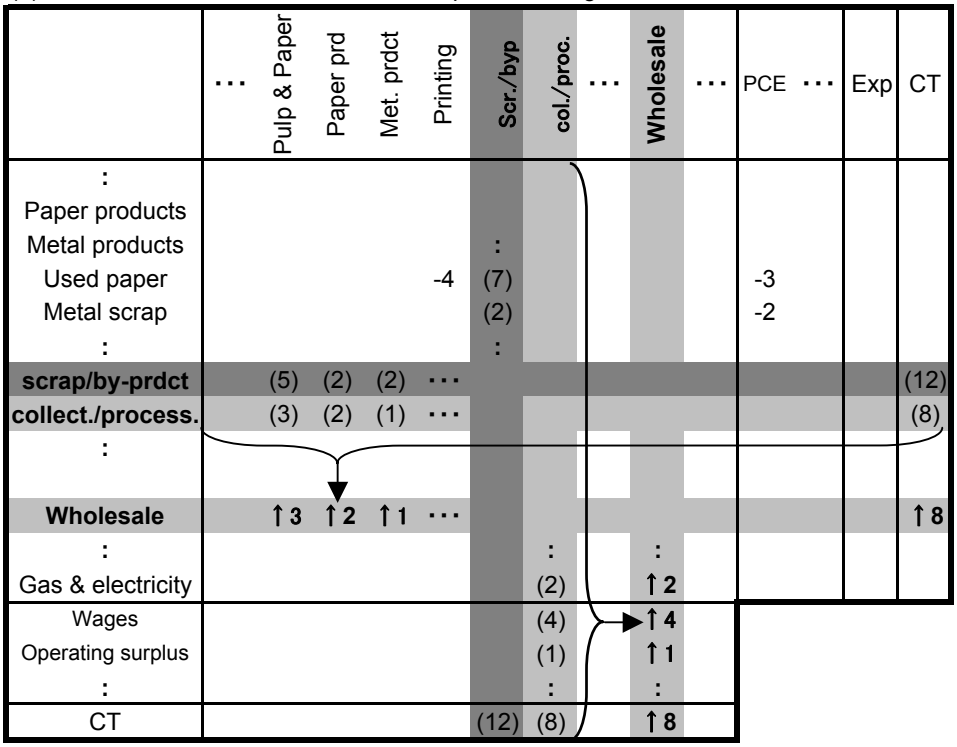
The “Recycling of reproducible resources” sector is divided into scrap/byproducts themselves and the activities of collecting and processing them.

(1) By referring to the supporting table “Inputs and outputs of wastes and by-products,” the amounts of input and output of scrap/by-products are identified.

(2) The outputs and inputs of scrap and by-products are deducted from the “Recycling...” sector by type of goods and by industry, which leaves the column and row of "Collection & processing activities."



(3) The row and column of the "activities" part are merged with "Wholesale" sector.



(4) With the help of the supporting table, the entries along the "scrap/by-products" row are redistributed to appropriate intersections with scrap dummy sectors (row), etc.

(5) The “scrap/by-products" row and column are then deleted.

	···	Pulp & Paper	Paper prd	Met. prdct	Printing	**Scr./byp**	···	Wholesale	···	PCE	···	Exp	CT
:								:					
Paper products													
Metal products													
Used paper		**5**	**2**		-4	~~(7)~~				-3			
Metal scrap				**2**		~~(2)~~				-2			
:													
scrap/by-prdct		(5)	(2)	(2)	···								~~(12)~~
:													
Wholesale		↑3	↑2	↑1	···								↑8
:								:					
Gas & electricity								↑2					
Wages								↑4					
Operating surplus								↑1					
:								:					
CT						~~(12)~~		↑8					

(6) The dummy sectors of scrap are merged with the sectors whose principal products are similar in uses and physical attributes; namely,

1811-012P Used paper --> 1811-01 Pulp
2612-01P Scrap iron --> 2611-03 Crude steel
2712-011P Nonferrous metal scrap --> 2711-09 Other nonferrous metals

Scrap: U.S.A.

S00401 "scrap" is a single row vector showing the generations and uses of scrap & by-products of all commodities. The generation of materials is represented as a negative input of the sector generating it, and the use is as a positive input as usual.

Since there is no further information for dividing the sector by type of materials, the sector is placed in AIO076 "Unclassified."*1

*1 When the U.S. table is converted to noncompetitive import type, all negative entries of this sector are kept in domestic transactions.

Imputed interest: Malaysia, Singapore

Currently, the whole output of imputed interest is given at the intersection of domesitc financial service sectors (rows) and the column dummy. The dummy has a negative Operating surplus to cancel out its output to zero.

(1) The values of education loans, car loans, housing loans and the amount of debt outstandings of domesitc industries are collected from reliable sources.*2

*2 For Singapore, loans and advances from banks/finance companies to industry and professional & private individuals are obtained from the Yearbook of Statistics.

(2) Distribution ratios are constructed from the data prepared in (1).

(3) The value of imputed interest (= i in the diagramme) is distributed as follows.

(3)-1 The values obtained from the ratios of education loans and car loans are entered into the intersection of domestic financial service sectors (row) and PCE. (= a)

(3)-2 The value obtained from the ratio of housing loans is entered into the intersection with "Ownership of dwellings (column)". (= b)

(3)-3 For the rest, the value is distributed among industries, yet first at the level of classification permitted by the data of debt outstandings.

(3)-4 Within a distributional grouping defined by the data of debt outstandings, the value is further distributed by using CTs as ratios for sub-division. (= d)

(4) The resulting increase in the total intermediate input is offset by the corresponding decrease in Operating surplus of each industry.

	···	Own. Dwel	···	Imp. Int.		PCE	···	Exp	CT
:	↑d								
Financial service	··· ···	↑ b		(i)		↑ a			
:									
	↓d								
Operating surplus	··· ···	↓ b		(–i)					
CT	±0	±0		±0					

i = a + b + Σd

Note: For the Singapore table, the value of imputed interest has to be distributed to Public administration as such as to cancel its Operating surplus

Royalties: U.S.A.

533000 “Lessors of nonfinancial intangible assets” consists of two things: one is royalties/license fees themselves, which are the payment for the use of patents, trademarks, franchise etc..

The other is the activity of the establishments that are primarily engaged in assigning rights to these assets for which royalties/license fees are paid to the asset holders.

The U.S. table presents this industry as a standalone sector, while in most of the Asian tables royalties/license fees are included in Operating surplus.

The industry is divided into two sectors: the “establishment” sector and the “royalty” sector. The former is to be included in AIO 060 “Other services,” and the latter is distributed across all industries.

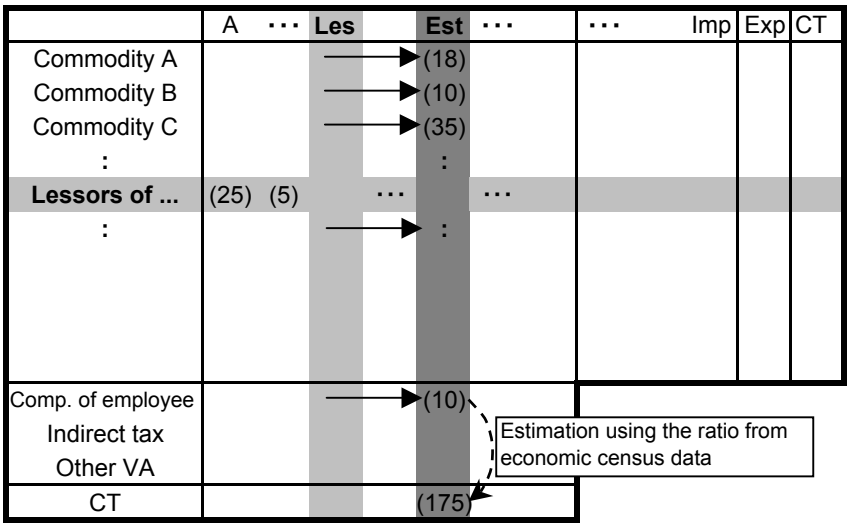
(1) As the first step, the entries in the final demand part of the “Lessor of ... (row)” are deleted from the table. The row CT decreases accordingly.

In order to resume the row-column balance, the value of “Other value added,” and hence the column CT, is reduced by the same amount.

	A ···	Les	···	··· Imp	Exp	CT
Commodity A		(18)				
Commodity B		(10)				
Commodity C		(35)		↓5		
:		:				
Lessors of ...	(25) (5)		···	(-12)	(17)	(255) → (250) ↓5
:		:				
Comp. of employee		(10)				
Indirect tax		(20)				
Other VA	↓5	(85)				
CT	↓5	(255)				
		(80)				
		(250)				

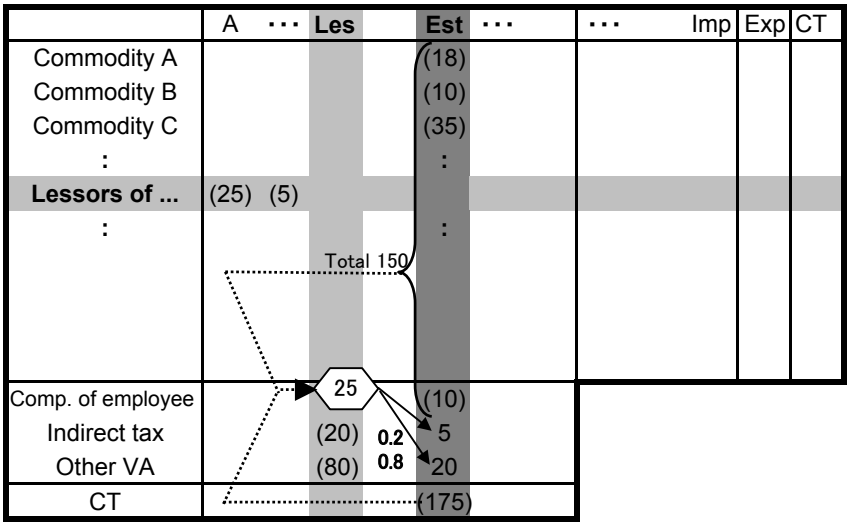
(2) It is assumed that all the intermediate inputs and Compensation of employees (=wages) in the value added of the industry belong to the “establishment” sector.

Then, the CT of the “establishment” sector is estimated by blowing up the value of Compensation of employees, using the ratio of “output” versus “payroll” obtained from the economic census of the U.S.A. ("Service Annual Survey").



(3) After intermediate inputs and Compensation of employees are deducted from the “Establishment” CT thus derived in (2), the residual value is divided into two items: “Indirect business tax and nontax liability” and “Other value added.”

This is done by applying the ratio taken from the value added of “Lessors of ...” (the original vector). This completes the column vector of the “Establishment” sector.



(4) If all the inputs of the “Establishment” sector are removed from the vector “Lessors of ...”, then the column vector for the “Royalty” sector remains, which in fact consists of only “Indirect business tax ...” and “Other value added.”

	A ・・・	**Les**	**Est**	**Rty**	・・・ Imp	Exp	CT
Commodity A		0	(18)				
Commodity B		0	(10)				
Commodity C		0	(35)				
:		:	:				
Lessors of ...	(25) (5)						(250)
:		:	:				
Comp. of employee			(10)				
Indirect tax		0	(5) (15)				
Other VA		0	(20) (60)				
CT		0	(175) (75)				

(5) The row vectors of the “Establishment” sector and “Royalty’” sector are derived by splitting the row vector “Lessors of …,” using the ratio of column CTs given in (4).

	A B ・・・	**Est**	**Rty**	・・・ Imp	Exp	CT
Commodity A		(18)				
Commodity B		(10)				
Commodity C		(35)				
:		:				
Lessors of ...	( ) ( )					
:						
Establishment	(20) (4) ・・・					(175)
Royalty	(5) (1) ・・・					(75)
Comp. of employee		(10)				
Indirect tax		(5) (15)				
Other VA		(20) (60)				
CT		(175) (75)				

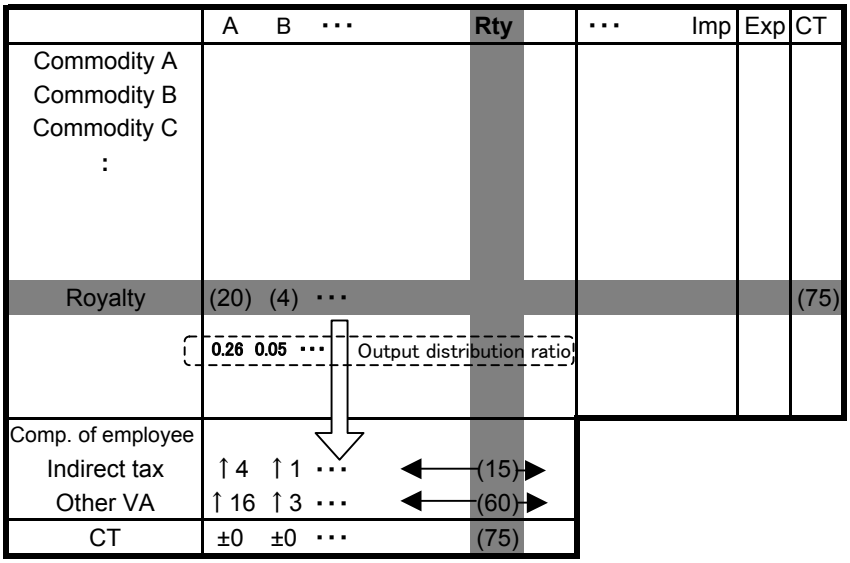
(6) The row and column of “Establishment” are classified into AIO 060 “Other services.”

	A B ・・・	**Est**	Rty	**Os**	・・・ Imp	Exp	CT
Commodity A		(18) →		↑ 18			
Commodity B		(10) →		↑ 10			
Commodity C		(35) →		↑ 35			
:		:					
Establishment	(20) (4) ・・・						(175)
Royalty							
Other service	↑ 20 ↑ 4 ・・・						↑ 175
Comp. of employee		(10) →		↑ 10			
Indirect tax		(5) →		↑ 5			
Other VA		(20) →		↑ 20			
CT		(175) →		↑ 175			

(7) The column vector of the “Royalty” sector, which consists of two value-added items, is distributed across other industries using the output structure of the “Lessors of ….”

The increased amount in the value added for each industry is indeed equal to the corresponding entry in the row vector of the “Royalty” sector.

So if the “Royalty” sector (row) is deleted at the end, this cancels out the increases in the value added and keeps the column total of each industry intact.

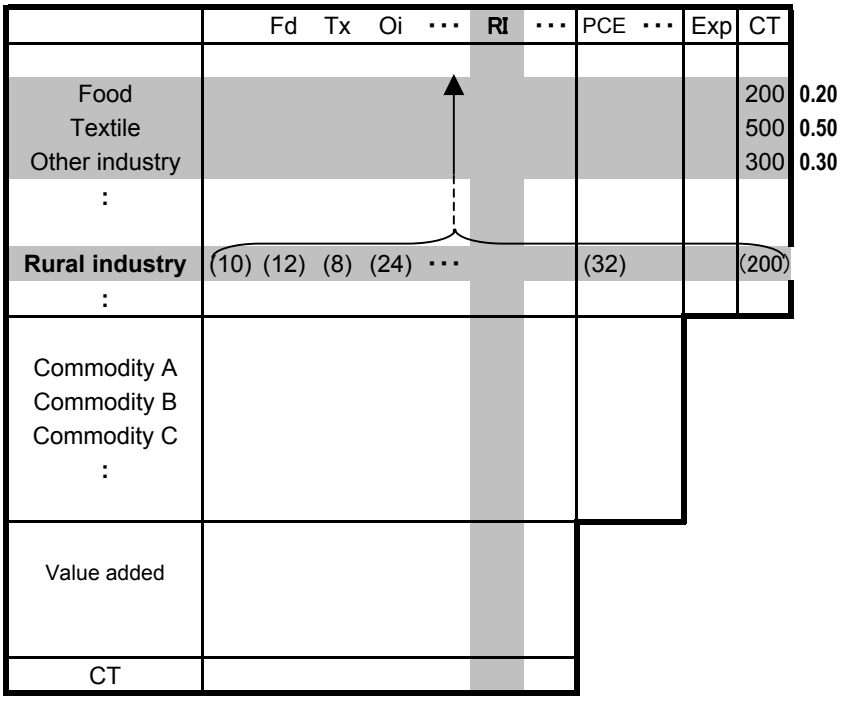


Rural industry: China

0101005F "Rural industry" is a dummy sector that represents the activities of small-scale light manufacturing in rural districts of China. Three industrial groupings are covered: Food, Textiles, and Other industry.*3

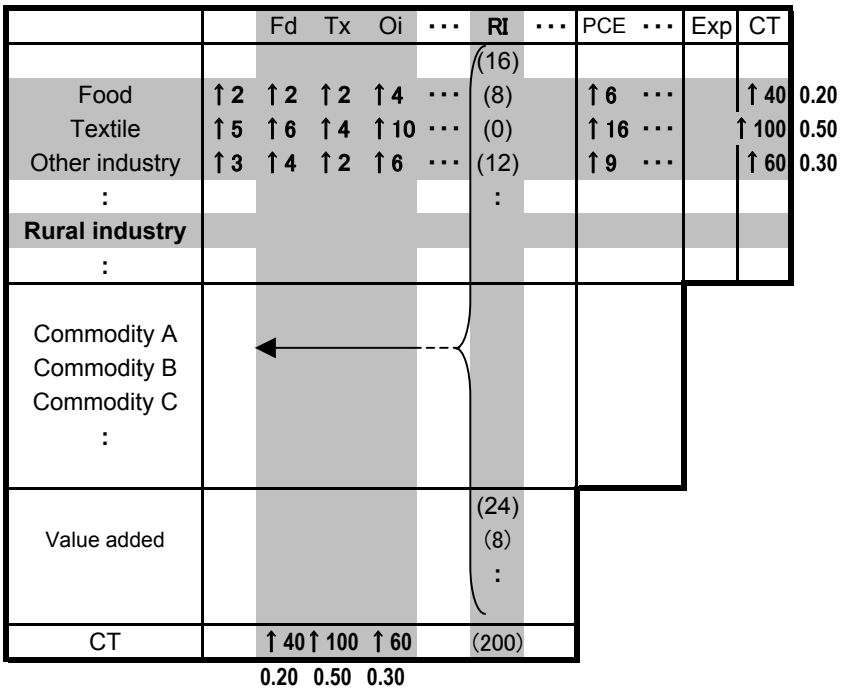
*3 The detailed activities of Rural industry are identified by referring to the Chinese Standard Industrial Classification. See the country report from China in Part 2.

(1) The row vector is split into the three related sectors, using their CTs as disaggregation ratios.



(2) The resulting increases in row CTs of related industries are matched by the increases in column CTs, which defines the distribution ratios for the column vector.

(3) After the rowwise distribution of the column vector, the row and column of Rural industry sector are deleted.

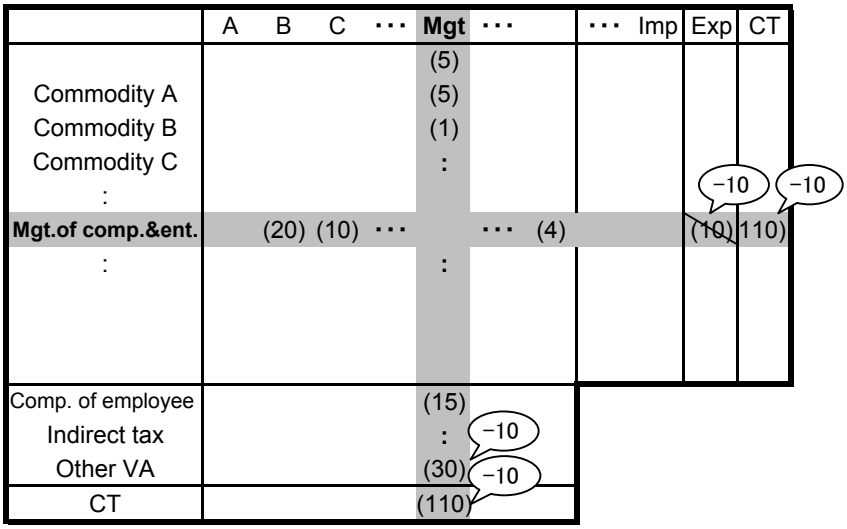


Management of companies and enterprises: U.S.A.

550000 “Management of companies and enterprises” is a sector that covers (a) holding companies and (b) the headquarters of enterprises. According to the 1997 U.S. economic census, the headquarters of enterprises occupy quite a large proportion.

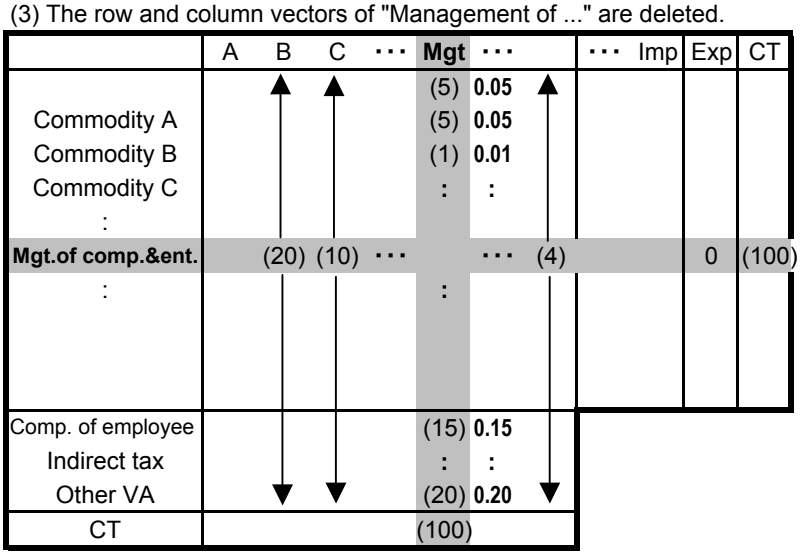
Therefore, it would be assumed that the “Management of companies and enterprises” sector represents the headquarters of enterprises.

(1) “Exports” of the “Management of companies and enterprises” sector is deleted. At the same time, the equivalent amount is deducted from “Other value added” of the “Management of companies and enterprises” sector.



(2) The row of “Management of companies and enterprises” is distributed columnwise in proportion to the input structures of the sector.

(3) The row and column vectors of "Management of ..." are deleted.



Used and secondhand goods: U.S.A.

S00402 "Used and secondhand goods" is a single row vector showing the dealings in secondhand sales of all commodities. The sale of goods is represented as a negative input of the sector selling it, and the purchase is as a positive input as usual.

Since there is no further information for dividing the sector by type of goods, the sector is placed in AIO076 "Unclassified." *4

*4 When the U.S. table is converted into noncompetitive import type, all negative entries of this sector are kept in domestic transactions.

General government industry: U.S.A.

See the section of "8. Producers of government services".

4. Machine-repair

General principle of the AIO tables

No standalone machine-repair sector should exist in the table.

Table(s) to be adjusted

China, Japan, Philippines, U.S.A.

Current presentation

There are standalone machine-repair sectors in the table.

China: 2138082 (Machine-repair)

Japan: 3611-10 (Repair of ships), 3621-10 (Repair of rolling stock), 3622-10 (Repair of aircraft), 8515-10 (Repair of motor vehicles), 8516-10 (Repair of machines)

Philippines: 218 (Repair shops for motor vehicles), 219 (Other repair shops, n.e.c.)

U.S.A.: 8111A0 (Automotive repair and maintenance, except car washes), 811200 (Electronic equipment repair and maintenance), 811300 (Commercial machinery repair and maintenance), 811400 (Household goods repair and maintenance)

Adjustment procedure

For the repair of transport equipment, the sectors are put in AIO055 "Motor vehicles"
Japan: 3611-10, 3621-10, 3622-10, 8515-10 U.S.A.: 8111A0

For the repair of household equipment (as done at retail shops), the sectors are put in AIO074 "Other services."
Philippines: 218, 219 U.S.A.: 811400

--> For the rest, the standalone machine-repair sectors are adjusted as follows:

U.S.A.

(1) With the help of the North American Industry Classification System (NAICS) 1997, the commodities listed under the Machine-repair sector are assumed to be repaired.

(2) For the commodities identified in (1), the ratios are derived from their outputs to the vector of Fixed Capital Formation (domesitc transaction and import matrix independently) in the final demand.

(3) Using the ratios thus derived, the row vector of "Machine-repair" is expanded to a matrix for intermediate transactions. (To be continued to [4] below.)

	Industry A	B	C	・・・ FCF ・・・	CT
:					
Machinery x	↑ 60	↑ 54	↑ 30 **0.30**	72	
Machinery y	↑ 100	↑ 90	↑ 50 **0.50**	120	
Machinery z	↑ 40	↑ 36	↑ 20 **0.20**	48	
:			↑ Distribution ratios: domestic		
Machine-repair	**(200)**	**(180)**	**(100)**		
:					
Machinery x	↑ 16	↑ 8	↑ 0 **0.40**	8	
Machinery y	↑ 10	↑ 5	↑ 0 **0.25**	5	
Machinery z	↑ 14	↑ 7	↑ 0 **0.35**	7	
:			↑ Distribution ratios: import		
Machine-repair	**(40)**	**(20)**	**(0)**		
Value added					
CT					

China, Japan

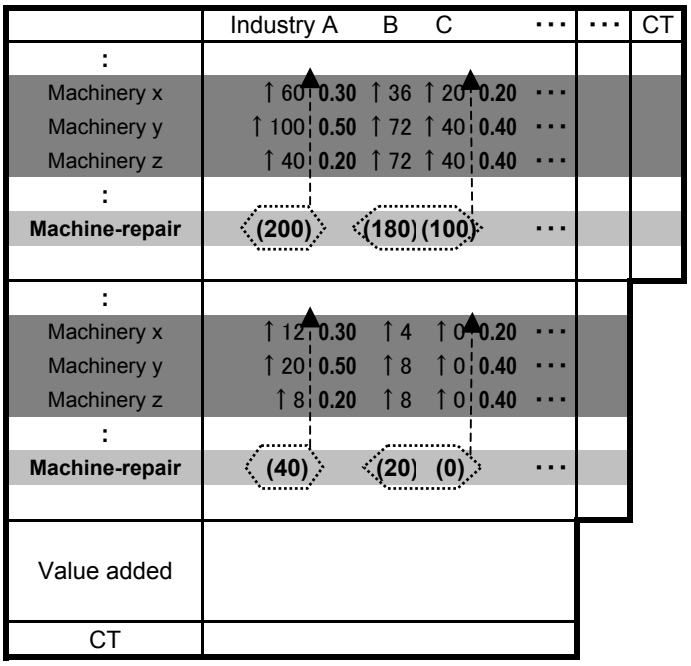
(1) The types of machines repaired in the Machine-repair sector are identified.

China: All the machines that have entries in the Capital Formation Matrix are assumed to be repaired.

Japan: With the help of the Japanese Standard Industrial Classification, the machines listed under the Machine-repair sector are assumed to be repaired.

(2) For the commodities identified in (1), the disitribution ratio for each industry (column) is derived from the Capital Formation Matrix*1, at the level of groupings permitted by the data's classification.

(3) Using the ratios thus derived, the row vector of Machine-repair is expanded to a matrix for intermediate transactions.



Capital Formation Matrix

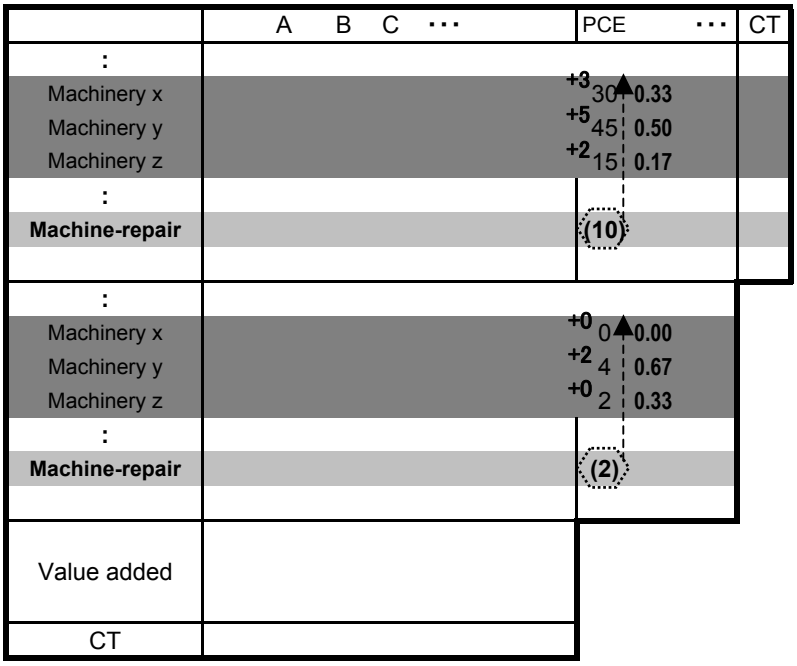
	A	B, C	D	···
Mach. x	15	4	12	···
Mach. y	25	8	0	···
Mach. z	10	8	8	···
Total	50	20	20	

⇩

	A	B, C	D	···
Mach. x	0.30	0.20	0.60	···
Mach. y	0.50	0.40	0.00	···
Mach. z	0.20	0.40	0.40	···
Total	1.00	1.00	1.00	

*1 The Capital Formation Matrix of China is estimated by the National Bureau of Statistics, but the data is for internal use only.

(4) If there are entries at the intersection of Machine-repair and PCE, the ratios are derived with respect to PCE (domestic transactions and import matrix independently). Using the ratios thus derived, the entries are distributed along the PCE.



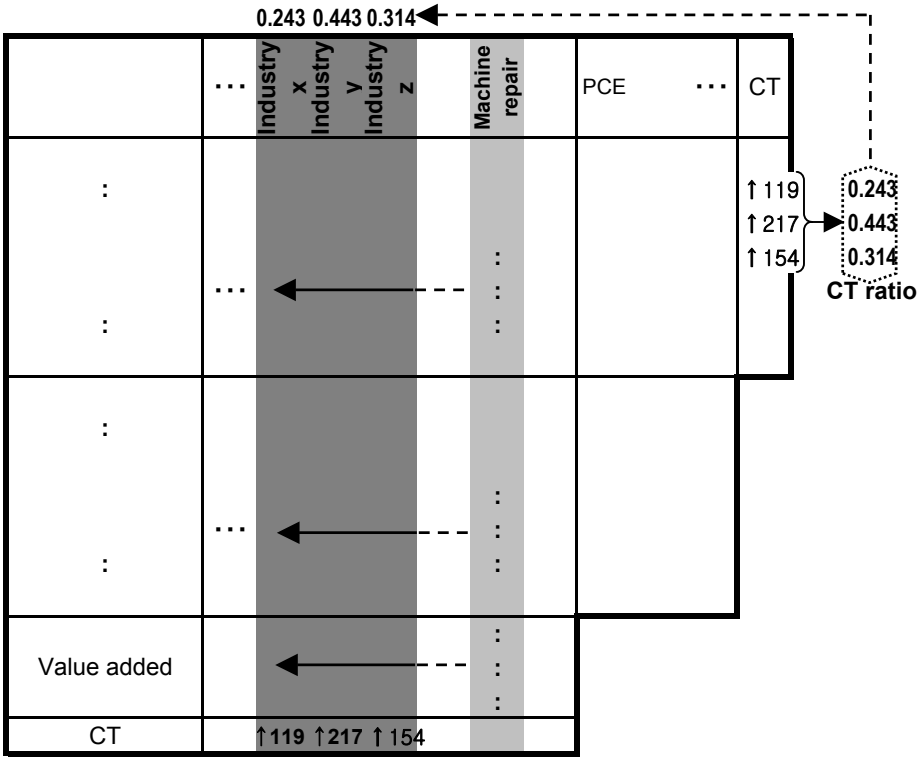
(5) The sums of increased values are calculated rowwise, which form the CT (total output) of machine-repair activity for each type of machinery.

	A B C ···	PCE ···	CT
:			
Machinery x	↑ 60 ↑ 36 ↑ 20	↑ 3	↑ 119
Machinery y	↑ 100 ↑ 72 ↑ 40	↑ 5	↑ 217
Machinery z	↑ 40 ↑ 72 ↑ 40	↑ 2	↑ 154
:			
Machine-repair			
:			
Machinery x	↑ 12 ↑ 4 ↑ 0	↑ 0	
Machinery y	↑ 20 ↑ 8 ↑ 0	↑ 2	
Machinery z	↑ 8 ↑ 8 ↑ 0	↑ 0	
:			
Machine-repair			
Value added			
CT			

(6) The CT ratios are calculated, which are then applied to demarcating the column vector of Machine-repair.

(7) The "Machine-repair matrix" thus derived is added on to the table.

(8) The row and column vectors of Machine-repair are deleted.



5. Financial intermediaries

5.1 Imputed interest to final demand

General principle of the AIO tables

Imputed interest may have its output to final demand

Table(s) to be adjusted

Malaysia, Singapore, Japan

Current presentation

Malaysia, Singapore: See "3. Dummy sectors"

Japan: The output of imputed interest is allocated along "Financial service: imputed interest (6211-011, 6211-012)", based on the data from debt outstaindings of industries. Yet, no output is recorded for final demand sectors.

Adjustment procedure

Malaysia, Singapore

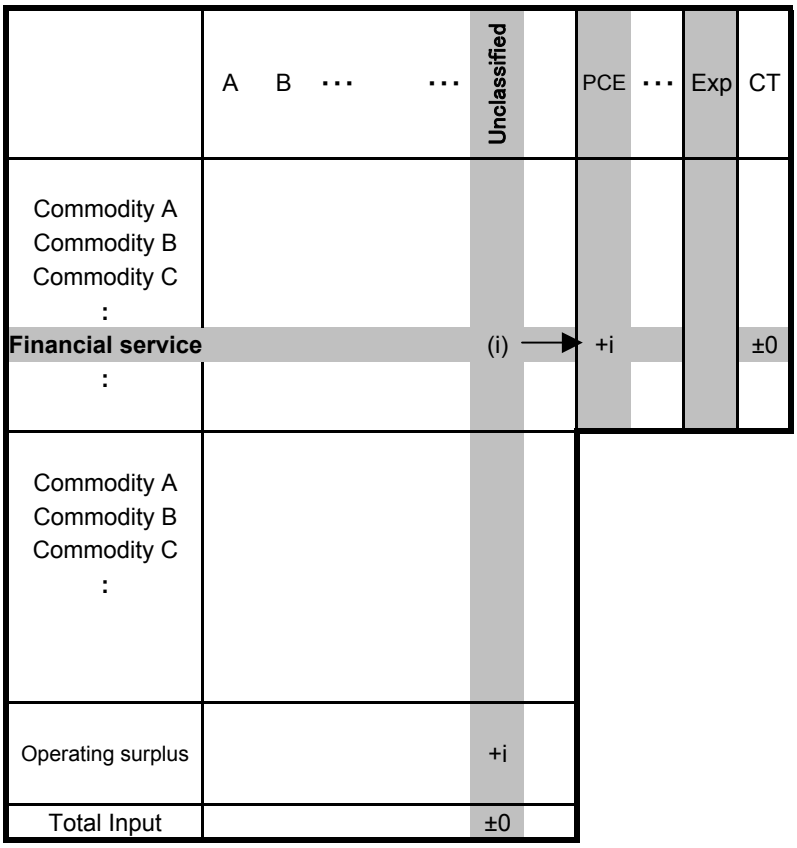
See "3. Dummy sectors"

Japan

(1) The value found at the intersection with "9000-000 Activities not elsewhere classified (column)" (= i) is shifted to the intersection with PCE. *1

(2) The Operating surplus of "9000-000 Activities not elsewhere classified" is increased by the same amount.

*1 It is known that the value (i) is in effect represents imputed interest to final demand sectors.



5.2 Imputed interest on housing loans

General principle of the AIO tables

Interest on housing loans should be paid by Ownership of Dwellings

Table(s) to be adjusted

Thailand

Current presentation

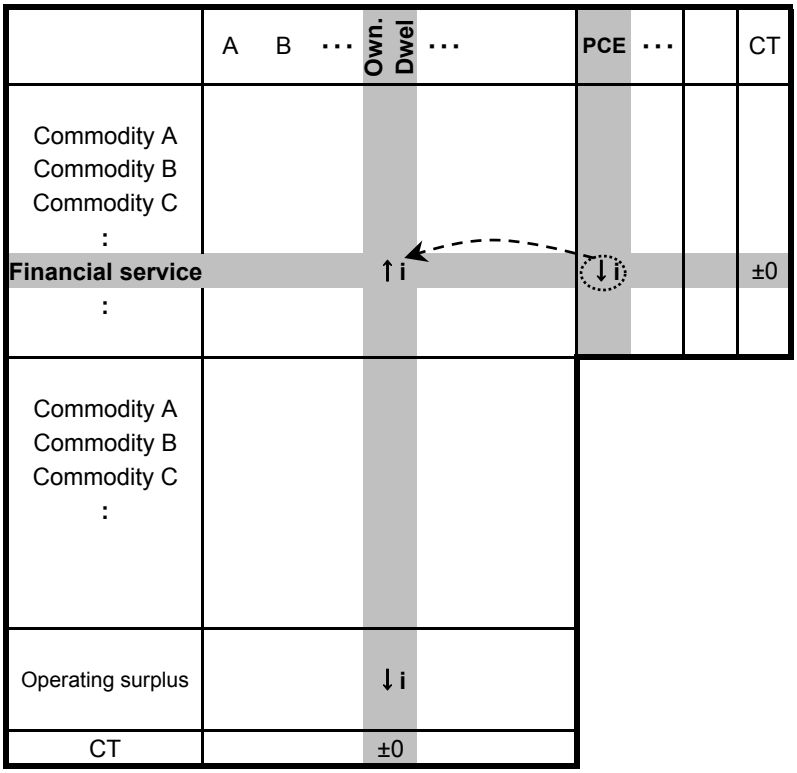
Payment of interests on housing loans are recorded at the intersection of TIO160 "Banking services (row)" and PCE.

Adjustment procedure

(1) The amounts of interest on housing loans are obtained from reliable sources.

(2) The figure prepared in (1) is shifted from the intersection with PCE to that with TIO163 "Real estate (= Ownership of dewellings)".

(3) The resulting increase in the total intermediate input of "Real estate" is offset by the corresponding decrease in its Operating surplus.



6. Special treatment of import/export

6.1 Water transportation

General principle of the AIO tables

Forwarding charges paid to domestic carrier should be recorded as exports of "Water transport."

Table(s) to be adjusted

U.S.A.

Current presentation

The amount of forwarding charges received by domestic carriers is recorded as import in a positive value.

Adjustment procedure

Forwarding charges paid to domestic carriers should be recorded as exports of "Water transport," since the payments constitute output of the domestic water-transport sector.

(1) The positive value of 483000 "Water transportation" x "Imports" is deleted.

(2) The same amount is added on to the export of the sector.

	A B C ・・・	・・・ **Imp**	**Exp**	CT
Commodity A Commodity B Commodity C				
:		:	:	
Water transport		~~(20)~~	**↑ 20**	
:		:	:	
Value added				
CT				

6.2 "Pure import" of gold

General principle of the AIO tables

"Pure imports" should not exist in the table.

Table(s) to be adjusted

U.S.A.

Current presentation

The transaction value of gold in the "Imports" vector, recorded at the intersection with 2122A0 "Gold, silver, and other metal ore mining," is composed of two things: that is,

[1] An ordinary import value obtained through the trade statistics, and [2] "pure imports," which show the difference between domestic production and domestic consumption of gold.

A positive value in "pure imports" means an excess of domestic production over domestic consumption, and vice versa.

Adjustment procedure

Since excess production is either exported or put in inventories, and since export is already recorded in the export vector, it follows that the positive value of “pure imports” in the table should be attributed to the inventory only.

(1) The positive values of “pure imports” are deducted from the imports of “Gold” sector.*1

(2) The same amount is added to “Change in inventories” of the sector.

	A B C ・・・		Inventory	Imp	Exp	CT
Commodity A Commodity B Commodity C :						
Gold, silver, ...			**↑3.1**	**↓3.1**		
:						
Value added						
CT						

*1 The value of "pure import" can be collected from NIPA's database. For 2000, the value is known to be $3.1 billion.

6.3 Reexport

General principle of the AIO tables

Reexport should not be counted, either as export or as import.

Table(s) to be adjusted

Malaysia

Current presentation

There are positive entries on the export vector in the import matrix, which represent the value of reexport.

Adjustment procedure

These values are all deleted.

	A B C ・・・	PCE ・・・	**Exp**	CT
Commodity A Commodity B Commodity C :				
Commodity A Commodity B Commodity C :			**(8) --> 0** **(0) --> 0** **(22) --> 0** **:**	
Value added				
CT				

6.4 Telecommunication

General principle of the AIO tables

Import of telecommunication services should be allocated to demand industries.

Table(s) to be adjusted

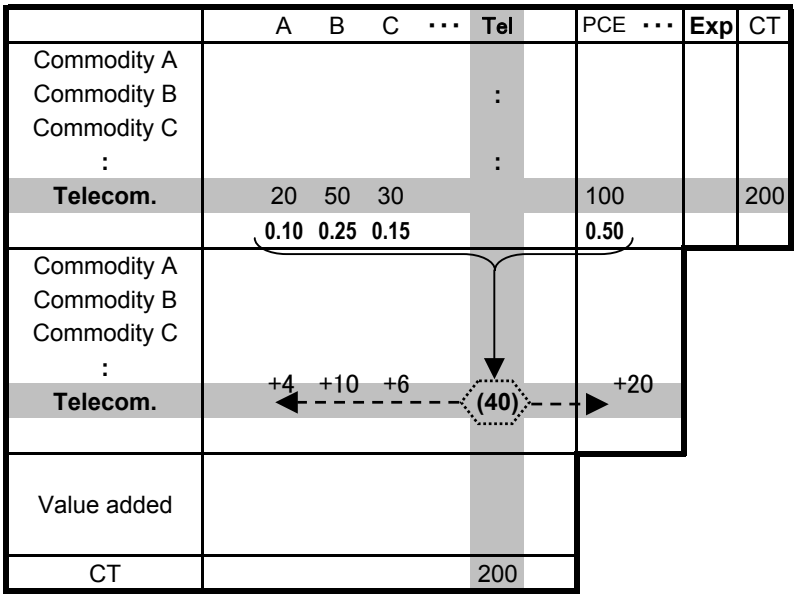
Korea

Current presentation

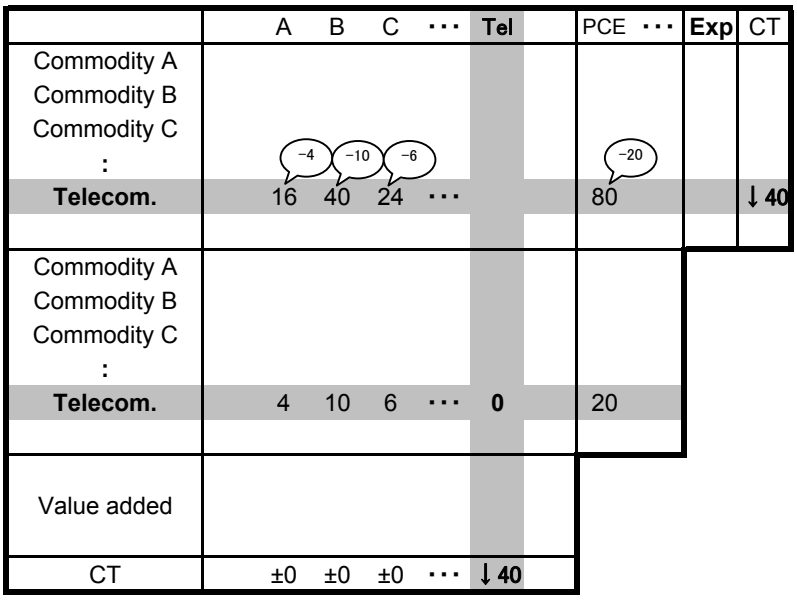
Import of telecommunication services such as international telephone calls or foreign mails is not directly allocated to the demand industry, but is collectively recorded as its own intermediate input of Telecommunication.

Adjustment procedure

(1) The import value is distributed rowwise using the output ratio of Telecommunication sector (domestic).



(2) The same values are subtracted from the entries along the row of Telecommunication, to keep the total input of each industry unchanged.



7. Computer software products

General principle of the AIO tables

Computer software products (in the case of large-scale system development, such as security systems or account management systems) should be treated as fixed capital.

Table(s) to be adjusted

Taiwan

Current presentation

Computer software products as specified above are treated as intermediate inputs.

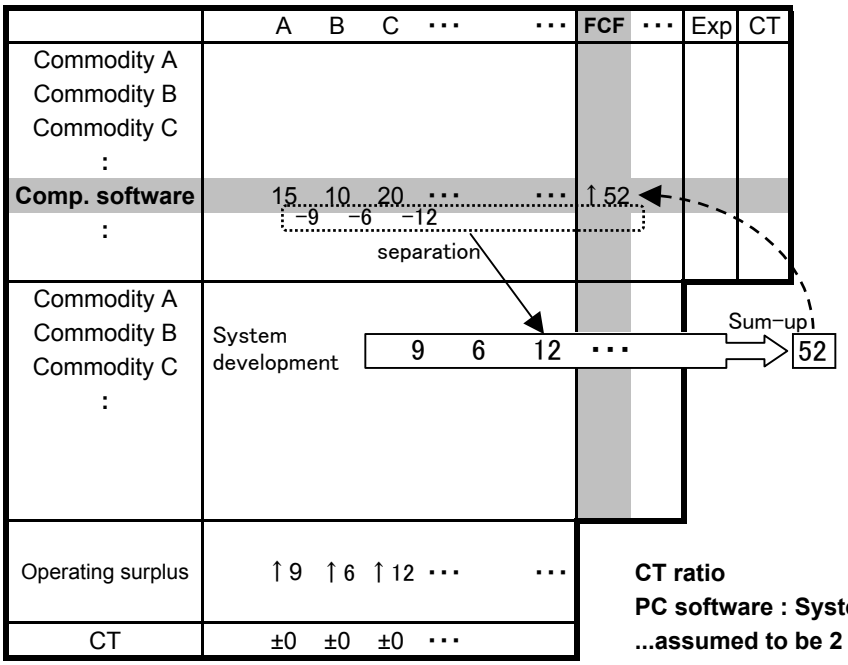
Adjustment procedure

(1) If there are any supporting data that distinguish between the CT of PC software packages and that of large-scale system development, these figures are used to derive a separation ratio.

(2) The ratio thus derived is applied to separating the intermediate transaction of "system development" from the row vector of "Computer software."

(3) The row vector of system development is aggregated rowwise and added on to the intersection with Fixed Capital Formation.

(4) The resulting decrease in total intermediate inputs is compensated by the increase in the Operating surplus of corresponding sectors to keep the CT unchanged.



CT ratio
PC software : System development
...assumed to be 2 : 3 for Taiwan.

8. Producers of government services

General principle of the AIO tables

The activities of "producers of government services" should be treated as intermediate sectors, not as final-demand items.

Table(s) to be adjusted

Thailand, U.S.A.

Current presentation

Thailand: "Public administration" (165) has inputs from value-added items only (no intermediate input). Its sole output destination is Government Consumption Expenditure.

U.S.A.: The vectors of final consumption expenditure by the government include not only the expenses paid by the government for providing services at nonmarket prices but also the production cost of activities by the producers of government services.

In most Asian tables, the latter is treated as an independent intermediate sector, not as a final demand item.

There are four final demand items under this concern:

F06C00 Federal government national defense
F07C00 Federal government nondefense
F08C00 State and local government education
F09C00 State and local government other

Also, there is an intermediate sector called S00500 "General government industry", which is a dummy sector with the inputs in value-added items only. The entries represent the total values of the value added of all government service producers.

Rowwise, there are positive entries at the intersections with the above four final demand items.

So, the general picture is that the intermediate inputs of government service producers are registered in the corresponding final demands from F06C to F09C, and their value added are aggregated in "General government industry."

	A	B	・・・	・・・	**GGI**	PCE	**F06 C00**	**F07 C00**	**F08 C00**	**F09 C00**	・・・	CT
Commodity A					0	150	12	6	3	4		
Commodity B					0	120	8	4	2	1		
:					0	:	:	:	:	:		
Sectors including	2	25	・・・		0	300			-120			
public affairs, such as	3	12	・・・		0	400	-8	-80				
education, medical etc	1	4	・・・			250		-10		-15		
:					:	:	:	:	:	:		
General gov. ind.	0	0	・・・		0	0	20	12	10	8		50
Comp. of employee					30							
Indirect tax					0							
Other VA					20							
CT					50							

Total value added of government service producers

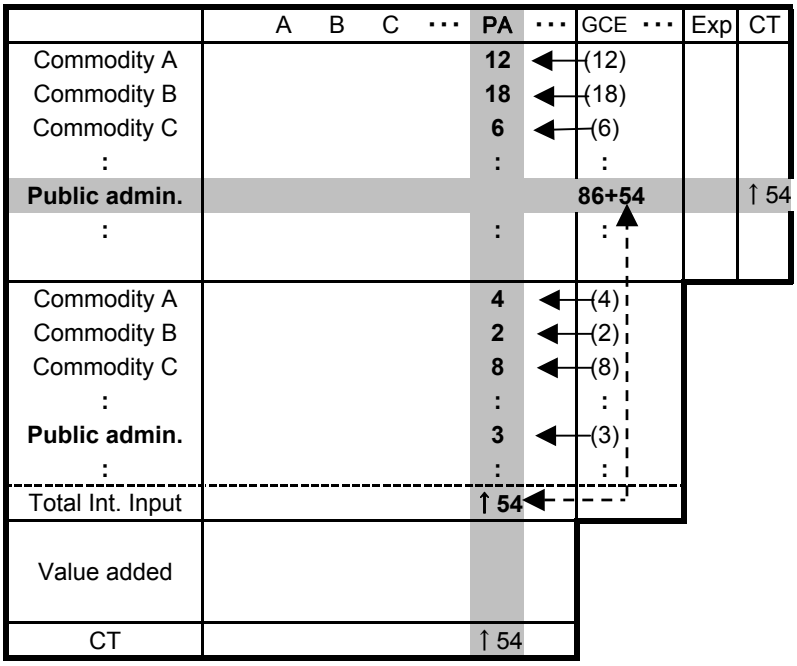
Values received by the government as compensation for government services.

Adjustment procedure

Thailand

(1) All the components of Government Consumption Expenditure, except the value at the intersection with Public administration (domestic), are directly shifted to the column vector of Public administration.

(2) The resulting increase in the CT (total input) is matched by an extra entry at the intersection of Public administration (row) and Government Consumption Expenditure, by the amount of total intermediate inputs.



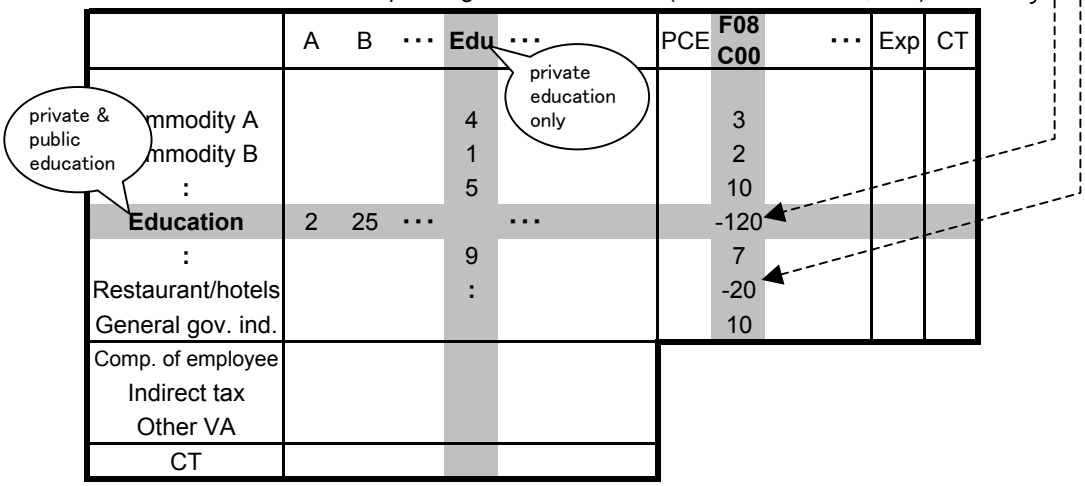
U.S.A: Producers of government service <educational>

"Education" (611000: intermediate sector) in the table has different scopes of coverage for its row and column. The row vector "Education" covers both private and public, but the column vector covers only private education.

Instead, the cost of public education services is put in F08C00 "State and local government education" in the final demand.

The payment received by the government as compensation for public education services (such as tuition fees or sale of textbooks) is registered as a negative value at the intersection of the row "Education" and the F08C00.

Other payment (such as to a student refectory or a dormitory) is recorded at the intersections with the corresponding industrial sectors (restaurants/hotels, etc.)



	A	B	・・・	Edu	・・・	PCE	F08 C00	・・・	Exp	CT
mmodity A				4			3			
mmodity B				1			2			
:				5			10			
Education	2	25	・・・		・・・		-120			
:				9			7			
Restaurant/hotels				:			-20			
General gov. ind.							10			
Comp. of employee										
Indirect tax										
Other VA										
CT										

(1) First of all, a new industrial sector "Education: public" is set in the table. All positive entries in F08C00, except those with "General government industry," are shifted to the column of this new sector.

	A	B	・・・	Edu org	Edu pub	・・・	PCE	F08 C00	・・・	Exp	CT
Commodity A				4	3	◀----------		(3)			
Commodity B				1	2	◀----------		(2)			
:				5	10	◀----------		(10)			
Education (original)	2	25	・・・					(-120)			
:				9	7	◀----------		(7)			
Restaurant/hotels				:				(-20)			
General gov. ind.								(10)			
Comp. of employee											
Indirect tax											
Other VA											
CT											

(2) For value-added items of this new sector, the entry at the intersection of “General government industry” and F08C00 is apportioned and assigned, using the ratio taken from the value added of “General government industry”

	A	B	・・・	Edu prv	**Edu pub**	・・・	**GGI**	PCE	F08 C00	・・・	Exp	CT
Commodity A				4	3		0					
Commodity B				1	2		0					
:				:	:		0					
Education (original)									(-120)			
:				:	:		0					
Restaurant/hotels									(-20)			
General gov. ind.									(10)			(50)
Comp. of employee					6	**0.6**	(30)					
Indirect tax						**0.0**	0					
Other VA					4	**0.4**	(20)					
CT							(50)					

(3) Similarly, the row vector of “Education: public” is established.

Recalling that the value at the intersection of original “Education” and F08C00 represents household’s payments to public educational services, this amount is redefined as an entry in the PCE for the purchase of “Education: public.”

The equivalent amount is subtracted from the original “Education” x PCE, and the entry in F08C00 is deleted.

	A	B	・・・	Edu prv	**Edu pub**	・・・	PCE	**F08 C00**	・・・	Exp	CT
Commodity A				4	3						
Commodity B				1	2						
:				:	:						
Education (original)							-120	(-120)			
Education: public							+120				
:				:	:						
Restaurant/hotels								(-20)			
Comp. of employee					6						
Indirect tax					0						
Other VA					4						
CT											

(4) The same treatment is done for the payment for accommodation/restaurant services provided by public schools etc., represented by the negative values registered along F08C00.

At this stage, the separation of public education from the “Education” vector is completed, such that the remaining values in the original row become “Education: private.”

	A	B	・・・	Edu prv	**Edu pub**	・・・	PCE	F08 C00	・・・	Exp	CT
Commodity A				4	3						
Commodity B				1	2						
:				:	:						
Education: private							-120				
Education: public							+120 +20				
:				:	:						
Restaurant/hotels							-20	(-20)			
Comp. of employee					6						
Indirect tax					0						
Other VA					4						
CT											

(5) Now the vector of F08C00 disappears. Instead, the new final demand item “Government final consumption expenditures (GFCE)” is established.

The difference between the column CT of “Education: public” and the aggregated amount of all entries along its row vector is placed at the intersection of “Education: public” and the newly established GFCE.

	A	B	・・・	Edu prv	**Edu pub**	・・・	PCE	**GFCE**	Exp	CT
Commodity A				4	3					
Commodity B				1	2					
:				:	:					
Education: private							-120			
Education: public							140	360		500
:				:	:					
Restaurant/hotels							-20			
Comp. of employee					6					
Indirect tax					0					
Other VA					4					
CT					500					

Differences between CT and an aggregate amount of all row values

CT is calculated as a sum of intermediated input and VA.

U.S.A.: Producers of government service <non-educational>

In the same way as with "Education," the row vectors of the sectors that involve public affairs are both private and public inclusively, while the corresponding column vectors include private activities only.

	A	B	・・・	**Med**	**Post**	・・・	GGI	PCE	**F06 C00**	**F07 C00**	**F08 C00**	**F09 C00**	・・・	CT
Commodity A				4	5		0	150	12	6	3	4		
Commodity B				12	8		0	120	8	4	2	1		
:				:	:		0	:	:	:	:	:		
Medical services	2	20	・・・				0	400	-5	-25	0	-60		
Postal services	3	12	・・・				0	250	0	-80	0	0		
Public utilities etc.	1	4	・・・					320	0	0	0	-15		
:							:	:	:	:	:	:		
General gov. ind.	0	0	・・・				0	0	20	12	10	8		50
Comp. of employee							30							
Indirect tax							0							
Other VA							20							
CT							50							

private only

private & public

F06C00 Federal government national defense
F07C00 Federal government nondefense
F08C00 State and local government education
F09C00 State and local government other

(1) A new sector "Public administration" is established. Almost the same adjustment procedure is taken for this sector as for the "Education" sector, in relation to F06C00, F07C00, and F09C00.

Only the difference is that instead of shifting the negative entries into PCE we move them to the newly established "Government final consumption expenditure" under final demand.

(2) The row and column of "General government industry" are deleted.

	A	B	・・・	**Pub adm**	・・・	GGI	PCE	**F06 C00**	**F07 C00**	**F08 C00**	**F09 C00**		**GF CE**	CT
Commodity A				22				(12)	(6)		(4)			
Commodity B				13				(8)	(4)		(1)			
:				:				:	:		:			
Medical services	2	20	・・・					(-5)	(-25)		(-60)		-90	
Postal services	3	12	・・・					(0)	(-80)		(0)		-80	
Public utilities etc.	1	4	・・・					(0)	(0)		(-15)		-15	
:				:				:	:		:			
Public admin.	0	0	・・・				0						**250**	250
:				:										
General gov. ind.	0	0	・・・					(20)	(12)		(8)			(50)
Comp. of employee				24	**0.6**	(30)								
Indirect tax				0	**0.0**	(0)								
Other VA				16	**0.4**	(20)								
CT				250		(50)								

The total CT value is apportioned.

CT is calculated as a sum of intermediated input and VA.

II. Preparation of sector-concordance and supplementary data

2.1 The table of industrial sector concordance

Each national table has its own industrial classification. In the case of the benchmark tables for the 2000 AIO table, the number of industrial sectors ranges from 98 for the Malaysian table to 517 (row) for the Japanese table. The weight of the industrial category also differs. The countries with large agro-based economies have relatively detailed classification of agricultural sectors, while industrialised economies give more comprehensive coverage to manufacturing sectors. As such, the sector classification reflects the characteristics of the economy concerned, and a precise conversion system that bridges between national codes and AIO codes is absolutely essential for the compilation of consistent international I-O tables.

The system of sector concordance has a treelike image, where AIO classification (the broadest category) rests on the top, and each AIO code corresponds to one or several national codes. The national codes are subcategorised into the Harmonised System of Foreign Trade Statistics, which may be further converted to SITC, another classification system for the trade data.

If the concordance system has such a clear-cut tree structure, the aggregation of national tables into AIO classification poses no difficulty. The problem arises when a national code is associated with more than two AIO codes. For example, Singapore's national code SIO092 "Land transport equipments" corresponds to both AIO055 "Motor vehicles" and AIO056 "Motorcycles." Here, the sector splitting of the national I-O table is called for before the aggregation procedure.

For the detailed information on cross-national concordance and sector disaggregation, see Appendix 2 and 3.

2.2 Supplementary data

For the compilation of international tables, the following supplementary data should be prepared by each country at AIO sector classification.

(1) Import data by commodity and by 11 countries of origin*

(2) Export data by commodity and by 11 countries of destination
(3) Import duties and import commodity taxes by commodity
(4) Domestic trade margins and domestic freight transport costs (TTM) on exported goods, by commodity
(5) International freight and insurance, by commodity and by 11 countries of origin
(6) Other relevant information, such as the distribution ratios of imported goods.

* 11 countries: project member countries plus Hong Kong, EU, the Rest of the World

The import and export data can be directly constructed from the Foreign Trade Statistics, with the help of the HS (or SITC)—national I-O—AIO sector concordance. The data on import duties and import commodity taxes, on the other hand, are independently presented in the original national I-O tables in most cases, but if not (as in the case of the U.S. table; see the previous section), they must be also collected from the Foreign Trade Statistics.

The data of TTM on export comes from the supporting tables of the national I-O tables. Ideally, those levied on exported goods (for the delivery from factories to ports) should be used, but if they are not available from the table the average figures of the TTM matrices can be used as proxies.

Finally, the data on international freight and insurance are collected from the Foreign Trade Statistics, where available. Yet, because not all countries have these data, it is necessary to apply some estimation methods to make up for the missing information. As illustrated below, this is done in two steps: the first step is to obtain the parameter values by creating transport-cost equations for each AIO sector, using the available data; the second step is to project the missing values based on the parameter estimates.

In most of the empirical literature on international trade that use gravity equations, it is a common exercise to use the distance between countries as a proxy for transport costs, owing to the limited availability of direct transport-cost data.[1] This treatment assumes that the transport cost is a function of geographic distance:

$$(1) \quad C_{ijk} = f\left(D_{ij}\right).$$

[1] Refer to, for example, Anderson (1979).

C_{ijk} represents transport costs for country i's imports from country j for sector k, and D_{ij} is the distance between them. The rationale for using distance is that, for a given mode of transport, the greater the distance, the more time and energy are consumed, and hence the transport cost rises. Based on this convention, the following simple variation of transport-cost equations is created:[2]

$$(2) \quad C_{ijk} = \alpha_k + \beta_k D_{ij} + \varepsilon_{ijk} .$$

The data for international freight and insurance rates (C_{ijk}) are available for nine countries (China, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Thailand, and the United States), but the quality of data varies across countries, and there exist missing data for many transactions. For Taiwan, no information on international shipping costs is available.

As the distance variable (D_{ij}), two measures of distance are calculated, i.e., the shipping-route distance and the straight-line distance. The shipping-route distance is taken from the *Distance Tables for World Shipping*, published by the Japan Shipping Exchange, Inc. in which the distances between major ports are reported. The straight-line distance, which can be regarded as an analogue of the air-flight distance, is calculated between commercial centres of the countries concerned. Of these two measures, the one that better explains variation in the international freight and insurance rates is employed for projection.

[2] Several studies investigated the appropriateness of the relationship between transport costs and the distance. These studies found that using the distance alone was insufficient as a proxy for the transport cost, though it plays a certain role as a determinant. Geraci and Prewo (1977) estimated the transport cost equation for OECD countries and found that the use of mere distance as a proxy for transport cost may result in underestimation of the sensitivity of bilateral trade flows to transport costs. Estimation by Limao and Venables (2001), using CIF/FOB ratio, shows that the distance alone explains only 10 percent of the variation of transport costs and emphasized the importance of infrastructure as a determinant of transport costs. However, in our estimation only distance was used as the explanatory variable, owing to data constraints.

By running regressions of equation (2), the parameter estimates $\hat{\alpha}_k$ and $\hat{\beta}_k$ for each AIO sector k are obtained. In cases in which the estimates for β_k are negative, they are replaced by estimates obtained from regressions in more aggregated classifications, i.e., 24 sectors or seven sectors. If the estimates in aggregated classifications are still negative, positive estimates for related industries are used for projection (e.g., estimates for 050: "Electronic computing equipment" are used in lieu of those for 051: "Semiconductors and integrated circuits").

Using the parameter estimates $\hat{\alpha}_k$ and $\hat{\beta}_k$, projection of the missing values for international freight and insurance rates ($\hat{C}_{ijk}$) can be done by stacking the distance measures between countries concerned (D_{ij}) into the transport-cost equation:

(3) $\hat{C}_{ijk} = \hat{\alpha}_k + \hat{\beta}_k D_{ij}$.

III. Linking of the tables

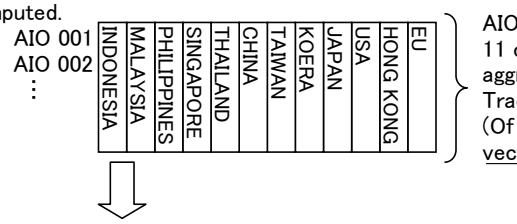
An international I-O table is not just a patchwork of the pieces taken from national tables, but it is a product of careful utilization of supplementary data and manual reconciliation. This section epitomizes the final stage of compilation: the linking of the data. The first part illustrates the preliminary treatments of how to convert national tables into ready-to-link format. The second part explains the balancing and reconciliation work in detail.

3.1 Preliminary treatments

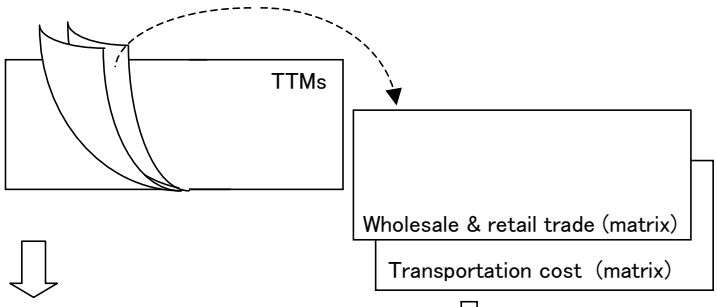
JOB 1: MAKING OF EXPORT VECTORS, by countries of destination

<STEP 1>
The rates of domestic transportation costs and trade margins (TTMs) on exports are computed.

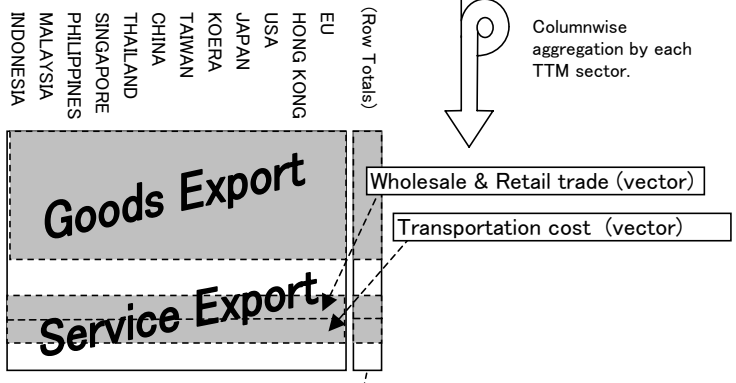
* If the TTMs data are originally given in rates rather than values, skip Step 1 and directly go to Step 2.



<STEP 2>
Remove TTMs from the export vectors to 11 countries of destination, using the TTM rates derived in Step 1.



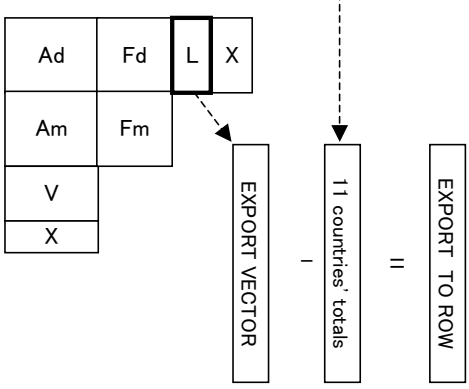
<STEP 3>
Aggregate each TTM matrix in a columnwise direction to obtain a corresponding TTM vector.



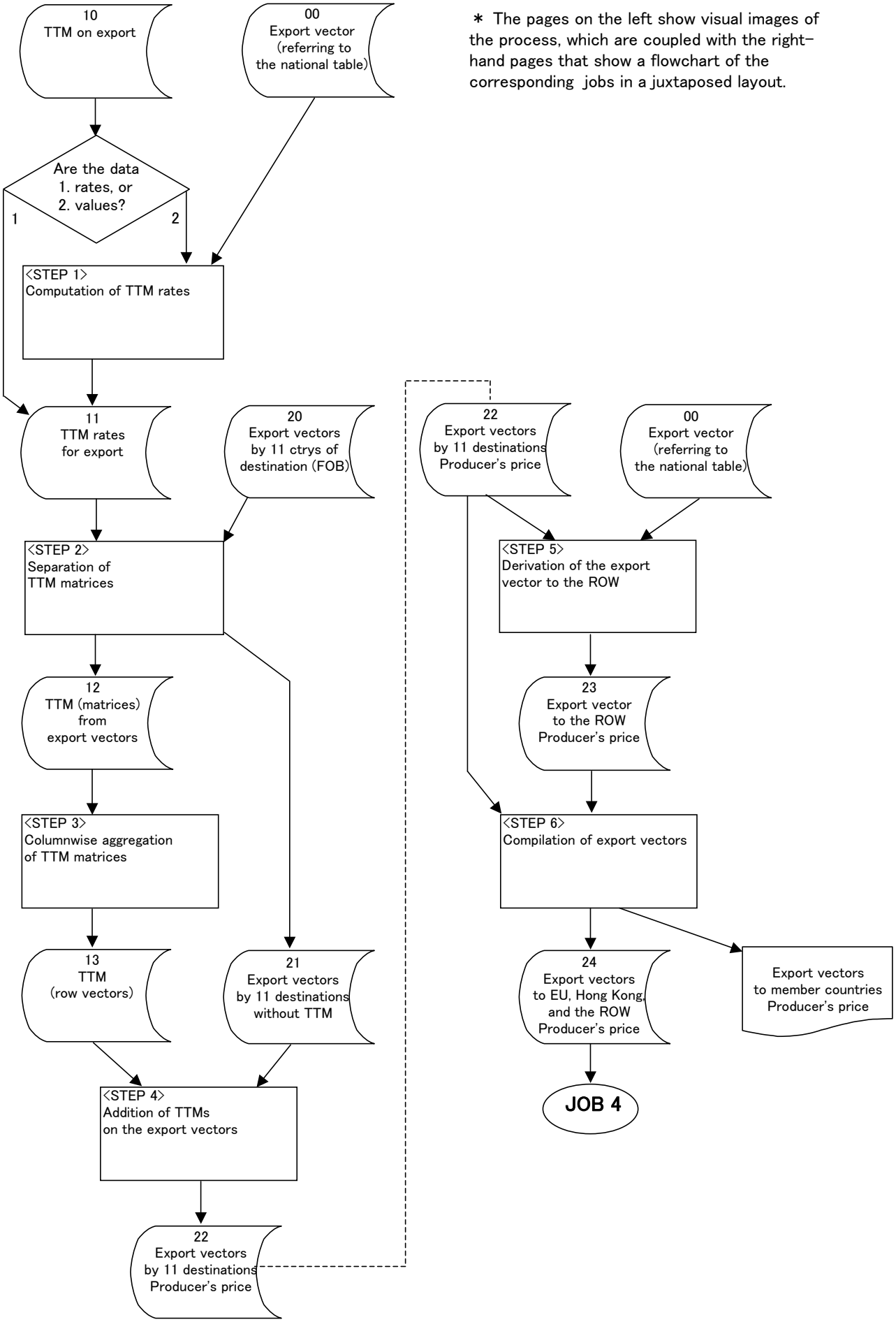
<STEP 4>
Assemble the parts thus derived to obtain export vectors at producer's price, with TTMs being registered as the export of domestic trade and transportation services.

<STEP 5>
Derive the export vector to the Rest of the World, by taking the difference between the export vector of a national I-O (producer's price) and the row-totals of the export vectors obtained in Step 4 above.

* The export vector of a national table should be valued at producer's price. Also, if direct sales to tourists and/or any other international transactions that do not pass through customs (e.g. service exports) are presented in separate vectors, they should be merged with the ordinary export vector in the beginning.



<STEP 6>
Compile export vectors required for linking.



＊ The pages on the left show visual images of the process, which are coupled with the right-hand pages that show a flowchart of the corresponding jobs in a juxtaposed layout.

JOB 2: MAKING OF IMPORT MATRICES by countries of origin

<STEP 1>
Compute duties and import commodity taxes rates.

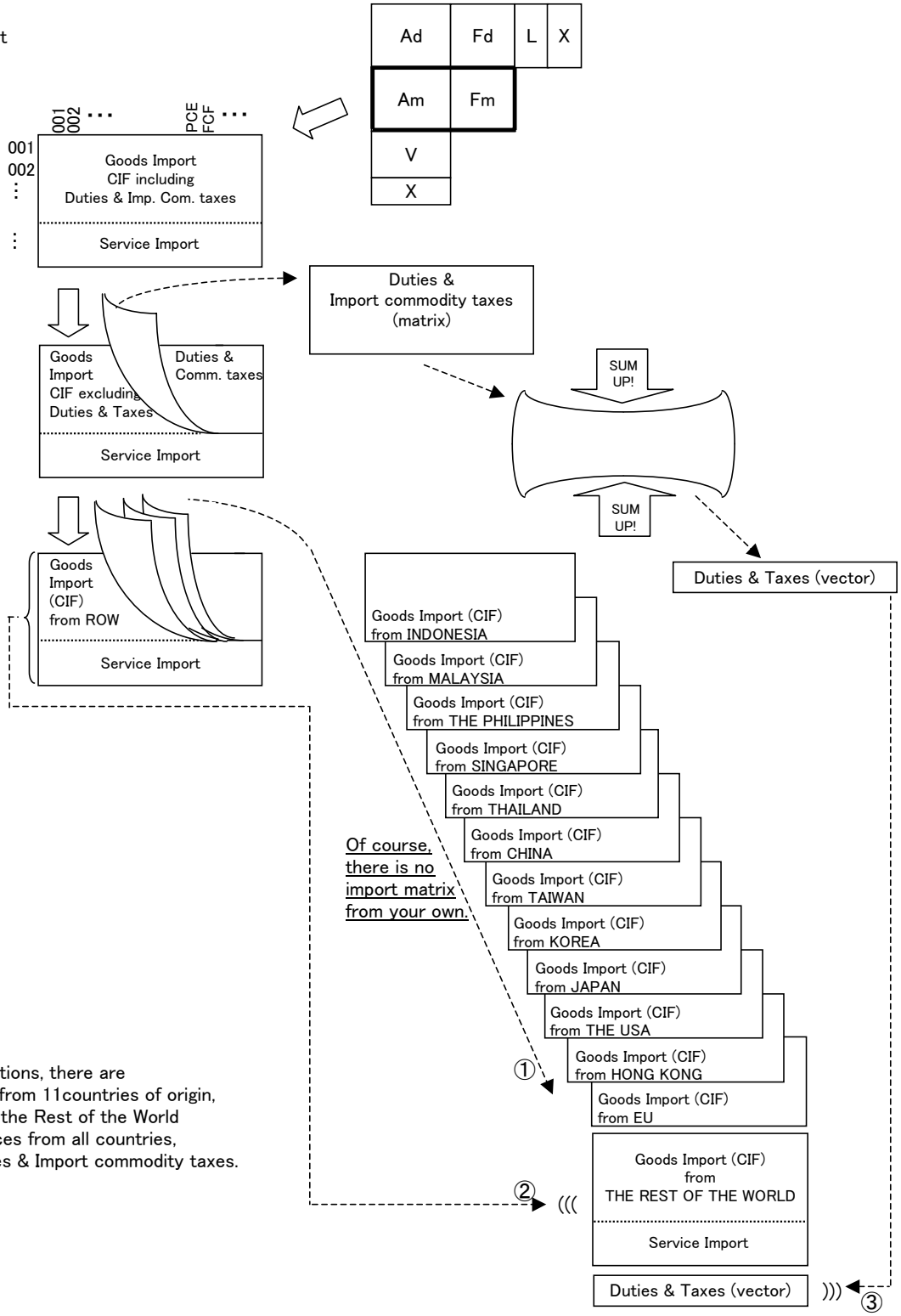
* If the data of duties and imp.com.taxes are given in rates rather than values, skip Step 1 and directly go to Step 2.

<STEP 2>
Remove duties and import commodity taxes.

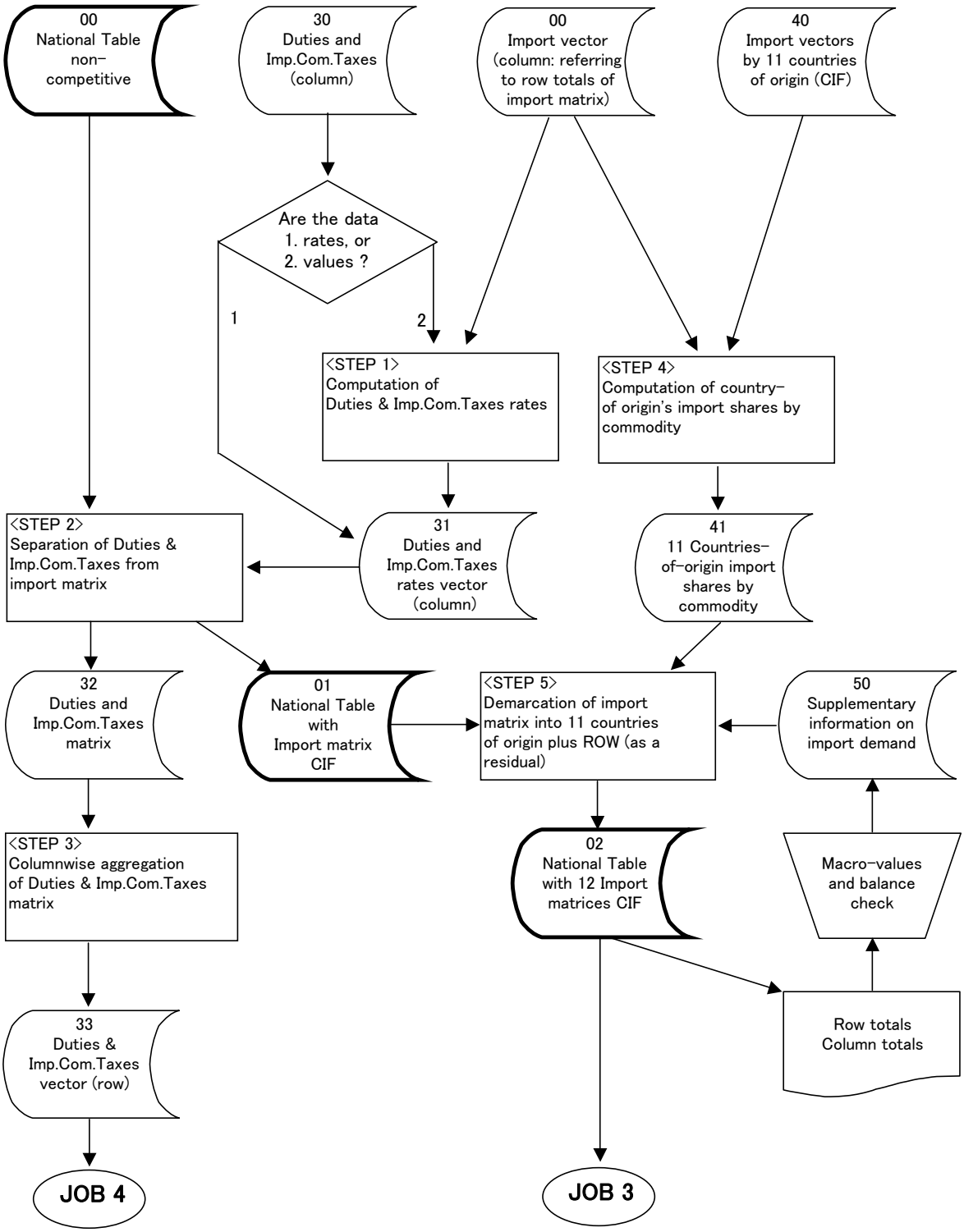
<STEP 3>
Aggregate the duties and import commodity taxes matrix into a single row vector.

<STEP 4>
Compute country-of-origin's import shares for each commodity.

<STEP 5>
Split the import matrix of goods into 11 countries of origin plus the Rest of the World, using the import shares derived in the STEP 4.

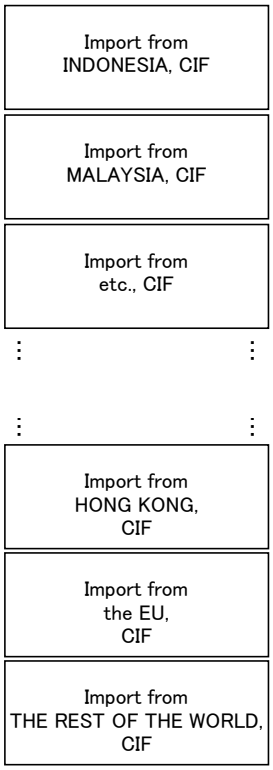


As a result of these operations, there are
① goods import matrices from 11countries of origin,
② the import matrix from the Rest of the World embracing import of services from all countries,
③ and the vector of Duties & Import commodity taxes.

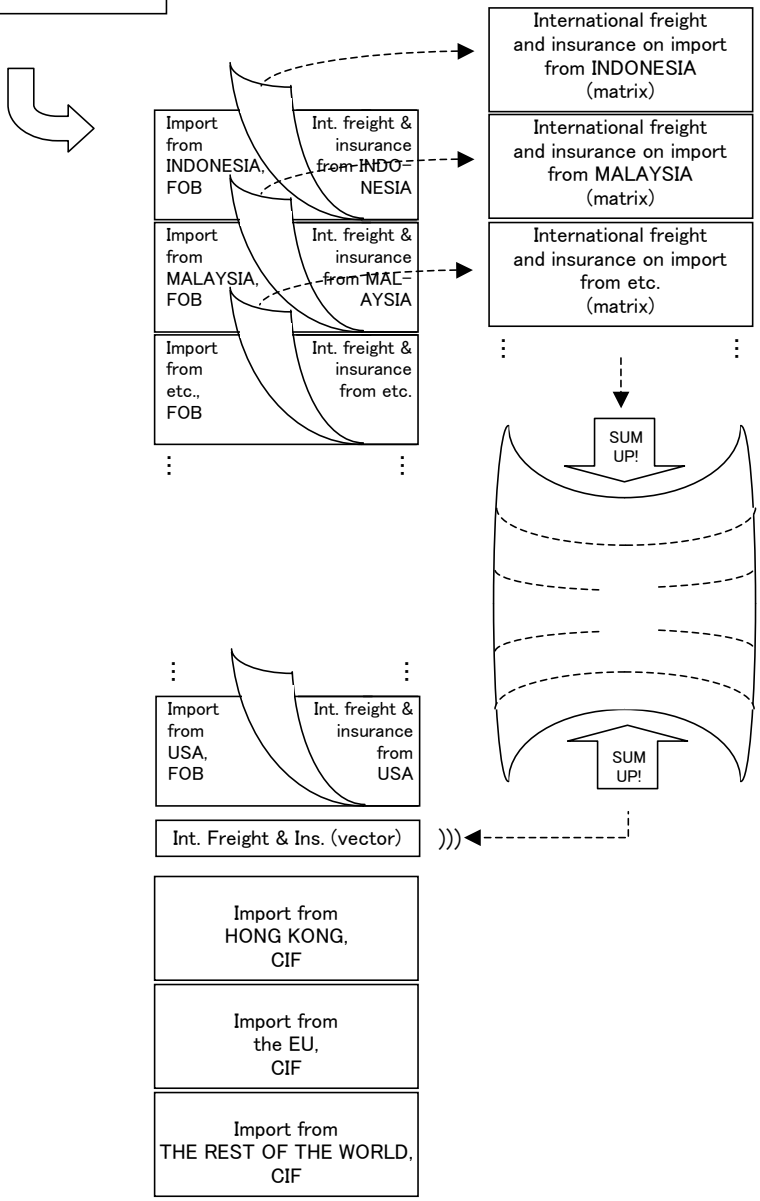

00
National Table
non-
competitive
30
Duties and
Imp.Com.Taxes
(column)
00
Import vector
(column: referring
to row totals of
import matrix)
40
Import vectors
by 11 countries
of origin (CIF)
Are the data
1. rates, or
2. values ?
1
2
<STEP 1>
Computation of
Duties & Imp.Com.Taxes rates
<STEP 4>
Computation of country-
of origin's import shares by
commodity
<STEP 2>
Separation of Duties &
Imp.Com.Taxes from
import matrix
31
Duties and
Imp.Com.Taxes
rates vector
(column)
41
11 Countries-
of-origin import
shares by
commodity
32
Duties and
Imp.Com.Taxes
matrix
01
National Table
with
Import matrix
CIF
<STEP 5>
Demarcation of import
matrix into 11 countries
of origin plus ROW (as a
residual)
50
Supplementary
information on
import demand
<STEP 3>
Columnwise aggregation
of Duties & Imp.Com.Taxes
matrix
02
National Table
with 12 Import
matrices CIF
Macro-values
and balance
check
33
Duties &
Imp.Com.Taxes
vector (row)
Row totals
Column totals
JOB 4
JOB 3

JOB 3: CONVERSION OF IMPORT MATRICIES into producer's price

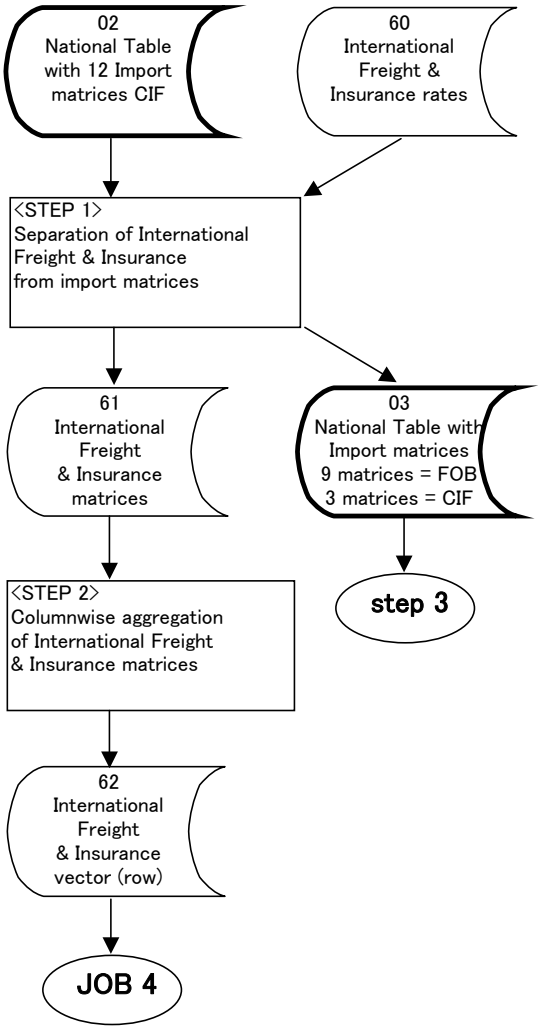
So far, all the import matrices are valued at CIF, net of duties and import commodity taxes



<STEP 1>
Import matrices from the member countries should be made FOB, by removing international freight and insurance from each country of origin.



<STEP 2>
All the matrices of international freight and insurance are aggregated columnwise into a single row vector, which is to be placed below the import matrix from the USA.

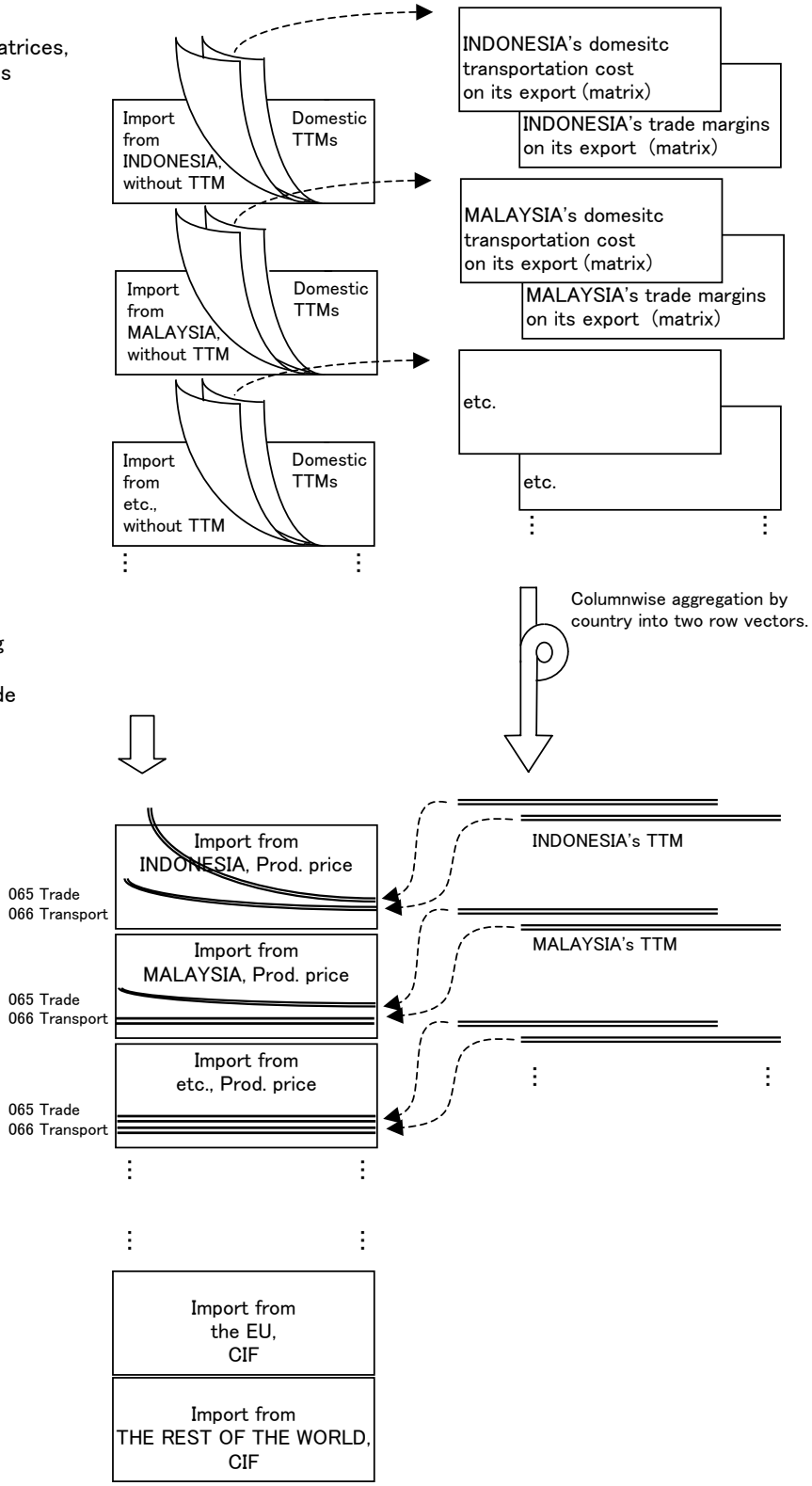

02
National Table
with 12 Import
matrices CIF
60
International
Freight &
Insurance rates
<STEP 1>
Separation of International
Freight & Insurance
from import matrices
61
International
Freight
& Insurance
matrices
03
National Table with
Import matrices
9 matrices = FOB
3 matrices = CIF
<STEP 2>
Columnwise aggregation
of International Freight
& Insurance matrices
step 3
62
International
Freight
& Insurance
vector (row)
JOB 4

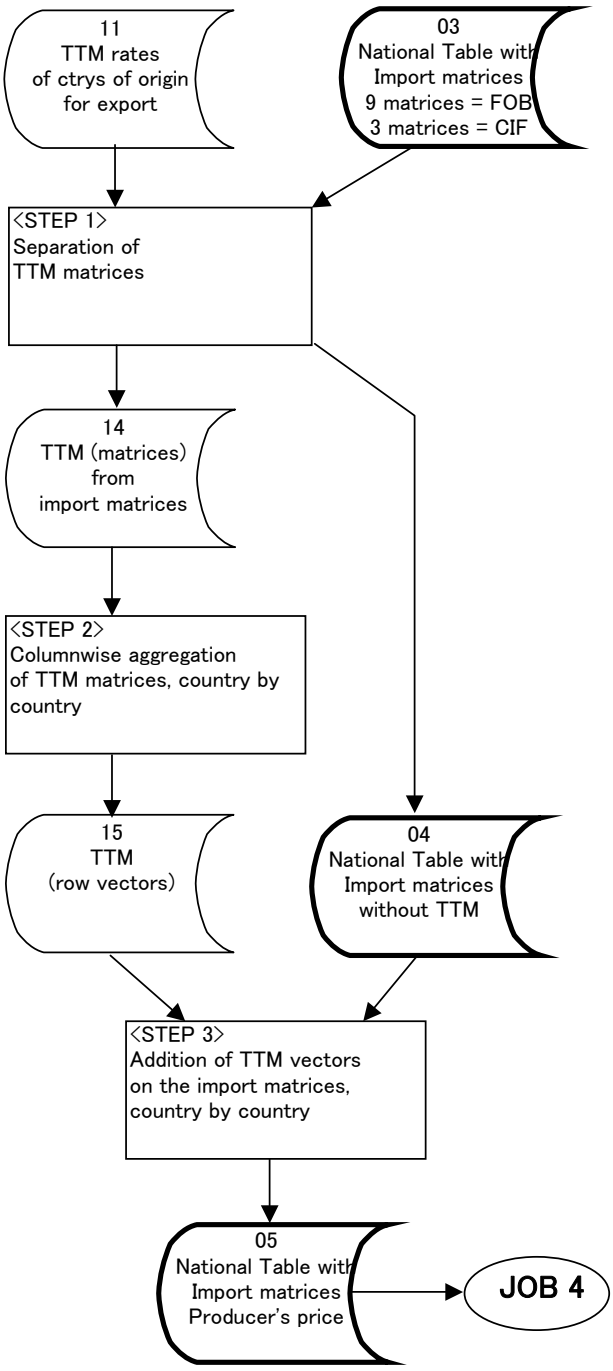
JOB 3: CONVERSION OF IMPORT MATRICIES into producer's price (continued)

<STEP 1>
TTMs are removed from import matrices, country by country, using the rates computed in Job 1.

<STEP 2>
The TTM matrices thus derived are aggregated columnwise country by country, to obtain TTM vectors (rows) for the countries of origin.

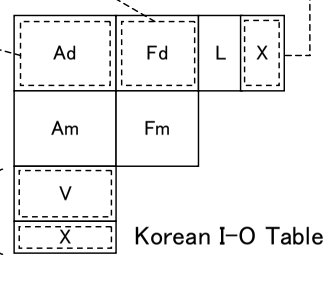
<STEP 3>
The TTM vectors thus derived are added on to the corresponding sectors of import matrices, to be registered as imports of trade and transportation services.




11
TTM rates
of ctrys of origin
for export
03
National Table with
Import matrices
9 matrices = FOB
3 matrices = CIF
<STEP 1>
Separation of
TTM matrices
14
TTM (matrices)
from
import matrices
<STEP 2>
Columnwise aggregation
of TTM matrices, country by
country
15
TTM
(row vectors)
04
National Table with
Import matrices
without TTM
<STEP 3>
Addition of TTM vectors
on the import matrices,
country by country
05
National Table with
Import matrices
Producer's price
JOB 4

JOB 4: LINKING

		code	Intermediate Demand (A)										Final Demand (F)										Export (L)				
			Indonesia (AI)	Malaysia (AM)	Philippines (AP)	Singapore (AS)	Thailand (AT)	China (AC)	Taiwan (AN)	Korea (AK)	Japan (AJ)	U.S.A. (AU)	Indonesia (FI)	Malaysia (FM)	Philippines (FP)	Singapore (FS)	Thailand (FT)	China (FC)	Taiwan (FN)	Korea (FK)	Japan (FJ)	U.S.A. (FU)	Export to Hong Kong (LH)	Export to EU (LO)	Export to R.O.W. (LW)	Statistical Discrepancy (QX)	Total Outputs (XX)
	Indonesia	(AI)	A^{II}	A^{IM}	A^{IP}	A^{IS}	A^{IT}	A^{IC}	A^{IN}	A^{IK}	A^{IJ}	A^{IU}	F^{II}	F^{IM}	F^{IP}	F^{IS}	F^{IT}	F^{IC}	F^{IN}	F^{IK}	F^{IJ}	F^{IU}	L^{IH}	L^{IO}	L^{IW}	Q^{I}	X^{I}
	Malaysia	(AM)	A^{MI}	A^{MM}	A^{MP}	A^{MS}	A^{MT}	A^{MC}	A^{MN}	A^{MK}	A^{MJ}	A^{MU}	F^{MI}	F^{MM}	F^{MP}	F^{MS}	F^{MT}	F^{MC}	F^{MN}	F^{MK}	F^{MJ}	F^{MU}	L^{MH}	L^{MO}	L^{MW}	Q^{M}	X^{M}
	Philippines	(AP)	A^{PI}	A^{PM}	A^{PP}	A^{PS}	A^{PT}	A^{PC}	A^{PN}	A^{PK}	A^{PJ}	A^{PU}	F^{PI}	F^{PM}	F^{PP}	F^{PS}	F^{PT}	F^{PC}	F^{PN}	F^{PK}	F^{PJ}	F^{PU}	L^{PH}	L^{PO}	L^{PW}	Q^{P}	X^{P}
	Singapore	(AS)	A^{SI}	A^{SM}	A^{SP}	A^{SS}	A^{ST}	A^{SC}	A^{SN}	A^{SK}	A^{SJ}	A^{SU}	F^{SI}	F^{SM}	F^{SP}	F^{SS}	F^{ST}	F^{SC}	F^{SN}	F^{SK}	F^{SJ}	F^{SU}	L^{SH}	L^{SO}	L^{SW}	Q^{S}	X^{S}
	Thailand	(AT)	A^{TI}	A^{TM}	A^{TP}	A^{TS}	A^{TT}	A^{TC}	A^{TN}	A^{TK}	A^{TJ}	A^{TU}	F^{TI}	F^{TM}	F^{TP}	F^{TS}	F^{TT}	F^{TC}	F^{TN}	F^{TK}	F^{TJ}	F^{TU}	L^{TH}	L^{TO}	L^{TW}	Q^{T}	X^{T}
	China	(AC)	A^{CI}	A^{CM}	A^{CP}	A^{CS}	A^{CT}	A^{CC}	A^{CN}	A^{CK}	A^{CJ}	A^{CU}	F^{CI}	F^{CM}	F^{CP}	F^{CS}	F^{CT}	F^{CC}	F^{CN}	F^{CK}	F^{CJ}	F^{CU}	L^{CH}	L^{CO}	L^{CW}	Q^{C}	X^{C}
	Taiwan	(AN)	A^{NI}	A^{NM}	A^{NP}	A^{NS}	A^{NT}	A^{NC}	A^{NN}	A^{NK}	A^{NJ}	A^{NU}	F^{NI}	F^{NM}	F^{NP}	F^{NS}	F^{NT}	F^{NC}	F^{NN}	F^{NK}	F^{NJ}	F^{NU}	L^{NH}	L^{NO}	L^{NW}	Q^{N}	X^{N}
	Korea	(AK)	A^{KI}	A^{KM}	A^{KP}	A^{KS}	A^{KT}	A^{KC}	A^{KN}	A^{KK}	A^{KJ}	A^{KU}	F^{KI}	F^{KM}	F^{KP}	F^{KS}	F^{KT}	F^{KC}	F^{KN}	F^{KK}	F^{KJ}	F^{KU}	L^{KH}	L^{KO}	L^{KW}	Q^{K}	X^{K}
	Japan	(AJ)	A^{JI}	A^{JM}	A^{JP}	A^{JS}	A^{JT}	A^{JC}	A^{JN}	A^{JK}	A^{JJ}	A^{JU}	F^{JI}	F^{JM}	F^{JP}	F^{JS}	F^{JT}	F^{JC}	F^{JN}	F^{JK}	F^{JJ}	F^{JU}	L^{JH}	L^{JO}	L^{JW}	Q^{J}	X^{J}
	U.S.A.	(AU)	A^{UI}	A^{UM}	A^{UP}	A^{US}	A^{UT}	A^{UC}	A^{UN}	A^{UK}	A^{UJ}	A^{UU}	F^{UI}	F^{UM}	F^{UP}	F^{US}	F^{UT}	F^{UC}	F^{UN}	F^{UK}	F^{UJ}	F^{UU}	L^{UH}	L^{UO}	L^{UW}	Q^{U}	X^{U}
International Freight and Insurance		(BF)	BA^{I}	BA^{M}	BA^{P}	BA^{S}	BA^{T}	BA^{C}	BA^{N}	BA^{K}	BA^{J}	BA^{U}	BF^{I}	BF^{M}	BF^{P}	BF^{S}	BF^{T}	BF^{C}	BF^{N}	BF^{K}	BF^{J}	BF^{U}					
Import from Hong Kong		(CH)	A^{HI}	A^{HM}	A^{HP}	A^{HS}	A^{HT}	A^{HC}	A^{HN}	A^{HK}	A^{HJ}	A^{HU}	F^{HI}	F^{HM}	F^{HP}	F^{HS}	F^{HT}	F^{HC}	F^{HN}	F^{HK}	F^{HJ}	F^{HU}					
Import from EU		(CO)	A^{OI}	A^{OM}	A^{OP}	A^{OS}	A^{OT}	A^{OC}	A^{ON}	A^{OK}	A^{OJ}	A^{OU}	F^{OI}	F^{OM}	F^{OP}	F^{OS}	F^{OT}	F^{OC}	F^{ON}	F^{OK}	F^{OJ}	F^{OU}					
Import from the R.O.W.		(CW)	A^{WI}	A^{WM}	A^{WP}	A^{WS}	A^{WT}	A^{WC}	A^{WN}	A^{WK}	A^{WJ}	A^{WU}	F^{WI}	F^{WM}	F^{WP}	F^{WS}	F^{WT}	F^{WC}	F^{WN}	F^{WK}	F^{WJ}	F^{WU}					
Import Duties and Import Commodity Taxes		(DT)	DA^{I}	DA^{M}	DA^{P}	DA^{S}	DA^{T}	DA^{C}	DA^{N}	DA^{K}	DA^{J}	DA^{U}	DF^{I}	DF^{M}	DF^{P}	DF^{S}	DF^{T}	DF^{C}	DF^{N}	DF^{K}	DF^{J}	DF^{U}					
Value Added		(VV)	V^{I}	V^{M}	V^{P}	V^{S}	V^{T}	V^{C}	V^{N}	V^{K}	V^{J}	V^{U}															
Total Inputs		(XX)	X^{I}	X^{M}	X^{P}	X^{S}	X^{T}	X^{C}	X^{N}	X^{K}	X^{J}	X^{U}															



<STEP 1>

So far, all the parts except the highlighted segments have been prepared and are ready for linking. The remaining parts are in fact directly transplanted from the corresponding parts of national tables, after due aggregation into AIO classification. The diagram shows an example of Korea's case, with arrows indicating the parts-correspondance between the AIO table and the Korean I-O table.

The same treatment should be done for all the other member countries.

<STEP 2>

After linking, all the rowwise statistical discrepancies due to the difference in data source are dumped into a single column vector, QX. (Note that the export vectors to the member countries are NOT used in the end, to avoid double-counting with the corresponding import matrices.)

3.2 Reconciliation of data

The final step of compilation is the manual balancing and reconciliation work, following the linking of all the pieces provided so far. The table is balanced with respect to the input composition, but total demand is not necessarily consistent with total supply for each country at this stage. Such an imbalance stems from the following facts.

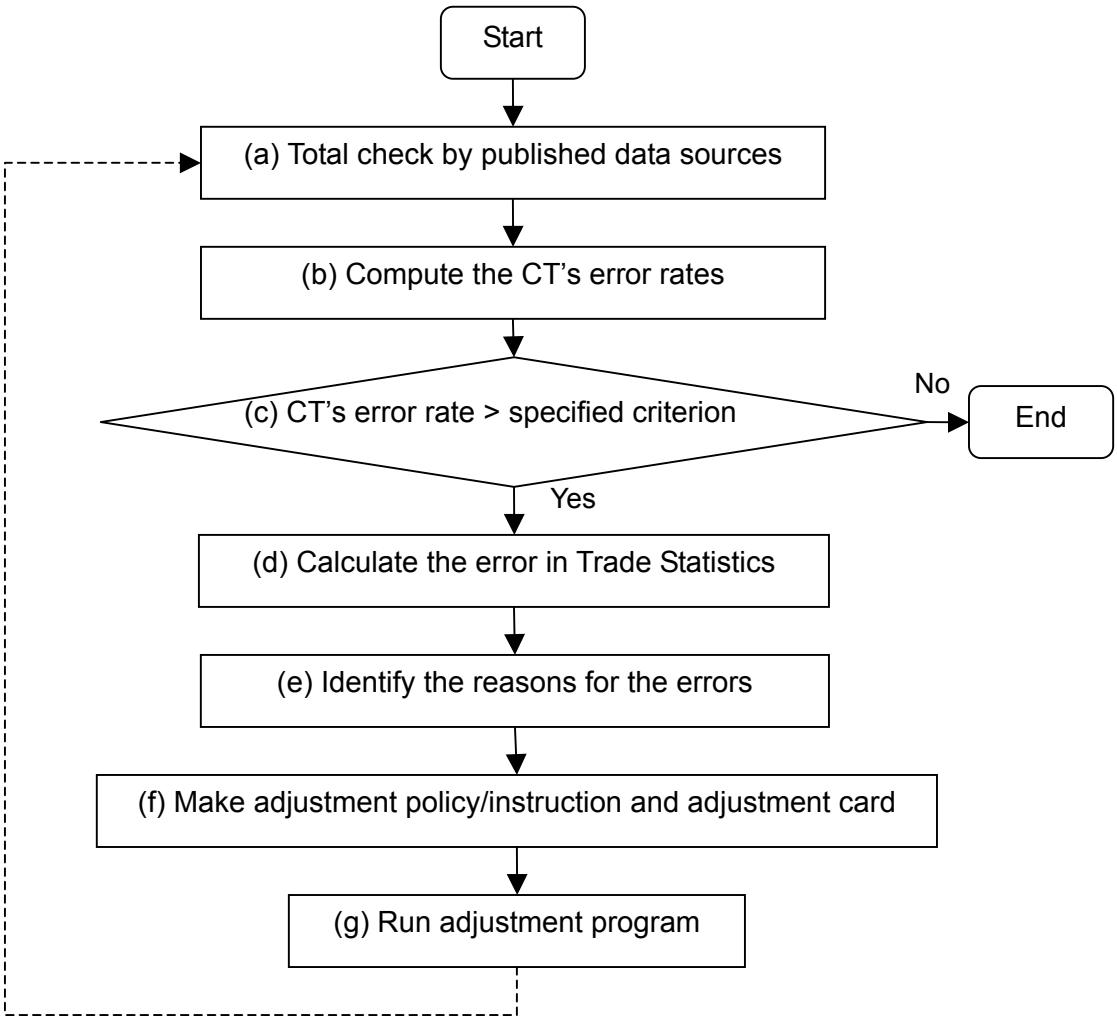
Here, let us consider the case of Korea. As explained in the previous section, the blocks A^{KK} , F^{KK} , and L^{KZ} ($Z = H, O, W$) in the diagram in the left page are calculated from Korea's input-output table, and they should conform to the transactions recorded in the Korean input-output table. However, the other blocks A^{KZ} and F^{KZ} ($Z \neq K$), are estimated from the import matrices of other countries, and there is no guarantee that they will be consistent with Korea's export figures. For example, for the blocks A^{KM} and F^{KM} , at which Korea's rows and Malaysia's columns intersect, if the export and import data are to be consistent, the following equation must hold true:

$$D_i^{KM} = (\sum_j A_{ij}^{KM} + \sum_k F_{ik}^{KM}) - L_i^{KM} = 0, \qquad (1)$$

where D_i^{KM} represents the difference between Malaysia's import data and Korea's export data for ith industry, the subscripts j and k respectively denote jth industry and kth final demand, and L_i^{KM} represents the exports of Korea's ith industry to Malaysia (expressed in producer's prices). In actuality, whether or not equation (1) holds true depends on the reliability of the international trade statistics for the two countries. As stated above, the results of our linking work show that $D_i^{KM} \neq 0$, of course, the same imbalance occurs with all the other countries of the project. Therefore, we consider that D_i^{KM} denotes the discrepancies in international trade statistics of the two countries, as well as to include the margins of error in estimating blocks A^{KM} and F^{KM} .

To rationally and efficiently decrease the discrepancies generated through the linking process, the procedure shown in Figure 1 below is employed in final reconciliation of the AIO table.

Figure 1: Adjustment procedure

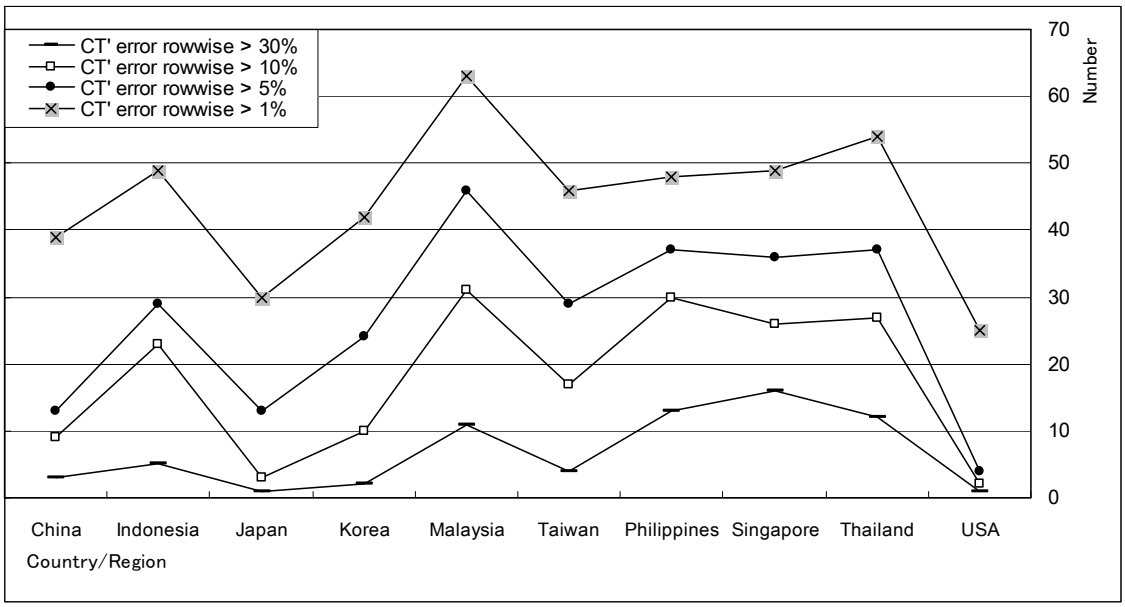


(a) Initially, we use the linking results to summarize the transactions among the industries of all countries and compile an AIO table that there is only one sector per country. Then it becomes easy to check whether or not the present data in the AIO table at the national level are consistent with the published data sources, such as the GDP statistics for the country or the IMF statistics. Through the above checking, we gain knowledge of the preliminary linking results.

(b) For determining the size of the final adjustment in detail, we calculate the error rates of CT rowwise by sector for each country. Figure 2 shows the distribution of the

summarized absolute CT's error rates for different levels. The vertical axis represents the number of sectors in which CT's errors are larger than the specified levels. Obviously, China, Japan, and the U.S.A. have relatively smaller numbers that are counted in each level. On the other hand, Indonesia, Malaysia, the Philippines, Singapore, and Thailand have relatively larger numbers. Korea and Taiwan exhibit a similar pattern. The distribution shown in Figure 2 not only depends on the economic scale but also relates to the statistic system of each country. Considering the large scale of the AIO table and the distribution pattern of error rates, any sector that has a CT' error rate over 5% is determined as a target for preliminary adjustment.

Figure 2: Distribution of CT's error



(c) Though 5% is determined as the criterion for the preliminary adjustment, considering that positive errors may offset some negative errors in the row sector, we have to investigate the structure of the error rowwise. As stated in the previous section, the AIO table is based on the import matrices for each country, and the matrices conform to import statistics, but the export statistics are not necessary consistent. In order to discuss the structure of the error in detail, for example, in the case of Korea, we calculate matrix $D_i^{KZ} = (\sum_j A_{ij}^{KZ} + \sum_k F_{ik}^{KZ}) - L_i^{KZ}$, which represents the difference between country Z's imports from Korea and Korea's exports to country Z for ith industry. If one refers to this matrix, the structure of Korea's CT's error rowwise becomes easy to understand, and it offers us information about which sectors and which countries should be the main targets for adjustment.

(d) The discrepancy is mainly caused by the following three factors: (1) The inconsistency between each country's sector classifications. Though each country is required to make its own code concordance from HS code to AIO sector classification, the possibilities of differences in statistical concept still exists. (2) Entrepot trade is counted in different ways by the trade partners. For example, in the case of China, export via Hong Kong to the U.S.A. may be counted by the U.S.A as import from China. In the case of Singapore, where international trade is extremely large compared to the scale of its economy, and there is a large volume of entrepot trade, there are especially large statistical discrepancies in its international trade matrices. (3) Other statistical reasons.

(e) According to the analysis of "matrix D" introduced above and careful investigation of the HS-AIO code concordance, the majority of errors can be specified. Then the adjustment policy will be determined. In our project, since the portion for each country has a professional in charge, that person will give instructions to other staff based on the adjustment policy. Then the staff member in charge of a country will aggregate all the instructions coming from those in charge of other countries into the adjustment card for his/her country.

(f) The adjustment cards are used as input files in the adjustment program. Basically, the adjustment is merely executed on the import matrices, and it vertically moves the same amount from one sector to other sectors. This means that CT balance will be maintained columnwise.[1]

The above procedure (a) – (f) will be repeated until the results satisfy the specified criteria. Additionally, spot-check is conducted at the end of the adjustment. This is to "spot out" any unnatural entries in the table that might have been brought in during the course of the adjustment. For example, the output of electricity, gas & water supply or some other service sectors is not supposed to enter any cells along Fixed Capital Formation or Change in Stocks. Any of such mis-tabulation should be cleared and dealt with properly.

It is extremely rare for the international trade statistics of different countries to be

[1] Basically, The remaining CT' error rowwise will be moved to the vector QX (Statistical Discrepancy).

consistent with one another. There are usually rather large gaps and errors. While a number of existing studies have analyzed the extent and nature of this problem, a standardized methodology for reconciling the international trade statistics of various countries has not yet been established. Even though in our project we require each country to make a code concordance between the AIO's sector classification and HS code, it is extremely difficult to eliminate the discrepancies completely, because of the large number of codes involved and differences among statistical systems from one country to another.

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Appendix 1:
General survey on national I-O tables for the 2000 AIO project

This survey reports on the characteristic features of national tables of the AIO project member countries. The survey was conducted in the period of 2003–04, in order to construct the basic information reservoirs for designing the AIO common format and adjustment rules.

The questionnaire for the survey was carefully designed so as to capture every important aspect of an I-O table. The questions are grouped under the following seven broad categories:

1. Benchmark year and recording principles
2. Availability of national tables and supporting tables
3. Valuation
4. Form and coverage
5. Special treatment
6. Public/semi-public sectors
7. Response to the 1993 SNA.

A glossary is provided so that any ambiguity in I-O jargon in the questionnaire is ruled out. It is appended with a special explanatory note on the treatment of "Scrap and By-products" sectors, which often prompts a general argument on concepts and definitions.

The results of the survey are shown in the following pages. The column-cells on the left side refer to the questions from the questionnaire, and each country's answers to them are given along the rows. The word "unknown" is typed in where the information was not sufficient to give a definite answer. Endnotes are provided, with asterisks (*) and reference numbers.

PRESENTATION FORMAT OF NATIONAL I-O TABLES		SNA recommendation	CHINA	INDONESIA	JAPAN	KOREA	MALAYSIA	PHILIPPINES	SINGAPORE	TAIWAN	THAILAND	USA
1.1	Benchmark-year	--	1997	2000	2000	2000	2000	2000	1995	1999	2000	1997 *1
1.2	Recording principle											
1.2.1	Accounting period	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12	01/01 - 31/12
1.2.2	Boundary of economic territory	(14.9 14.25 14.26)										
	Legal territory	included	included	included	included	included	included	included	included	included	included	included
	National embassies in foreign countries	included	included	included	included	included	included	included	not included	included	included	included
	Foreign embassies in national territory	not included	not included	not included	not included	not included	included	not included	included	not included	not included	not included
	Foreign military bases in national territory (National military bases in foreign countries for the USA)	not included	not included	not included	not included	not included	included	not included	do not exist	not included	do not exist	included
	National (operator's) ships/aeroplanes abroad	included	included	included	included	included	included	included	not included	not included	included	included
1.2.3	Recording method	Accrual (6.54 14.53)	Cash	Accrual	Accrual	Accrual	Accrual	Accrual	Accrual	Cash	Cash	Accrual
2.1	Level of classification											*2
2.1.1	Basic classification	What follows is recommended	124 x 124	175 x 175	517 x 405	404 x 404	98 x 98	229 x 229	155 x 156	160 x 160	180 x 180	495 x 491
2.1.2	Other level (1)	Row: Central Product Classification (CPC)	040 x 040	066 x 066	188 x 188	168 x 168	--	059 x 059	--	045 x 045	058 x 058	069 x 066
2.1.3	Other level (2)	...over 1,800 items at 5-digit level	006 x 006	019 x 019	104 x 104	077 x 077	--	011x 011	--	--	026 x 026	013 x 012
2.1.4	Other level (3)	Column: ISIC Rev3 ...2-digit level	--	--	032 x 032	028 x 028	--	--	--	--	016 x 016	--
2.2	Availability of appended tables for different level of classification	Upper: available in publication/internet Lower: available upon request	B: Available in Basic classification in 2.1 (1), (2), (3): Available in level of classification (1), (2) or (3) in 2.1									
2.2.1	Import matrix	Tab 15.7	n/a n/a	B, (1), (2) B, (1), (2)	B, (1), (2) B, (1), (2)	(2), (3) B, (1), (2), (3)	B B	B B, (1), (2)	B B	B, (1) B, (1)	B, (1), (2), (3) B, (1), (2), (3)	B B
2.2.2	Trade margins matrix	Tab 15.2 Shown together with taxes	n/a n/a	B, (1), (2) B, (1), (2)	B, (1), (2) B, (1), (2)	(2) *1 (2), (3)	B B	n/a col vectors only	n/a col vectors	n/a n/a	B, (1), (2), (3) B, (1), (2), (3) *1	B, (1) B, (1)
2.2.3	Domestic freight transport cost matrix	Tab 15.2 Shown together with taxes	n/a n/a	n/a n/a	B, (1), (2) B, (1), (2)	(2) *2 (2), (3)	n/a n/a	n/a col vectors only	n/a col vectors	n/a n/a	B, (1), (2), (3) B, (1), (2), (3)	B, (1) B, (1)
2.2.4	Scraps & by-products matrix	n/a	n/a n/a	n/a n/a	B B	B B, (1), (2), (3)	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a
2.2.5	In-house transport cost matrix	n/a	n/a n/a	n/a n/a	B, (1) B, (1)	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a
2.2.6	Commodity tax matrix	Tab 15.2 Shown together with TTM	n/a n/a	n/a n/a	n/a n/a	n/a n/a	B B	n/a col vectors only	n/a a col vector	B, (1) B, (1)	n/a n/a	n/a n/a
2.2.7	Fixed capital formation matrix	Tab 15.1 Only a column and a row vector available	n/a n/a	n/a n/a	(2), (3) (2), (3)	n/a 404 x 71	n/a n/a	n/a n/a	n/a n/a	B, (1) B, (1)	n/a n/a	180 x 123 180 x 123
2.2.8	Employment matrix	n/a	n/a n/a	n/a n/a	(2) (2)	(2), (3) (1), (2), (3)	n/a n/a	n/a n/a	n/a 1X155 *1	B, (1) B, (1)	n/a n/a	n/a n/a
2.2.9	Quantity-based matrix	n/a	n/a n/a	n/a n/a	B B	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a
2.2.10	Use table	Tab 15.1 U	(1) (1)	n/a n/a	n/a n/a	n/a n/a	B B	B B, (1), (2)	n/a n/a	n/a n/a	n/a n/a	B B *3
2.2.11	Supply table	Tab 15.1 S	(1) (1)	n/a n/a	(2) (2)	n/a n/a	B B	B B, (1), (2)	n/a n/a	n/a n/a	n/a n/a	B B *3

PRESENTATION FORMAT OF NATIONAL I-O TABLES		SNA recommendation	CHINA	INDONESIA	JAPAN	KOREA	MALAYSIA	PHILIPPINES	SINGAPORE	TAIWAN	THAILAND	USA
3.1	Valuation scheme (overall) Ba = Basic price Pr = Producer's price Pu = Purchaser's price	Ba: Vtable, I-Otable Pu: Utable	Pr	Pr, Pu	Pr, Pu	Pr	Ba, Pr, Pu	Pr, Pu	Ba	Pr	Pr, Pu	Pr, Pu
3.2	Valuation principle											
	3.2.1 Actual price or Uniform price basis	Actual (1.62)	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
	3.2.2 Domestic or National basis	Domestic	Domestic	Domestic	Domestic	Domestic	Domestic	Domestic	Domestic	Domestic	Domestic	Domestic
3.3	Valuation scheme (individual)	<Abbreviation> FOB = free on board, CIF = cost, insurance, freight, DC = duties and import commodity taxes, TTM = trade and transport cost margins										
	3.3.1 Private consumption expenditure	Domestic: With an adjusting row (ANNEX I 100 15.80)	National	National	National	National	Neither *1	National	Neither *2	National	National	Domestic *4
	3.3.2 Export vectors	FOB (15.35)										
	Basic price table		-	-	-	-	FOB	-	FOB	-	-	-
	Producer's price table		Producer's price	Producer's price	Producer's price	Producer's price	FOB	Producer's price	-	Producer's price	Producer's price	Producer's price
	Puchaser's price table		-	FOB	FOB	-	FOB	FOB	-	-	FOB	FOB
	3.3.3 Import vectors/matrix		(vector only)									
	Basic price table	-	-	-	-	-	CIF	-	CIF	-	-	-
	Producer's price table	CIF (15.35), CIF+DC (15.36)	CIF	CIF	CIF+DC	CIF+DC	CIF	CIF+DC	-	CIF	CIF+DC	CIF+DC *5
	Puchaser's price table	CIF+DC+TTM	-	CIF+DC+TTM	CIF+DC	-	CIF	CIF+DC	-	-	CIF+DC	CIF+DC *5
4.1	Stand-alone vectors in the table											
	4.1.1 Final Demand items											
	Expenditure of non-profit institution for household	yes (ANNEX V A)	none	none *1	9131-20 9131-40	none	081 *2	none	none *3	none	none	none *6
	Direct purchases (expt)	yes (H 7.42)	none	306	9121-00	none	none	none	none	166	306	none
	Special trade (expt)	no	none		9211-20	none	none	none	none			none
	Direct purchases (impt)	Only a total value (H6.5)	none	404	9412-00	none	none	none	none	169	404	none
	Special trade (impt)	no	none		9411-20	none	none	none	none			none
	Custom duties	yes (15.51 In Vtable at producer's price)	none	403	9413-00	417	none	none	156	none	402	none
	Import commodity tax	yes (15.51 In Vtable at producer's price)	none	402	9414-00	418	none	none		none		none
	TTM (transport)	yes (Tab 15.1 shown altogether)	none	503	9610, 9620 9630-10 9630-20 9640, 9650 9660	none	none	none	none	none	503	none
	TTM (trade margins)	yes (Tab 15.1 shown altogether)	none	501, 502	9510-00 9520-00	none	none	none	none	none	501, 502	none
	4.1.2 Value Added items											
	Social insurance contributed by employer	yes (ANNEX V B)	none	none	9312-00	none	none	none	none	none	none	none
	Indirect taxes	no: given only as a scaler (ANNEX V B)	net value only VA004	204	9404-00	409	net value only	net value only IT-S	158, 159	net value only 164	net value only 204	V00200 *7
	Subsidies	no: given only as a scaler (ANNEX V B)		205	9405-00	410			none			none *8

PRESENTATION FORMAT OF NATIONAL I-O TABLES		SNA recommendation	CHINA	INDONESIA	JAPAN	KOREA	MALAYSIA	PHILIPPINES	SINGAPORE	TAIWAN	THAILAND	USA
4.2	Coverage of "direct purchases"	H 6.5 - 6.8										
	Sight-seers	included (14.110)	included	included	included	not identified	included	included	included	included	included	not identified
	Diplomats	included	included	included	included	not identified	included	included	included	included	included	not identified
	Military personnel	included	not exist	included	included	not identified	included	included	included	not included	included	not identified
4.3	Coverage of "special trade"	H 6.5 - 6.8		merged in Direct Purchase			merged in Direct Purchase	total value only	recorded on the corres-ponding activites in domestic intermediate transaction			
	Business trip	included (14.110 H6.5)	included		included	not identified				included	included	not identified
	Use of patent/royalty	included (14.114, ANNEX I 68)	not identified		not included	not identified				not included	not included	not identified
	Construction activities	included (14.100, 14.101)	included		not included	not identified				not included	included	not identified
	Supplies to foreign embassies	included	not identified		included as export	not identified				included	included	not identified
	Supplies to foreign military bases	included	not identified		included as export	not identified				not included	included	not identified
	Supplies to foreign transport	included	not identified		included as export	not identified				included	included	not identified
	Int. freight transport of national companies	included as import/export (H 6.6 & p154 footnote)	not identified		included as export	not identified				included	included	not identified
	Int. freight transport of foreign companies	Included as import (14.38 H 6.7)	not identified		included as import	not identified				included	included	not identified
	Int. Insurance services of national companies	included as import/export (H 6.6 & p154 footnote)	not identified		included as export	not identified				included	included	not identified
	Int. Insurance services of foreign companies	Included as import (14.38 H 6.7)	not identified		included as import	not identified				included	included	not identified
	Services within ports for foreign transport	included (H 6.6)	not identified		included as export	not identified				included	included	not identified
	Other services (finance, telecom, etc.)	included (14.115 H 6.7)	not identified		included	not identified				included	included	not identified
4.4	Coverage of "domestic freight transport cost"											
	Ordinary freignt transport	included	included	included	included	included	included	included	included	included	included *2	included
	Railway forwardings	included	included	included	included	not included	included	included	included	included	not included	included
	Services within ports for domestic freight transport	included	included	included	included	included	included	included	included	included	not included	included
	Storage facility services	included	included	included	included	included	included	included	included	included	not included	included
	Inhouse transport	not included (15.42 H5.71)	not included	included	not included	not included	not included	included	not included	not included	not included	not included
	Cost-transport	not included (15.42 H5.71)	partially included	included	not included	included	not included	included	not included	not included	included *3	not included
4.5	Coverage of "trade margins"											
	Wholesale margins	included (6.110)	included	included	included	included	included	included	included	included	included	included
	Retail margins	included (6.110)	included	included	included	included	included	included	included	included	included	included
	Cost-commerce	not included	not included	included	not included	included	not included	not included	included	included	not included *4	not included
4.6	TTM on input from service sectors	No (15.31 cf. the case of travel agencies)	no	no	no	yes *3	no	no	no	no	yes *5	yes *9
4.7	Treatment in purchaser's price table											
	4.7.1 Cost-transport	no description given for SNA treatment	no purchaser's price table	subtracted all together	left behind in the cell	no purchaser's price table	left behind in the cell	subtracted all together	no purchaser's price table	no purchaser's price table	subtracted all together	subtracted all together *10
	4.7.2 Cost-commerce	no description given for SNA treatment	no purchaser's price table	subtracted all together	left behind in the cell	no purchaser's price table	left behind in the cell	left behind in the cell	no purchaser's price table	no purchaser's price table	left behind in the cell	subtracted all together *10

PRESENTATION FORMAT OF NATIONAL I-O TABLES		SNA recommendation	CHINA	INDONESIA	JAPAN	KOREA	MALAYSIA	PHILIPPINES	SINGAPORE	TAIWAN	THAILAND	USA
4.8	Treatment of purchased but unused input	no description given for SNA treatment	Demand-side sector x Stocks	Supply-side sector x Stocks	Supply-side sector x Stocks	Supply-side sector x Stocks	Supply-side sector x Stocks	Supply-side sector x Stocks	Demand-side sector x Stocks *4	Demand-side sector x Stocks	Supply-side sector x Stocks	Supply-side sector x Stocks
4.9	Negative entries in intermedidate transactions	none	none	none	Scraps & By-products	Scraps & By-products, Negative trade margins *4	none	none	none	none	none	Scraps, Used & secondhand goods, Insurance *11
5.1	Dummy sectors	I-H research (6.142/H tab5.5) Inputed interest (ANNEX III)	Scrap & waste = 2343085	none	I-H transport = 7131-01P, Office supp = 8900-00P, Scraps = 1811-012P, 2612-011P Busin cons. =9110-00 *1	Office supp = 402, Busin cons. = 403	Imputed interest = 094(column vector only)	none	Imputed interest =156(column vector only)	none *1	none	Scraps = S00401, Royalties = 533000, Management of companies & enterprises = 550000, Industry valuation adjustment = S00700
5.2	Treatment of scraps	No best solution provided (H 4.25)	Original method									
	5.2.1 Gross-counting method	-	-	Metal scraps, Tin scraps	Excrement of livestocks etc.	none	all scraps	all scraps	all scraps	most scraps	Rubber scraps Iron scraps, etc	none
	5.2.2 Transfer method	-	-	none	none	none	none	none	none	Valuable scraps, e.g. wine bottles	none	none
	5.2.3 Stone method	-	-	Boken glass, Used paper	Broken glass, Used paper, Iron scraps, Non-ferrous etc.	Broken glass, Useless textile, Used paper, Iron scraps etc.	none	none	none	none	none	all scraps *12
	5.2.4 Separation method	-	-	none	none	none	none	none	none	none	none	none
5.3	Treatment of by-products	No best solution provided (H 4.25)	none								do not exist	
	5.3.1 Gross-counting method	-	none	all by-products	none	Rice straw, fur and hide of livestocks, poultry manure etc	all by-products	all by-products	all by-products	Straw, Wheat bran, Rice bran, Bagasse etc	-	none
	5.3.2 Transfer method	-	none	none	Advertisement	Advertisement	none	none	none	Advertisement LPG	-	none
	5.3.3 Stone method	-	none	none	Coke, LPG	none	none	none	none	none	-	all by-products *12
	5.3.4 Separation method	-	all by-products	none	none	almost all by-products *5	none	none	none	none	-	none
5.4	Stand-alone "machine repairing"	-	2138082	none	8516-00	none	none	none	none	none	none	811200 811300
5.5	Stand-alone "operating leasing"	-	none	none *2	8513-00 8514-00	366	none	203	140	144 *2	none *6	532100 532230 532A00
5.6	Allocation of imputed interest to final demand	yes (ANNEX I 37. FISIM)	yes	yes	no	yes	no *3	yes	no *5	yes	yes	yes
5.7	Imputation for:											
	5.7.1 self-owned dwellings	recorded (6.89)	recorded	recorded	recorded	recorded	not recorded	recorded	recorded	not recorded	recorded	recorded
	5.7.2 consumption by farmers of own agro-products	recorded (6.84)	recorded	recorded	not recorded	recorded	not recorded	recorded	not recorded	not recorded	recorded	recorded

PRESENTATION FORMAT OF NATIONAL I-O TABLES		SNA recommendation	CHINA	INDONESIA	JAPAN	KOREA	MALAYSIA	PHILIPPINES	SINGAPORE	TAIWAN	THAILAND	USA
5.8	Output of dealing second-hand goods	Goods value also recorded (9.31/H 5.41) *1	only dealing commission	only dealing commission	only dealing commis. *2	only dealing commission	only dealing commission	only dealing commission	only dealing commission	only dealing commission	only dealing commission	No output recorded *13
5.9	Output of dealing real estate	Only dealing commission (15.85)	only dealing commission	only dealing commission	only dealing commission	only dealing commission	only dealing commission	commission + land imp. cost	commission + land imp. cost	only dealing commission	only dealing commission	only dealing commission
5.10	Output of processing of brought-in-materials	Total value for manufacturer (14.61)	total value for manufacturer	net value only	total value for manufacturer	total value for manufacturer	total value for manufacturer	total value for manufacturer	total value for manufacturer	total value for manufacturer	net value only	total value for trading firm *14
5.11	Attributes of fixed capital goods	Over 1 year (10.7)	over 1 year & 2,000 CY	over 1 year	over 1 year & 100,000 yen	over 1 year & 500,000 won	over 1 year	over 5 years	over 1 year	over 1 year	over 1 year & 5,000 Bh	over 1 year
5.12	Treatment of "roundabout production"	no description given for SNA treatment	capital formation	capital formation	intermediate input	intermediate input	capital formation	capital formation	capital formation	intermediate input	capital formation	capital formation
5.13	Treatment of re-export	Not recorded (H6.4)	not recorded	not recorded	not recorded	not recorded	separately presented *4	not recorded	not recorded	not recorded	not recorded	not recorded
6.1	Calculation of output of public/ semi-public institutions											
	6.1.1 Public enterprises	Total sale	total sales	total sales	total sales	total cost	total sales	total cost	total sales	total cost	total sales	total sales
	6.1.2 Public administration	Total cost (6.91 H5.95)	total budget	total cost	total cost	total cost	total cost	total cost	total revenue	total cost	total value added	total cost
	6.1.3 Public education	Total cost (6.91 H5.95)	total cost	total cost	total cost	total cost	total cost	total cost	total cost	total cost	total cost	total cost
	6.1.4 Public medical services	Total cost (6.91 H5.95)	total cost	total cost	total revenue	total cost	total cost	total cost	total cost	total cost	total cost	total cost
	6.1.5 Non-profit institution serving household	Total cost (6.91 H5.95)	total income	total cost	total cost	total cost	total cost	total cost	total cost	total cost	donations, member fee	total cost plus imputed rent of owned buildings
6.2	Operating surplus of public/semi-public institutions											
	6.2.1 Public enterprises	Positive (ANNEX V A)	non-zero	non-zero	non-zero	zero	non-zero	non-zero	non-zero	zero	non-zero	non-zero
	6.2.2 Public administration	zero (6.91 H5.95)	non-zero	zero	zero	zero	zero	zero	non-zero *6	zero	zero	non-zero
	6.2.3 Public education	zero (6.91 H5.95)	non-zero	zero	zero	zero	zero	zero	zero	zero	non-zero *7	non-zero
	6.2.4 Public medical services	zero (6.91 H5.95)	non-zero	zero	non-zero	zero	zero	zero	zero	zero	non-zero *7	non-zero
	6.2.5 Non-profit institutions serving households	zero (6.91 H5.95)	non-zero	zero	zero	zero	zero	zero *1	zero	zero	zero	zero
6.3	Output destination of public/semi-public activities		<Abbreviations> I = Intermediate demand, H = Household, N = Non-profit instit. for household, G = Government, O = Other final demand									
	6.3.1 Public enterprises	no description given for SNA treatment	I, H, G, O	I, H, N, G, O	I, H, G	I, H, N, G, O	I, H, N, G, O	I, H, G, O	I, H, N, O	I, H, O	I, H, N, G, O	I, H, N, G, O
	6.3.2 Public administration		G, O	G	I, H, G	G	I, H, N, G, O	H, G	I, H, G, N, O	G	G	G
	6.3.3 Public education		I, H, G, O	I, H, N, G, O	H, G	H, G, O	I, H, N, G, O	H, G	I, H, N, O	I, H, G, O	H, G, O	H
	6.3.4 Public medical services		I, H, G, O	I, H, N, G, O	H, G, O *3	I, H, N, G, O	I, H, N, G, O	H, G	I, H, N, O	I, H, G, O	H, G, O	H
	6.3.5 Private non-profit instit. for households		I, H, G, O	H	I, H, N, G	I, H, O	H	I, H, O	I, H, N, O	I, H, N, G, O	I, H, N, G, O	H
6.4	Intermediate input of public administration	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes *15
6.5	Treatment of public enterprises	Industry (ANNEX V A)	industry	industry	industry	industry	industry	industry	industry	industry	industry	industry
6.6	Public education vis-à-vis private education	Stand-alone (15.65)	merged 3789118	merged 169	stand-alone 8211-011 8212-011	stand-alone 374, 375, 376	merged 079	stand-alone 209, 227	merged 145	merged 148	merged 167	stand-alone (in final demand) F08C00 *16
6.7	Public vis-à-vis private medical services	Stand-alone (15.65)	merged 3685115	merged 170	stand-alone 8311-01 -02, -03 8312-01, -02	stand-alone 381, 382, 383	merged 080	stand-alone 210, 211, 228	merged 146	merged 150	merged 169	Merged in other government services F06, F07, F09C00 *17

PRESENTATION FORMAT OF NATIONAL I-O TABLES		SNA recommendation	CHINA	INDONESIA	JAPAN	KOREA	MALAYSIA	PHILIPPINES	SINGAPORE	TAIWAN	THAILAND	USA
7.1	Households own-consumption of paid domestic staff is recorded on...	To be estimated, but the entry is not specified	"Personal Service" x Household Consump.	"Personal Service" x Household Consump.	not recorded	"Personal Service" x Household Consump. *6	not recorded	"Personal Service" x Household Consump.	"Personal Service" x Household Consump.	"Personal Service" x Household Consump.	"Personal Service" x Household Consump.	Dummy (814000 Private household) x Household Consump.
7.2	Royalties											
7.2.1	paid for the use of produced intangible assets	recorded as output	recorded	not recorded	included in operat. surplus	not recorded	not recorded	not recorded	unknown	recorded	not recorded	recorded *18
7.2.2	paid for the use of non-produced intangible assets	not recorded as output	recorded	not recorded	included in operat. surplus	recorded	not recorded	not recorded	unknown	recorded	not recorded	recorded *19
7.3	Financial leasing is regarded as...	Financial instrument	financial service	financial service	operating leasing	financial service	financial service	financial service	financial service	financial service	financial instrument	operating leasing
7.4	Income and consumption											
7.4.1	Collective vis-à-vis Individual consumption	separate	not separate	separate	separate	not separate	not separate	not separate	not separate	not separate	not separate	not separate
7.4.2	Mixed income vis-à-vis Operating Surplus	distinguished	not distinguished	not distinguished	not distinguished	not distinguished	not distinguished	not distinguished	not distinguished	not distinguished	not distinguished	not distinguished
7.5	Capital formation or Intermediate consumption											
7.5.1	Research & development	Intermediate Consumption	intermediate consumption	intermediate consumption	intermediate consumption	intermediate consumption	intermediate consumption	intermediate consumption	capital formation	intermediate consumption	capital formation	intermediate consumption
7.5.2	Mineral exploration	Capital Formation	capital formation	intermediate consumption	capital formation	capital formation	capital formation	capital formation	capital formation	intermediate consumption	capital formation	capital formation
7.5.3	Acquisition of literary and artistic originals	Capital Formation	not recorded	intermediate consumption	not recorded	not recorded	capital formation	capital formation	capital formation	intermediate consumption	capital formation	intermediate consumption
7.6	Computer software products	Fixed capital (ANNEX I 67)	n/a *1	fixed capital	fixed capital *4	fixed capital *7	fixed capital	fixed capital	fixed capital	intermediate input	fixed capital	fixed capital
7.7	Imputation for depreciation of social fixed capitals	recorded (6.186 ANNEX I 81)	not recorded	not recorded	recorded	recorded	not recorded	recorded	not recorded	not recorded	recorded	recorded
7.8	Record of work-in-progress											
7.8.1	Natural growth of orchards or timber tracts	recorded	not recorded	not recorded	recorded	recorded	not recorded	recorded	not recorded	not recorded	not recorded	not recorded
7.8.2	Long-term services	recorded	not recorded	not recorded	not recorded	not recorded	not recorded	not recorded	recorded	not recorded	not recorded	not recorded
7.9	Government inventory of goods is recorded as…	Changes in Stock	Government Consumption	Changes in Stock	Changes in Stock	Changes in Stock	Changes in Stock	Government Consumption	unknown	Government Consumption	not exist	Government Consumption

NOTES

CHINA

C *1 In China all the computer software is distributed as a package to computer hardware, and no large-scale system devepment is carried out.

INDONESIA

I *1 Included in 301.

I *2 The activity is identified as an industry and included in 161.

JAPAN

J *1 Business consumption stands as final demand and value added items.

J *2 Except dealings of used steel ships, whose transaction values are recorded as output.

J *3 O=direct purchase (export).

J *4 Only for the types of software programme designed for a specific needs of a company. Application software (like MS-Office) is treated as intermediate consumption.

KOREA

K *1 Total margins (Wholesale + Retails) only.

K *2 Total freight cost only.

K *3 For the delivery of computer software products.

K *4 For convenience, suppose that "A" is a farm household engaging in producing rice. Company "B" produces fertilizer. And Company "C(trade sector)" sells fertilizer to the farm household.

Suppose that the normal market price of fertilizer is "100". But with the support of the government, "A" can buy it at the price of "60". In that case, the subsidy which amounts to "40" is given to "C", neither to "A" nor to "B".

The subsidies have no relation with "B". So in the input structure of "A", trade margins should be negative to constitute "100" input of "B" and no subsidies. (In 2000 KIO, Rice & fertilizer is the same case with "B".)

Negative margin can happen when rice is sold to "polished grains" and when fertilizer is sold to almost all agricultural products.

K *5 If by-product has an independent sector where CT of that can be included, separation method is applied.

K *6 Also entered into "Personal Services" x "Business Consump (dummy)".

K *7 Package software under 500$ is treated as intermediate input. Software as a raw material is treated as intermediate input.

MALAYSIA

M *1 PCE vector includes Malaysian's purchases abroad (in the import matrix) but not foreigners' purchases in Malaysia. There is an adjustment scaler in a negative value that represents the gross value of the latter, at the intersection between PCE and 094 "Import commodities". The total value of PCE is thus given on national basis.

M *2 Presented as an industry in 1991 table.

M *3 All the outputs of imputed interests are recorded at "financial sectors x a column dummy".

M *4 There are positive entries on the export vector in the import matrix (the fouth quadrant) which represent the value of re-export.

THE PHILIPPINES

P *1 NPISHs in the Philippines table do not include private education and medical services, which have positive operating surplus.

SINGAPORE

S *1 A row vector showing the number of employees for each sector.

S *2 PCE vector includes Singaporean's purchases abroad (in the retained import matrix) but not foreigners' purchases in Singapore. There is an adjustment scaler in a negative value that represents the gross value of the latter, at the intersection between PCE and 156 "Other goods & services" in import matrix. The total value of PCE is thus given on national basis.

S *3 Its expenditure is included in 154 "Other sector".

S *4 This is because tyres are regarded as "a work-in-progress" of a car.

S *5 All the outputs of imputed interests are recorded at "finacial sectors x a column dummy".

S *6 Positive Operating Surplus comes from budget surplus.

TAIWAN

N *1 Scraps are included in 160 "Undistributed", together with second-hand goods.

N *2 Operating leasing sector includes car renting, too.

THAILAND

T *1 Total margins (Wholesale + Retails) only.

T *2 TIO149, 151, 154, 156 correspond to it.

T *3 Cost-transport is all recorded as output of TIO151 Road Freight.

T *4 It records only the dealing commission of used cars (in Retail Trade x PCE) and used machinery (in Retail trade x GFCF), while the commission payment to trading company for foreign trade is treated as the input from TIO164 "Business Service".

T *5 For the delivery of canned propane gas from Gas Suppy sector.

T *6 The activity is identified as an industry and included in TIO164.

T *7 When a public school or a public hospital made a loss, government covers that loss, and that coverage is recorded as positive operating surplus.

USA

U *1 This is the information on the table of the Department of Commerce, from which the 2000 INFORUM table is compiled for the use of the 2000 Asian International I-O table.

U *2 The numbers include "special industries (S00 -)".

495 x 491 = "Detail table", 069 x 066 = "Summary table", 13 x 12 = "Sector table" (Classification changes depending on whether the table is for benchmark years ie. xxxx2 & xxxx7 or other years.)

U *3 There is no C-table.

U *4 PCE vector has two entries that make its total value into national basis

(1) at the intersection with "Noncomparable import vector (row)" : US resident's purchases abroad,

(2) at the intersection with "ROW adjustment to final uses (row)" : Non-resident's purchases in the USA (negative value).

U *5 There is an adjustment scaler at the intersection between Wholesale trade (row) and Import (column) with a total amount of duties as positive entry. The import vector is therefore given in CIF without DC in total value.

The same amount is recorded at the intersection between Indirect Taxes (in VA) and Wholesale trade (column) to achieve the row-column balance.

U *6 They stand alone in interemedidate sectors.

813100 Religious organizations

813A00 Grantmaking and giving and social advocacy organizations

813B00 Civic, social, professional and similar organizations

U *7 V00200 includes import duties, too (See U *5 above.)

U *8 Subsidies are included in V00300 "Other value added".

U *9 For the delivery of publishing materials, computer software products, motion pictures etc.

U *10 In the 1997 purchaser's price U-table there are entries in the vectors (row) of trade and transport services, but they are not cost-commerce or cost-trasnport as defined. The contents of these entries are as follows.

Wholesale – commission sales, expenses of manufacturing sales branches.

Air and rail transportation – passenger tickets.

Water transportation – mostly passenger tickets, some freight charge sold directly

Pipeline – gas pipeline services sold directly to users

Truck transportation – transport services sold directly, household goods, other services

U *11 For insurance industry, the output is measured as "premiums minus benefit paid". So when the "benefit paid" is higher than "premiums", the output would be negative.

U *12 There is only one vector S00401 (row only) showing all the generation and uses of scraps/by-products.

U *13 Whole values of secondhand goods are recorded at along S00402 "Used and secondhand goods (row only)", as a positive entry for the purchase of that good, and as a negative entry for the sale of that good.

U *14 But the output will further be redefined to related manufacturing industry output.

U *15 S00500 "General government industry" is not a producer of government services like Japan's "Public Administration". It stands as a dummy and its inputs are only value added items.

The intermediate inputs of producers of government services are recorded at along Government Consumption Expenditure in final demand (F06C00-F09C00).

U *16 "Education" (611000) in the table has different scopes of coverage for its row and column. The row vector "Education" covers both private and public, but the column vector covers only private education.

Instead, the cost of public education services is put in F08C00 "State and local government education" in the final demand.

U *17 In the same way as with "Education," the row vectors of the sectors that involve public affairs are both private and public inclusively, while the corresponding column vectors include private activities only.

So, the cost of public medial services are put in final demand items, F06, F07, F09C00.

U *18 e.g. 512230 (NIPA) Music Publisher => 512200 Sound recording industry.

U *19 e.g. 5330 Rights to nonfinancial intangible assets.

QUESTIONNAIRE ON NATIONAL I-O TABLES

IDE I-O team

Please place "x" in the appropriate boxes, or fill the space with words/numbers.

1. Benchmark year and recording principles

1.1 **What is the benchmark year of the national table for the use of 2000 Asian I-O table?**

☐☐☐☐

1.2 **Please specify your recording principles of national tables.**

1.2.1 The accounting period for which the transactions were recorded in the table

	d d m m
from	☐☐☐☐
to	☐☐☐☐

1.2.2 The boundary of economic territory

- ☐ Legally-defined national territory
- ☐ National embassies in foreign countries
- ☐ Foreign embassies in legally-defined territory
- ☐ Foreign military bases in legally-defined territory
- ☐ Ships/aeroplanes of own nationality in ex-territorial operation
- ☐ Others (Please specify:)

1.2.3 Accrual basis or cash basis ☐ Accrual ☐ Cash

2. Availability of national tables and supporting tables

2.1 **Please specify the aggregation levels of national tables.**

	Row		Column
2.1.1	Basic table (for the use of AIO)	☐☐☐ x	☐☐☐
2.1.2	Other level of classification (1)	☐☐☐ x	☐☐☐
2.1.3	Other level of classification (2)	☐☐☐ x	☐☐☐
2.1.4	Other level of classification (3)	☐☐☐ x	☐☐☐

2.2 **Please specify appended tables available upon request for each level of classification in 2.1 of your own I-O tables.**

		Basic	(1)	(2)	(3)
2.2.1	Import matrix	☐	☐	☐	☐
2.2.2	Trade margins matrix	☐	☐	☐	☐
2.2.3	Domestic freight transport cost matrix	☐	☐	☐	☐

2.2.4 Scraps & by-products matrix ☐ ☐ ☐ ☐

2.2.5 In-house transport cost matrix ☐ ☐ ☐ ☐

2.2.6 Commodity tax matrix ☐ ☐ ☐ ☐

2.2.7 Fixed capital formation matrix ☐ ☐ ☐ ☐

2.2.8 Employment matrix ☐ ☐ ☐ ☐

2.2.9 I-O table in physical unit ☐ ☐ ☐ ☐

2.2.10 U-table (Use table) ☐ ☐ ☐ ☐

2.2.11 V-table (Supply table) ☐ ☐ ☐ ☐

3. Valuation

3.1 **Please specify the overall valuation scheme for the tables given in Q2.1.**
(Multiple answers possible)

☐ Basic price
☐ Producer's price
☐ Purchaser's price

3.2 **Please specify the valuation principle of national tables.**

3.2.1 Actual price or uniform price basis ☐ Actual ☐ Uniform

3.2.2 Domestic or national basis ☐ Domestic ☐ National

3.3 **Please specify individual valuation schemes of the following items.**

3.3.1 Private consumption expenditure ☐ Domestic ☐ National

3.3.2 Export vectors

Basic price table	☐ Producer's	☐ FOB
Producer's price table	☐ Producer's	☐ FOB
Purchaser's price table	☐ Producer's	☐ FOB

3.3.3 Import vectors/matrix

Basic price table
☐ CIF
☐ CIF + Duties & Import Com. taxes
☐ CIF + Duties & Import Com. taxes + TTM from ports to purchasers

Producer's price table
☐ CIF
☐ CIF + Duties & Import Com. taxes
☐ CIF + Duties & Import Com. taxes + TTM from ports to purchasers

Purchaser's price table
☐ CIF
☐ CIF + Duties & Import Com. taxes
☐ CIF + Duties & Import Com. taxes + TTM from ports to purchasers

4. Form and coverage

4.1 **Please specify the items which are explicitly presented in the national table as a standalone vector.**

4.1.1 Final Demand items

- ☐ Expenditure of private non-profit institutions serving household
- ☐ Export: direct purchases
- ☐ Export: special trade
- ☐ Import: direct purchases (subtraction)
- ☐ Import: special trade (subtraction)
- ☐ Custom duties (subtraction)
- ☐ Import commodity taxes (subtraction)
- ☐ Domestic freight transportation cost
- ☐ Trade margins

4.1.2 Value Added items

- ☐ Contribution of employers to pensions/social insurance
- ☐ Indirect taxes, except custom duties
- ☐ Subsidies (subtraction)

4.2 **What does "direct purchases" cover?**

- ☐ Tourist expenditure for sightseeing
- ☐ Personal expenditure of diplomatic attache
- ☐ Personal expenditure of foreign military personnel
- ☐ Others (Please specify:)

4.3 **What does "special trade" cover?**

- ☐ Tourist expenditure for business purpose
- ☐ Use of patent/royalty
- ☐ Ex-territorial construction activities
- ☐ Supplies to foreign embassies
- ☐ Supplies to foreign military bases
- ☐ Supplies to foreign transport (ships, aeroplanes etc.)
- ☐ International freight transport services of national companies
- ☐ International freight transport services of foreign companies
- ☐ Insurance services of national companies for international transp
- ☐ Insurance services of foreign companies for international transp.
- ☐ Services within harbours/airports for foreign transport
- ☐ Other types of service trade (finance, telecommunication, etc.)
- ☐ Others (Please specify:)

4.4 **What does "domestic freight transport cost" cover?**

- ☐ Ordinary freight transport (on-road, railway, shipping, air)
- ☐ Railway forwarding
- ☐ Services within harbours/airports for domestic freight transport
- ☐ Storage facility services
- ☐ In-house transport
- ☐ Cost-transport
- ☐ Others (Please specify:)

4.5 **What does "trade margins" cover?**

- ☐ Wholesale margins
- ☐ Retail margins
- ☐ Cost-commerce
- ☐ Others (Please specify:)

4.6 **Are there any TTM entries for the inputs from service industries?**

☐ yes ☐ no

4.7 **Cost-transport and cost-commerce**

4.7.1 How is "cost-transport" dealt with in purchaser's price tables?

- ☐ Subtracted together with TTM
- ☐ Left at the intersections with transportation vectors

4.7.2 How is "cost-commerce" dealt with in purchaser's price tables?

- ☐ Subtracted together with TTM
- ☐ Left at the intersections with wholesale/retail trade vectors

4.8 **Suppose that a car industry (demand-side sector) purchased a set of tyres (supply-side sector) but did not use them this time. How does this input enter in the table?**

- ☐ Entered into the intersection between Car industry (row) and Change in Stocks
- ☐ Entered into the intersection between Tyre industry (row) and Change in Stocks

4.9 **Does the table have negative entries in intermediate transactions?**

- ☐ yes -> (Please specify:)
- ☐ no

5. Special treatment

5.1 **Please specify the activity which stands alone as a dummy sector.**

- ☐ In-house transport
- ☐ In-house education
- ☐ In-house research
- ☐ Office supplies
- ☐ Scraps
- ☐ Business consumption
- ☐ Others (Please specify:)

5.2 **Please specify the type of scraps treated under each method shown below, if any.**

5.2.1 Gross-counting method	
5.2.2 Transfer method	
5.2.3 Stone method	
5.2.4 Separation method	

5.3 **Please specify the type of by-products treated under each method shown below, if any.**

5.3.1 Gross-counting method	
5.3.2 Transfer method	
5.3.3 Stone method	
5.3.4 Separation method	

5.4 **Does the table have "machine repairing" activities as a standalone sector?**

☐ yes ☐ no

5.5 **Does the table have "rental/operating leasing" activities as a standalone sector?**

☐ yes ☐ no

5.6 **Does the activity of "imputed interest" have output to final demands?**

☐ yes ☐ no

5.7 **Do you do imputing calculation for**

5.7.1 self-owned houses (the output of owner/occupier) ?

☐ yes ☐ no

5.7.2 self-consumption of agricultural products by farmers?

☐ yes ☐ no

5.8 **Are expenses on secondhand goods, apart from transaction margins, recorded as an output?**

☐ yes ☐ no

5.9 **What is included as an output of agents for the dealings of real estate?**

(Multiple answers possible)

☐ Actual sold-value of the land
☐ Agent's commission
☐ The cost of land development/improvement

5.10 **Output of processing on brought-in materials:**
Suppose that a trading firm wants to produce and sell shirts of own brand.
The firm purchases fabrics and give them to an apparel manufacturer to tailor shirts.
The trading firm only pay to the manufacturer the fees for processing (tailoring) the products.
In such a case, how is the output of these shirts recorded?

☐ Total value of the shirts is recorded as an output of the trading firm
☐ Total value of the shirts is recorded as an output of the apparel manufacturer
☐ Net value, i.e. the fees for processing, is recorded as an output of the apparel manufacturer.

5.11 **What defines "fixed capital goods"?**

Endurable life of the machine:
More than ☐☐ years
Unit price (in domestic currency):
More than ☐

5.12 **How is capital equipment in "roundabout production" dealt with?**

☐ recorded as capital formation
☐ recorded as intermediate input into the construction sector

5.13 **How is re-export of imported goods dealt with in the table?**

☐ recorded as import and export among others
☐ recorded as import among others but not as export
☐ recorded as export among others but not as import
☐ Independently presented as re-export
☐ Not recorded at all

6. Public / semi-public sectors

(* Please note that for answering Q6.1 – 6.3 each "activity" does not have to be a standalone I-O sector. Perhaps, production account of National Account can be referred to.)

6.1 **Please specify how to calculate the output of the followings. (Total cost? total revenue? etc.)**

6.1.1 Public enterprises	
6.1.2 Public administration	
6.1.3 Public education	
6.1.4 Public medical services	
6.1.5 Private non-profit instit. serving households	

6.2 **Please specify the activity which may have non-zero operating surplus (in Value Added).**

- 6.2.1 Public enterprises ☐
- 6.2.2 Public administration ☐
- 6.2.3 Public education ☐
- 6.2.4 Public medical services ☐
- 6.2.5 Private non-profit instit. serving households ☐

6.3 **Please specify the output destination for the following activities.**
(Place "x" in the matrix. Multiple answers possible)

	Intermediate demand	Household consumption expenditure	Consmp. of Private non-profit instit. serving households	Government consumption expenditure	Other final demands
6.3.1 Public enterprises	☐	☐	☐	☐	☐
6.3.2 Public administration	☐	☐	☐	☐	☐
6.3.3 Public education	☐	☐	☐	☐	☐
6.3.4 Public medical services	☐	☐	☐	☐	☐
6.3.5 Private non-profit instit. for households				☐	☐

6.4 **Does "public administration" sector have intermediate inputs?**

☐ yes ☐ no

6.5 **How are the activities of public enterprises dealt with?**

☐ Treated as an industry
☐ Included in "public administration"

6.6 **How are "public education" activities dealt with?**

☐ Explicitly presented as a standalone vector
☐ Included in "public administration"
☐ Merged together with private educational activities

6.7 **How are "public medical services" activities dealt with?**

☐ Explicitly presented as a standalone vector
☐ Included in "public administration"
☐ Merged together with private medical activities

7. Response to the 1993 SNA

7.1 **Do you estimate and record the output of services provided by paid domestic staff, i.e. domestic servants, cooks, gardeners, chauffeurs, etc.?**

☐ yes ☐ no

If so, how is its output recorded?

☐ Entered into the fourth quadrant of the table at the intersection of Household consumption in Final Demand and Compensation for employees in Value-Added
☐ Entered at the intersection of Household consump (FD) and an industrial sector (row) engaging in an activity of "Personal Services" or of similar kinds
☐ Entered at the intersection of Household consump (FD) and a dummy sector (row) representing unincorporated enterprises of household for providing domestic services
☐ Others (Please specify:)

7.2 **Do you estimate and record the amount of royalties paid for the following assets?**

7.2.1 Produced intangible assets such as artistic originals

☐ yes ☐ no

7.2.2 Non-produced intangible assets such as scientific patents and franchise.

☐ yes ☐ no

7.3 **Financial leasing is regarded as**

☐ One form of operating leasing,
and hence the payment for it is recorded as output.

☐ A financial service
and hence the payment for it is recorded as output.

☐ A financial instrument, and hence
the payment for it is not recorded as output.

7.4 **Income and consumption**

7.4.1 Do you present explicitly in your table "Collective consumption"
and "Individual consumption" of government in separate vectors?

☐ yes ☐ no

7.4.2 Do you present explicitly in your table "Mixed income"
distinguished from ordinary operating surplus?

☐ yes ☐ no

7.5 **Do you record the following activities as capital formation or intermediate consumption?**

7.5.1 Research and development

☐ Capital formation
☐ Intermediate consumption

7.5.2 Mineral exploration

☐ Capital formation
☐ Intermediate consumption

7.5.3 Acquisition of literary and artistic originals

☐ Capital formation
☐ Intermediate consumption

7.6 **Are computer software products for business use treated as intermediate input or fixed capital?**

☐ Intermediate input
☐ Fixed capital

7.7 **Do you do imputing calculation for depreciation of social capitals i.e. physical infrastructure such as roads and dams?**

☐ yes ☐ no

7.8 **Do you record the followings as work-in-progress?**

7.8.1 Natural growth of orchards or timber tracts before their harvest

☐ yes ☐ no

7.8.2 Service activities that take a long time to complete,
such as architectural design, software development, writing of books etc.

☐ yes ☐ no

7.9 **Entries into government inventory of goods are recorded as**

☐ government final consumption
☐ change in stock

Thank you very much for your kind cooperation !!

GLOSSARY

Accrual basis or Cash basis

These concepts refer to the point of transaction. If a transaction is recorded when the agreement (written or unwritten) between parties is exchanged, it is "Accrual basis". If a transaction is recorded when the payment is done, it is "Cash basis". In some cases they may coincide (say, buying goods from a shop or eating at a restaurant) but usually there is a lag between these two points of time.

Actual price or Uniform price

Identical commodities may have different prices for various reasons. It may be cheaper in a local factory than in urban regions, or may offer a discount for a big purchaser. To calculate transaction values, we can either apply a " Uniform price (using, say, the average market price)", or "Actual prices" that accommodate these variations.

Business consumption

It includes:
- Lodging expenses and daily allowance for business trips,
- Expenses on social exchanges to promote business partnership,
- Expenses on welfare and recreation facilities for staffs.

Construction services (foreign trade)

Foreign trade of construction services includes:
(1) services to foreign territorial enclaves in home country, such as military bases,
(2) a dispatch of a team to foreign country for a specific construction project (a dam, a bridge), lasting less than a year. (If the project continues for more than a year it should be regarded as quasi-corporation of that country.)

Cost-transport and cost-commerce

In some cases, transportation activities are carried out for the purpose other than of mere distribution of freight. They are categorised and dubbed as "cost-transportation".
It includes:
- The transportation of goods from production sites to markets or to the place where the product's price is determined (example: fishery products, logs),
- The transportation of materials/parts within a huge production site (example: dockyard),
- The transportation of construction equipment (example: scaffoldings),
- The transportation of goods that cannot be regarded as commodities (example: mail, second-hand goods, waste/disposables, travel luggage, loads and belongings when moving houses, corpse in a hearse).

In the same manner, the following trading activities are grouped as "cost-commerce":
- Payment of commissions to trading firms for the dealings of foreign trade,
- Transaction margins for dealing in second-hand goods.

Dummy sectors

In some cases, it makes the table much more tractable by positing a stand-alone sector for an activity that cannot be regarded as an independent industry. Let us think about office supplies. No matter which industry takes them as inputs, we know that the composition of office supplies is more or less the same across the industries. So, instead of letting respective industry record each of bits and bobs (erasers from Rubber Products sector, notebooks from Paper Products sector … etc.), the Office Supplies sector takes all of these office inputs on their behalf, and each industry purchases the goods (by the lump) from this hypothetical sector. Apart from office supplies, such a treatment can be applied to in-house activities and scraps.

Imputation

Imputation is a special form of recording transaction values where no actual flow of money occurs. For example, if you own a house, that fact is decomposed as follows. You acquire a double-identity, one as a provider of housing service (= industry) and the other as a tenant of the building (= household). So, transaction is recorded as if you, as a tenant, are paying yourself, as a landlord, a certain amount of rents evaluated at a market rate for renting a house of the same size and quality. This hypothetical rent is recorded as an output of Housing rent sector. The same idea applies to calculating self-consumption of agricultural products by farmers.

In the same manner, bank's net interests (i.e. interests paid-in by debtors minus interest paid-out to depositors) are calculated, even if we know that there is no direct dealing of services among depositors, debtors and banks. Another prominent example is insurance services (both life assurance and casualty insurance), whose output is calculated as (premium income + assets income) – (insured benefits + net increase in reserves).

In-house activities

Firms often use their own production resources to carry out some supporting activities by themselves for promoting the productivity. These include in-house training of staffs, research and development, self-transport and self-advertisement.

Private non-profit institution serving households

It is an institution that provides its services for households, normally free of charge or at the price which does not cover its cost. It includes political parties, labour unions, religious groups, NGOs, private schools, private hospitals, etc.

Roundabout production

If construction equipment (such as an elevator or a boiler) are built into a structure after being used for construction of that building, we call it "roundabout production".

Scraps and By-products

If more than two different types of goods are produced out of a single production process, the minor products are categorised either into “scraps” or “by-products”. If there is an industry which specialises in producing that minor product, the product is regarded as a by-product. If no other industry competes in that product, it is a scrap. Both scraps and by-products have positive market values and hence should be differentiated from waste and disposables.

<Example>

Scraps: Metal scraps produced out of steel industry

By-products: Coke produced out of gas supply industry

There are four known methods to deal with these special entries in an I-O table.

1. Gross-counting method
2. Transfer method
3. Negative input (or Stone) method
4. Separation method.

(See "Treatment of scraps and by-produtcs for illustrative examples.)

Treatment of scraps and by-products: Illustrative examples

Suppose that the Gas Supply sector produces 100 units of city gas as a principal product (to be consumed by a household) and 10 units of coke as a by-product (to be consumed by Pig Iron sector). This is represented in different ways as follows.

Gross-counting method

("Aggregation method" in the SNA terminology)

Gross-counting method does not differentiate the production of a by-product from that of principal activity. Accordingly, 10 units of coke produced as a by-product is recorded together with output of city gas along the row of Gas Supply sector.

	Gas sup.	Coke	Pig iron	PCE	Total output
Gas supply			10	100	100+10
Coke					
Pig iron					
Value added					
Total input	110				

Transfer method

(No SNA equivalant)

Transfer method presumes that a by-product will reach the final user via the sector which produces that good as a principal product. In our example, 10 units of coke (as a by-product) will first go to the Coke manufacturing sector, and then take a further step to reach the Pig Iron sector (final user). As a result, 10 units of coke are double-counted in total output.

	Gas sup.	Coke	Pig iron	PCE	Total output
Gas supply		10		100	100+10
Coke			10		+10
Pig iron					
Value added					
Total input	110	+10			

Negative input or Stone method

(Negative transfer method in the SNA terminology)

Stone method treats an output of by-products as a negative input of the producing sector, and hence corresponding negative value is recorded against the row of the sector producing the same good as a principal product. So, -10 units of coke is recorded at the intersection between Coke sector (row) and Gas Supply sector (column). Since input of coke by Pig Iron sector is recorded as it is, these values cancel out each other and total output of by-product coke comes to be zero.

	Gas sup.	Coke	Pig iron	PCE	Total output
Gas supply				100	100
Coke	−10		10		+0
Pig iron					
Value added					
Total input	100	+0			

Separation method

(Redefinition method in the SNA terminology)

Separation method doesn't differentiate between a good as a by-product and the same good as a principal product. Accordingly, 10 units of coke is recorded together with other output of coke produced by Coke sector, as shown by the entry at the intersection between Coke sector (row) and Pig Iron sector (column).

Also, imputed inputs for producing by-product are separated from its principal activity (Gas Supply sector) and added to the input structure of activity that the by-product belongs to as a good (Coke sector).

	Gas sup.	Coke	Pig iron	PCE	Total output
Gas supply	−2	+2		100	100
Coke			10		+10
Pig iron	−3	+3			
Value added	−5	+5			
Total input		+10	10		

Appendix 2: Cross-national concordance of sector classification

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
<Intermediate sectors>											
001	Paddy	001	001A	001		001	0101001A	00110 00195	001	011101	1111B0
002	Other grain	002 011	001B	002		003B	0101001B 0101005A	00210 00230 00290	002 003 004	011102 011509	
003	Food crops	003 004 005 006 007 008 009 010 013 014 015 020 021 022 023 055	001C 004 005	003 004 005 006 007 008 009 010 011 015 016		004 005 006 007 008 009 010 011	0101001C 0101005B	00310 00395 00220 00240 00410 00431 00490 00495 00510 00520 00530 00540 00590 00595 00610 00620 00630 00695 00730 00790 00795	005 006 007 008 009 010 011	011201 011202 011301 011302 011401 011501 011502 011509	1111A0 111200 111335 1113A0 1119A0
004	Non-food crops	012 016 017 018 019 024 106	001D 002 003	012 013 014 017 018	002 003	002 003A 012 013 014 015 016 017	0101001D 0101005C	01140 00441 00449 00295 00420 00439 00720 00791 03320	012 013 014 015 016 017	011601 011602 011603 011609	111400 111910 111920 1119B0 312210
005	Livestock and poultry	025 026 027 028	006	019 020 021 022 023	001	018 019 020 021 022 023	103003 0101005D	00810 00820 00895 00910 00920 00930 00940 00951 00959 00990	018 019 020 021 022	012101 012102 012103 012104 012105 012109	112100 112300 112A00
006	Forestry	029 030	001E 007A	027		025 026 027	102002 0101005E	00710 01110 01120 01130 01150 01160 01190	023 024 025 026	021101 021201 021301	113300 113A00 114200
007	Fishery	031 032 033	008	025 026	004 005	028 029	104004 0101005F	01210 01220 01290	027 028 029 030	031101 031102 031103 031104 031201 031202	114100
008	Crude petroleum and natural gas	036 037 105	009	034		031	307007 307008	01410 01420 01430 01440	033 034	072101	211000 213111 213112
009	Iron ore	044	010A			032	408009	01510	035	061101	212210
010	Other metallic ore	038 039 040 041	010B	028 029 030 031		033 034 035	409010	01520 01530 01590	036 037 038	061101	212230 2122A0 21311A

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
		042 043 045		032							
011	Non-metallic ore and quarrying	035 046 047 048	011	033 035 036 037	006	030 036 037 038 039 040 041	206006 510011 510012	01300 01710 01720 01730 01740 01790	031 032 039 040 041 042 043 044 045	062101 062201 062202 062909 071101	212100 212310 212320 212390
012	Milled grain and flour	057 058 059	017A	050 051	012	049 050 051 052	0613014A	02110 02120 02195 02010 02095	057 058 059	111401 111402	311211 311212
013	Fish products	053 054	015	045 046	008	046	613017	02510 02520 02530 02540 02590 03010	052 053 054 055 056	111301 111302 111303 111304 111309	311700
014	Slaughtering, meat and dairy products	049 050 051	012 013	038 039 040 041 043	007 011	042 043 044 048A	613016	01810 01820 01830 01840 02430 02810 02820 02830 02890	046 047 048 049 050 051	111101 111201 111202 111203	311511 311512 311513 311514 311520 311611 311612 311615
015	Other food products	052 056 060 061 062 063 064 067 068 069 070 071 071	014 016 017B 018 019 021A 022	042 044 047 048 049 052 053 054 055 056 058 059 060 061 062	009 010 013 014 015 016 017 018 020	045 047 048B 053 054 055 056 057 058 060 061	0613014B 613015 614018	01895 01910 01920 01930 01940 01990 01995 02210 02220 02230 02295 00960 01610 01620 01695 02090 02300 02410 02421 02422 02429 02490 02495 02610 02620 02710 02720 02730 02790 02910 02920 03020 03040 03050 03060 03090 03120	060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 085	111501 111502 111503 111601 111602 111701 111702 111703 111704 111705 111706 111901 111902 111903 111904 111905 111909 113101 202903	311111 311119 311213 311221 311222 311223 311225 311230 311310 311320 311330 311340 311410 311420 311613 311813 31181A 311821 311822 311823 311830 311911 311919 311930 311941 311942 311990
016	Beverage	065 066 070 071 071	020 021B 023 024	057 063 064 065A 065B	019 021 022	059 062 063 064	615019 615020	03031 03032 03110 03190 03210 03290 03295	079 080 081 082 083 084	112101 112102 112103 112109 112901 112902 112903	311920 312110 312120 312130 312140

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
017	Tobacco	072 073	025	066 067 068	023	065 066	616021	03310 03390	086	114101	312221 312229
018	Spinning	074 075	026A	069A	024	067A	0717022A 0717023A 0717024A 0717025A 0717027A	03410 03420 03510 03610 03810	087 088 089 090 091 092 093	151101	313100
019	Weaving and dyeing	076	026B	069B	024	068 069	0717022B 0717023B 0717024B 0717025B 0717027B	03430 03440 03490 03530 03620 03630 03640 03650 03820 03900	094 095 096 097 098 099 102	151201 151202 151203 151401	313210 313310 314992
020	Knitting	078	027 029A	070	024	071	717026	03700 04100	100 101	151301 152102	313240 315190
021	Wearing apparel	079	029B	071 072 078 079 081	025 027	072	0818028A	03520 04010 04020 04030	103 105	152101	315200
022	Other made-up textile products	077 080	026C 026C 028 031A	073 074 075 076 077 080	026 028	070 073 074	0818028B	03830 03890 03899 04210 04220 04230 04290 04299 04510	104 106 109 110 111	151901 151902 151903 151909 152209 152901 152909	313220 313230 313320 314110 314120 314910 31499A 315111 315119 315900
023	Leather and leather products	081 082 083	029C 030 031B	082 083 084	029 030	075 076 077	819029	04300 04400 04590	107 108 112 113 114 115 117	241101 241201 241202 231902 231901	316100 316200 316900
024	Timber	084	032A	085		078A	512013	04610 04699 04720	118	161101	321113 321912
025	Wooden furniture	087	034A	093 094 095	032 102	080	921031	04910 04990 04995 04999	295 297	171101	337110 337121 337122 337127 33712A 337211
026	Other wooden products	085 086 088 089	032B 033	086 087 088 089 090 091 092	031	078B 078C 078D 079	920030	04710 04730 04810 04820	119 120 121 122 123	161102 161103 161909 171102	321114 321219 32121A 32121B 321911 321918 321920 321991 321992 321999 337212
027	Pulp and paper	090 091 092	035	096 097 098	033	081 082	1022032	05010 05020 05099 05110 05120 05130	124 125 126 127 128 129	181101 181201 181202 181301 181302 182101	322110 3221A0 322210 322225 322226 32222A

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
								05190	130 131 132	182109 182901 182909	32222B 322231 322232 322233 322291 322299 323116 323118
028	Printing and publishing	093	036A	099 100 101	034 035	083	1023033	05210 05220 05290 05300	133 134 135 136	191101 191102 191103	323117 32311A 323121 323122 511110 511120 511130
029	Synthetic resins and fiber	097	037A	104	039	067B	1228045	05710 05720 05731 05732 05790 05810 05890 05910 05920 05930 05940 05950 05960 05970 05981 05982 05983 05990 05999	154 156 157	204101 204102 204103 204109 205101 205102	325211 325221 325222 325991
030	Basic industrial chemicals	094	037B	102	037 038	084 086	1226038 1226041	0510 05430 05441 05442 05449 05450 05511 05512 05513 05514 05521 05522 05530 05541 05542 05550 05560 05580 05590 05650 06020	148 149 151 152 153 155	202101 202902 202909 203101 203102 203201 203202 203301 203901 203902 203903 203909	325110 325120 325180 325190 325212
031	Chemical fertilizers and pesticides	095 096	037C	103 105		085	1226039 1226040	05570 05610 05620 05630 05640 05660 05690 06300	158 159 160	113102 201101 207401	325311 325312 325314 325320
032	Drugs and medicine	099 100	039	107	040	088	1227044	06210 06220 06230 06240	161	206101	325400
033	Other chemical products	098 101 102 103	038 040	106 108 109 110	041 042 043 044 045 046	087 089 090 091 092	1226042 1226043	05420 05490 06030 06090 06110 06120 06410 06420 06510 06520	162 163 164 165 166 167 168 170 171	202901 203904 207101 207102 207201 207202 207301 207901 207909	325130 325510 325520 325611 325612 325613 325620 325910 325920 325992

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
								06590			325998
034	Refined petroleum and its products	104	042A	111 112	036	093 094	1125036 1125037	06610 06620 06630 06640 06650 06660 06670 06680 06691 06692 06700	137 138 139 140 141 142 143 144 145 146 147 150 192	211101 212101 212102	324110 324121 324122 324191 324199
035	Plastic products	109	045	116	048 049	098	1230047	06900 07010 07020 07030 07040 07050 07060 07070 07080 07091 07092	172 173 174	221101	326110 326120 326130 326160 326192 32619A 3261A0
036	Tires and tubes	107	044A	113	047	095 096	1229046A	06810 06820 06830 06840	175	231101	326210
037	Other rubber products	108	031C 043 044B	114 115		097	1229046B	06010 06850 06860 06890 06899	116 176 177	231909	326220 326290
038	Cement and cement products	113 114	048 049A	121	053	102 103	1331048 1331049	07300 07410 07490	185 186 187	252101 252201 252301	327310 327320 327331 327332 327390
039	Glass and glass products	111	046	118 119 120	051 052	100	1331051	07210 07220 07230 07240 07290 07299	178 179 180	251101 251201 251909	327213 32721A
040	Other non-metallic mineral products	110 112 114	047 049B	117 122 123 124	050 054 055 056	099 101 104	1331050 1331052 1331053 1331054	07110 07120 07130 07510 07520 07530 07540 07590 07599	181 182 183 184 188 189 190 191 193	253101 259901 259902 259903 259904 259909	327111 327112 327113 327122 327125 32712A 327121 327410 327420 327910 327991 327992 327993 327999 335991
041	Iron and steel	115 116	050A 089A	125 126	057	105 106	1432055 1432056 1432057 1432058	07610 07620 07631 07632 07639 07698 07699 07710 07720 07730 07740 07750 07760 07770	194 195 196 197 198 199 200 201 202 203 204 205 206	261101 261102 261103 261104 262101 262201 262301 262302 263101 263102 263103 264901 264909	331111 331112 331210 331221 331222 331510 332111

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
								07780 07790 07799 08210 08220 08230 08240 08250 08290 08299			
042	Non-ferrous metal	117 118	042B 050B 051 054 059A 089B	127 128	058 090	107	1433059 1433060	07910 07920 07990 07999 07810 07820 07830 07840 07890 07899 08310 08410 08490 08390	207 208 209 210 211 212 213 214 250	271101 271102 271103 271109 272201 272202 272203 272204 272209	331311 331312 331314 331315 331316 331319 331411 331419 331421 331422 331423 331491 331492 33152A 33152B 332112 332114 335921 335929
043	Metal products	119 120 121 122	034B 052A 053 055A	129 130 131 132 133 134 135 136 161	059 060 061 062 063 064 065 067 096	108 109 110 111	1534061	08010 08020 08099 08110 08190 08500	215 216 217 218 219 220 221 222 223 224 225 232 287 296	171103 281101 281201 289101 289901 289902 289903 289909	33211A 332211 332212 332213 332214 332311 332312 332313 332321 332322 332323 332420 332430 332500 332600 332710 332720 332811 332812 332813 332998 332999 333414 337124 337214 337215 337910 337920 339111 339991
044	Boilers, Engines and turbines	123 124	055B	139A		112	1635062	08610	226 231	301101 301102 301103	332410 333611 333618
045	General machinery	124	055C 056A	141 142	080	115A	1635064	08620 08630 08640 08650 08691 08695 08950 09010 09020 09030 09090 09095 09110 09120 09130 09140	227 228 229 230 233 235	301201 301301 301901 301902 301909 303102 303109	332910 332996 332997 333411 333412 333415 333514 333515 33361A 333911 333912 333913 333921 333922 333923 333991

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
								09150 09190 09191 09195			333993 333994 333995 333996 811300
046	Metal working machinery	124	052B 055D	138	082	114	1635063	08720 08730 08740 08790 08791 08795 08710	236 237	302401 302402 303101	332991 333511 333512 333513 33351A
047	Specialized machinery	124	055E	137 139B	066 079 081 083	113 115B	1636065 1636066	08910 08810 08820 08830 08841 08842 08850 08860 08890 08891 08895 08920 08930 08960 08970 08990 08991 08995	234 238 239 240 241 242 243 244 245	302101 302201 302301 302901 302902 302903 302904 302909 311201	333111 333112 333120 333131 333132 333210 333220 333291 333292 333293 333294 333295 333298 333319 33331A
048	Heavy Electrical equipment	125 126	059B	143	084 085 086	117	1840073	09310 09320 09395	246 247 248 249 253	341101 341102 341103 341109	335311 335312 335313 335314
049	Television sets, radios,audios and communication equipment	127	057A	144A 144B	070 071 072	118A	1941077 1941079	10010 10020 10030 10090 10091 10095 10110 10120 10130 10140 10150 10190 10195 10200 11150	262 263 264 265 266 267	321101 321102 321103 332101 332102 332103 332109	334210 334220 334290 334300
050	Electronic computing equipment	127	056B	140B	068 069	116B	1941076	09610 09620 09630 09690 09695 09710 09720 09730 09790 09910 09920 09930 09990	268 269	331101 331102 331103	334111 334112 334113 334119
051	Semiconductors and integrated circuits	127	057B	145A 145B 146	073 074 075 076	118B	1941078	10310 10320 10330 10390	256 257	334101 334102	334413
052	Other electronics and electronic products	127	056C 057C	140A	077 078 087	116A	2042081	10410 10420 10490 10510 10590 10595 09810 09820	169 254 255 258 259 260 261	272101 272102 311101 311109 333101 333201 335901 335902	333313 333315 334411 33441A 334510 334511 334512 334515

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
								09890		335903 335909	334517 334613
053	Household electrical equipment	128	058	147	088	119	1840074	09210 09220 08940	270 271 272 273 274	321201 321202	335211 335212 335221 335222 335224 335228
054	Lighting fixtures, batteries, wiring and others	129 130	059C	148 149 150 151	089 091	120 121 122	1840075	09291 09400 09510 09520 09590 09595	251 252	342101 342102 342103 342104 342105 342109	333992 335110 335120 335911 335912 335930 335999 811200
055	Motor vehicles	133 150	061 087A	153 154 155	092 153	125 127	1737068	10710 10720 10730 10791 10795 15610	281 282 283 284 285 286 396	351101 352101 354101 354102 354103 851510	336110 336120 336211 336212 336213 336214 336300 811192 8111A0
056	Motor cycles	134 150	062A 087B	156	092	126A	1737072A	10810 10891 10895 15710	293	353101	336991
057	Shipbuilding	131	060	152	093 094 095	123	1737069	10610 10620 10690 10691 10695	288 289 290	361101 361102 361103 361110	336611 336612
058	Other transport equipment	132 135 136	062B 063	157	097	124 126B 128	1737067 1737070 1737071 1737072B 2138082	10910 10991 10995 11010 11090 11020	291 292 294	362101 362110 362201 362210 362901 362909	333924 336411 336412 336413 336500 336999
059	Precision machines	137	064	158 159 160 165 166	098 099 100	129 130 131	2042080	11110 11120 11130 11140 11160 11190	275 276 277 278 279 280	371101 371109 371201 371901 371902 371903	333314 33399A 334513 334514 334516 33451A 339112 339113 339114 339115 339116
060	Other manufacturing products	138 139 140 141		162 163 164 167 168 169	101 103 104 105	132 133 134	1024034 1024035 2243083 2243084 2343085	11210 11220 11230 11240 11250 11310 11320 11390	298 299 300 301 302 303 304	391101 391102 391901 391902 391903 391904 391905 391906 391909	332994 332995 33299A 334611 334612 336414 33641A 336992 339910 339920 339930 339940 339950 339992 339994 339995 33999A 512200
061	Electricity and gas	142	036B 041 055F 065	171 172	106 107	135 136	2444086 2444087 2545088	11410 11420 11500	305 306 307 308	511101 511102 511103 511104	221100 221200 S00101 S00202

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
			066						309 310	512101 512201	
062	Water supply	143	067	173	108	137	2646089	11610 11620	311	521101 521102 521103	221300
063	Building construction	144	068A	170A	109	138 139	2749090A	11710 11720 11795 11810 11820 11895	312 313 314 315 316	411101 411102 411201 411202 412101	230110 230120 230130 230140 230210 230220 230310 230320 230340
064	Other construction	145 146 147 148	068B	170B	110	140 141 142 143 144	2749090B	11910 11920 11930 11940 11950 11960 11990 12010 12020 12030 12040 12050 12060 12070 12090	317 318 319 320 321 322 323 324 325 326 327 328	413101 413102 413103 413201 413202 413203 413209	230230 230240 230250 230330
065	Wholesale and retail trade	149	044C 069	174	111	145 146	3065100	12100 12210 12220 12300	329 330	392101 611101 611201	420000 4A0000
066	Transportation	153 154 155 156 157 158	071	175 176 177 178 179 180 181 182 183 184 185 186 187	114 115 116 117 118 119 120 121 122 123 125 126	149 150 151 152 153 154 155 156 157 158	2852091 2853092 2855094 2856095 2858096 2859097 3252102 3253103 3255104 3256105	12510 12520 12530 12540 12610 12620 12630 12640 12710 12720 12730 12740 12810 12820 12830 12910 12920 12930 12940 12990 13010 13110 13120 15620 15690	333 334 335 336 337 338 339 340 341 342 343 344 345	711101 711201 712101 712102 712201 714101 714201 714301 715101 716101 717101 718101 718901 718902 718903 718904 718905 718906 718909	481000 482000 483000 484000 485000 486000 48A000 492000 493000 561500 S00201
067	Telephone and telecommunication	159	072	188 189 190	127	159	2960098 2960099	13200 13300	346 347 348 349	731101 731201 731202 731203 731909	491000 513300
068	Finance and insurance	160 161 162	073 074 075	191 192 193 194 195	128 129 130 131	160 161 162	3368106 3370107	13410 13420 13490 13510 13520 13610 13620 13690 13630	352 353 354 355 356 357	621101 621201 621202	522A00 523000 524100 524200 525000 52A000
069	Real estate	163	076	196 197	132 155	163	3474108	13910 13920	358 359	641101 641102	531000 S00800

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
				198				13930 13990	360	642101 642201	
070	Education and research	166 169	078A 079 080A	209 227	145	167 168	3789118 3892120	14810 14820 14900	374 375 376 377 378 379 380	821101 821102 821301 821302 821303 821304 822101 822102 822103 822104 822105 822106	541700 611100 611A00 611B00
071	Medical and health service	167 170	081A 082A	210 211 228	146	169	3685115	15010 15020	381 382 383	831101 831102 831103 831201 831202	621600 621A00 621B00 622000 623000 624400 624A00
072	Restraunts	151	070A	224	112	147	3167101	12400	331	861201 861202 861203	722000
073	Hotel	152	070B	225 226	113	148	3578111	13800	332	861301	7211A0 721A00
074	Other services	034 171 172 173 174 127 150 164 168	001F 007B 068C 078B 083A 084 085 086A 088 090	024 199 200 201 202 203 204 205 206 207 208 212 213 214 215 216 217 218 219 220 221 222 223	124 133 134 135 136 137 138 139 140 141 142 144 147 148 149 150 151 152 154	024 164 166 170 171 172 173 174 175 176 177 178	3575109 3576110 3580112 3581113 3584114 3687117 3791119 3686116 3993121 3905122 3950123	01010 01020 01030 01090 13000 13710 13720 14010 14020 14110 14120 14200 14310 14320 14390 14410 14420 14430 14510 14520 14590 14700 15100 15200 15300 15410 15420 15430 15440 15510 15520 15590 15790 15800 15910 15920 15990	350 351 361 362 363 364 365 366 367 368 369 370 371 384 385 386 387 388 389 390 391 392 393 394 395 397 398 399 400 401	013101 013102 521201 521202 732101 732102 732103 831301 831302 831303 831304 831401 831402 841101 841102 851101 851201 851202 851301 851401 851901 851902 851903 851904 851909 861101 861102 861103 861104 861105 861106 861107 861109 861901 861902 861903 861904 861905 861906 861907 861908 861909	115000 5111A0 511200 512100 513100 513200 514100 514200 532100 532230 532400 532A00 541100 541200 541300 541400 541511 541512 54151A 541610 5416A0 541800 541920 541940 5419A0 561100 561200 561300 561400 561600 561700 561900 562000 711100 711200 711500 711A00 712000 713940 713950 713A00 811400 812100 812200 812300 812900 813100 813A00 813B00 814000

AIO code	Description	National I-O Classifications									
		Indonesia	Malaysia	Philippines	Singapore	Thailand	China	Taiwan	Korea	Japan	U.S.A.(DOC)
075	Public administration	165	078C 080B 082B 083B 086B 091 092 093 094	229	143	165	4099124	14600	372 373	811101 811201	
076	Unclassified	175	089C 097 098			180	2854093	16010 16020	404	900000	S00102 S00203 S00401 S00402
<Final Demand>											
001	Private consumption	301	097	Private consumption	4177	301	THC(FU101, FU102)	16100	406	912100 912200	F01000
002	Government consumption	302	098 099 100	Government consumption	4178	302	FU103	16200	407	913110 913120 913130 913140 913210 913220 913230 913240	F06C00 F07C00 F08C00 F09C00
003	Gross fixed capital formation	303	102	Gross fixed capital formation	4179	303	FU201	16300	408 409	914100 914200	F02000 F06I00 F07I00 F08I00 F09I00
004	Change in stocks	304	101	Changes in stocks	4180	304	FU202	16400 16404	410	915010 915020 915030 915040	F03000
<Value Added>											
001	Wages and salary	201	Malaysian table has only one item in value added. In Asian I-O table, it was devided into wages and salary and other value added.	Wages and salary	3178	201	VA002	16100	406	9311000 9312000 9313000	V00100
002	Operating surplus	202		Operating surplus	3179	202	VA004	16202 16203 16204 16205	407	9401000	V00300
003	Depreciation	203		Depreciation	3180	203	VA001	16300	408	9402000 9403000	
004	Indirect taxes less subsidies	204 205		Indirect taxes less subsidies	3181	204	VA003	16401 16402 16403	409 410	9404000 9405000	V00200

Appendix 3: Sector disaggregation

CHINA

National code	Description	Reference for Split ratios	AIO	AIO Description
101001A	Crop cultivation		001	Paddy
101001B	Crop cultivation		002	Other grain
101001C	Crop cultivation		003	Food crops
101001D	Crop cultivation		004	Non-food crops
101005A	Other agriculture products		002	Other grain
101005B	Other agriculture products		003	Food Crops
101005C	Other agriculture products		004	Non-food crops
101005D	Other agriculture products		005	Livestock
101005E	Other agriculture products		006	Forestry
101005F	Other agriculture products		012～*	Rural industry
613014A	Grain mill products, vegetable oil and forage		012	Milled grain and flour
613014B	Grain mill products, vegetable oil and forage		015	Other food products
717022A	Cotton textiles		018	Spinning
717022B	Cotton textiles		019	Weaving and dyeing
717023A	Woolen textiles		018	Spinning
717023B	Woolen textiles		019	Weaving and dyeing
717024A	Hemp textiles		018	Spinning
717024B	Hemp textiles		019	Weaving and dyeing
717025A	Silk textiles		018	Spinning
717025B	Silk textiles		019	Weaving and dyeing
717027A	Other textiles		018	Spinning
717027B	Other textiles		019	Weaving and dyeing
818028A	Wearing apparel		021	Wearing apparel
818028B	Wearing apparel		022	Other mad-up textile products
1229046A	Rubber products		036	Tires and tubes
1229046B	Rubber products		037	Other rubber products
1737072A	Other transport machinery		056	Motor cycles
1737072B	Other transport machinery		058	Other transport machinery
2749090A	Construction		063	Building construction
2749090B	Construction		064	Other construction

* Rural industry is distributed into the corresponding manufacture industry sectors (AIO012～019, 023, 040) according to their CT's structure.

INDONESIA

National code	Description	Reference for Split ratios	AIO	AIO Description
071A	Non alcoholic beverages	15424	015	Other food products
071B	Non alcoholic beverages	15540	016	Beverage
114A	Other non-ferrous products	26421, 26423	038	Cement and cement products
114B	Other non-ferrous products	10200, 23100, 26201, 26202, 26203	040	Other non-metallic mineral products
124A	Machinery and apparatus	29141, 29142	044	Boilers, engines and turbines

124B	Machinery and apparatus	29113, 29114, 29120, 29130, 29150, 29191, 29192, 29193, 29199	045	General machinery
124C	Machinery and apparatus	29221	046	Metal working machinery
124D	Machinery and apparatus	29211, 29212, 29222, 29223, 29230, 29240, 29250, 29262, 29263, 29291, 29292, 29299	047	Specialized machinery
127A	Communication equipment and apparatus	32200, 32300	049	Television sets, radios,audios and communication equipment
127B	Communication equipment and apparatus	30003	050	Electronic computing equipment
127C	Communication equipment and apparatus	32100	051	Semiconductors and integrated circuits
127D	Communication equipment and apparatus	32100, 33112, 33119	052	Other electronics and electronic products
127E	Communication equipment and apparatus	52602, 72200	074	Other services
150A	Repair shop n.e.c.	50200	055	Motor vehicles
150B	Repair shop n.e.c.	50403	056	Motor cycles
150C	Repair shop n.e.c.	52601, 52602, 52609	074	Other services

* Reference for split ratios are the Indonesia Industiral Classification (KLUI) codes.

* Disaggregation were made by considering the distribution structures of each industry as well as the output shares.

JAPAN

National code	Description	Reference for Split ratios	AIO	AIO Description
011509	Other edible crops	0.4004	002	Other grain
011509	Other edible crops	0.5996	003	Food crops
061101	Metaric ores	0.0039	009	Iron ore mining
061101	Metaric ores	0.9961	010	Other metalic ore

* Column sectors only

* Reference for split ratios are I-O CT.

MALAYSIA

Almost all sectors are split in accordance with the Malaysian Industrial Classification. For the concordance between sub-codes and AIO, see Appendix 2 "Cross-national concordance".

THE PHILIPPINES

National code	Description	Reference for Split ratios	AIO	AIO Description
069A	Textile, spinning	D17111, D17112, D17119, D37201	018	Spinning
069B	Weaving, texturizing and finishing	D17113, D17120, D17130, D17291, D24310	019	Weaving and dyeing
139A	Mfr of engines nd turbines exc. for transport eq.	D28130, D29111, D29112, D29113, D29119	044	Boilers, Engines and turbines
139B	Special ind. mach'y and equipment	D29151, D29152, D29153, D29191, D29194, D29195, D29197, D29199, D29241, D29242, D29251, D29252, D29253, D29261, D29262, D29263, D29264, D29269, D29291, D29292, D29293, D29294, D29295, D29296, D29297, D29298, D29299	047	Specialized machinery
140A	Mfr, assembly & repair of office, computing and acctg machines	D30001, D30003, D30004, D30005, D30009	052	Other electronics and electronics products
140B	Mfr, assembly & repair of computers and electronic data processing equipment, parts & accessories	D30002	050	Electronic computing equipment
144A	Mfr of radio and TV receiving sets	D32400	049	Television sets, radios, audios and communication
144B	Mfr sound recording & reproducing eq. incl records and tapes	D22401, D22402, D22403, D32300	049	Television sets, radios, audios and communication
145A	Semi-conductor devices and other electronic components	D32200	051	Semiconductors and integrated circuits
145B	Electronic valves and tubes	D32100	051	Semiconductors and integrated circuits

170A	Building Construction	F45100, F45201, F45202, F45320, F45390, F45490	063	Building Construction
170B	Other Construction	F45203, F45310, F45330, F45340, F45410, F45420, F45430, F45440, F45500	064	Other Construction

* Reference for split ratios are the Philippines Standard Industiral Classification (PSIC) codes.

SINGAPORE

National code	Description	Reference for Split ratios	AIO	AIO Description
024A	Yarn & fabrics	0.29	018	Spinning
024B	Yarn & fabrics	0.40	019	Weaving & dyeing
024C	Yarn & fabrics	0.31	020	Knitting
092A	Land transport equipment	0.58	055	Motor vehicles
092B	Land transport equipment	0.42	056	Motor cycles

THAILAND

National code	Description	Reference for Split ratios	AIO	AIO Description
003A	Sorghum	0.49	004	Non-food crops
003B	Other Cereals	0.51	002	Other grain
048A	Animal Oil	0.22	014	Slaughtering, meat products and dairy products
048B	Vegetable Oil	0.78	015	Other food products
067A	Spinning	0.65	018	Spinning
067B	Synthetic resins and fiber	0.35	029	Synthetic resins and fiber
078A	Saw Mills	0.88	024	Timber
078B	Saw Mills Watse	0.12	026	Other wooden products
078C	Plywood And Veneer	0.00	026	Other wooden products
078D	Wooden Construction Materials	0.00	026	Other wooden products
115A	General machinery	0.47	045	General machinery
115B	Special Industrial Machinery	0.53	047	Specialaized machinery
116A	Office & Household Equipment & Machinery Except Computer	0.21	052	Other electronics and electronic products
116B	Computer & Equipment	0.79	050	Electronic computing equipment
118A	Radio, Television Set & Communication Equipment	0.41	049	Television sets, radios,audios and communication equipment
118B	Integrated Circuit	0.59	051	Semiconductors and integrated circuits
126A	Motorcycle	0.83	056	Motor cycles
126B	Bicycle & Other Carriages	0.17	058	Other transport equipment

* Reference for split ratios are the I-O CTs for sub-codes (For 115A and 115B, export share.)

Appendix 4:
Exchange rates between local currencies and the U.S. Dollar

Country	Currency	Ex. Rate (US$1)*
China	(Yuan)	7.971
Indonesia	(Rupiah)	8,421.8
Japan	(Yen)	107.77
Korea	(Wong)	1,130.96
Malaysia	(Ringgit)	3.8000
Philippines	(Peso)	44.1920
Singapore	(S$)	1.7240
Taiwan	(NT$)	31.225
Thailand	(Baht)	40.112

* 2000 market rate (rf)

Source: IMF-IFS, ADB-Key indicators (for Taiwan)