# Part 1

# Compilation of the
# Asian International Input-Output Table

Satoshi Inomata

Maki Tokoyama (Applied Research Institute, Inc.)

Hiroshi Kuwamori

Bo Meng

# 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

## 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 totals |
| 022 Alcoholic Drk | 60 | 100 | 80 | ··· | 40 | 240 | ··· | | |
| 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.

| | A    B    C  ···  Z | PCE | ADJ | CT |
|---|---|---|---|---|
| Commodity A | | | -2 | ±0 |
| Commodity B | | | -6 | ±0 |
| Commodity C | | | -3 | ±0 |
| : | | | | |
| Commodity Z | | | −4 | ±0 |
| Commodity A | | | | |
| Commodity B | | | | |
| Commodity C | | | | |
| : | | | | |
| Sum-up ! | | | merged | |
| Commodity Z | | | | |
| **Import com. taxes** | +10    +7    0   ···  +3 | +26 | | |
| **3177 => GST** | 7    18    0   ···  5 | 134 | | |
| | GST on domestic goods & services | | | |
| CT | GST on imported goods | | | |

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.

| | A   B   C  ··· | PCE ··· | Exp | CT | | |
|---|---|---|---|---|---|---|
| Commodity A<br>Commodity B<br>Commodity C<br>: | | ↓8<br>↓0<br>↓4<br>: | ↑8<br>↑0<br>↑4<br>: | ±0<br>±0<br>±0<br>: | -8<br>-0<br>-4<br>: | 0.20<br>0.00<br>0.10<br>: |
| **Import commodities** (Malaysia)<br>**Rest of the world adjustment** (U.S.A.) | | (-40) | | | | |
| Value added | | | | | | |
| CT | | | | | | |

Distribution ratios for foreigner's expenditures on home goods & services

**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).



| | A | B | C | ⋯ | PCE | ⋯ | Imp | CT | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | | | | ↑ 8 | | ↓ 8 | ±0 | 8 | 0.16 |
| Commodity B | | | | | ↑ 12 | | ↓ 12 | ±0 | 12 | 0.24 |
| Commodity C | | | | | ↑ 4 | | ↓ 4 | ±0 | 4 | 0.08 |
| ⋮ | | | | | ⋮ | | ⋮ | ⋮ | | ⋮ |
| **Noncomparable imports** | (5) | (2) | (10) | ⋯ | **(50)** | | | | | |
| Value added | | | | | | | | | | |
| CT | | | | | | | | | | |

To AIO076 "Unclassified" in the import matrix

Distribution ratios of resident's expenditures abroad

**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.

| | A  B  ⋯ | ⋯ PCE ⋯ | **Exp** | CT | Trade |
|---|---|---|---|---|---|
| Commodity A | | | -5  20 | | 3  Transport |
| Commodity B | | | -7  30 | | 4  2 |
| : | | | -5  16 | | 2  3 |
| | | | -4  24 | | 3  3 |
| | | | -3  12 | | 1  1 |
| | | | :  : | | :  2 |
| Commodity A | | | | | : |
| Commodity B | | | | | Sum up ! |
| : | | | | | 48 |
| | | | | | 52 |
| Value added | | | | | |
| CT | | | | | |

(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.

| | A  B  ⋯ | ⋯ PCE ⋯ | **Exp** | **ADJ** | CT |
|---|---|---|---|---|---|
| Commodity A | | | ↓5 | ↑5 | ±0 |
| Commodity B | | | ↓7 | ↑7 | ±0 |
| : | | | ↓5 | ↑5 | ±0 |
| **Trade** | | +48 | ↓4 | ↓44 | ±0 |
| **Transport** | | +52 | ↓3 | ↓49 | ±0 |
| : | | | : | : | : |
| Commodity A | | | | | |
| Commodity B | | | | | Trade |
| : | | | | | 48  Transport |
| | | | | | 52 |
| Value added | | | | | |
| CT | | | | | |

22

## 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.
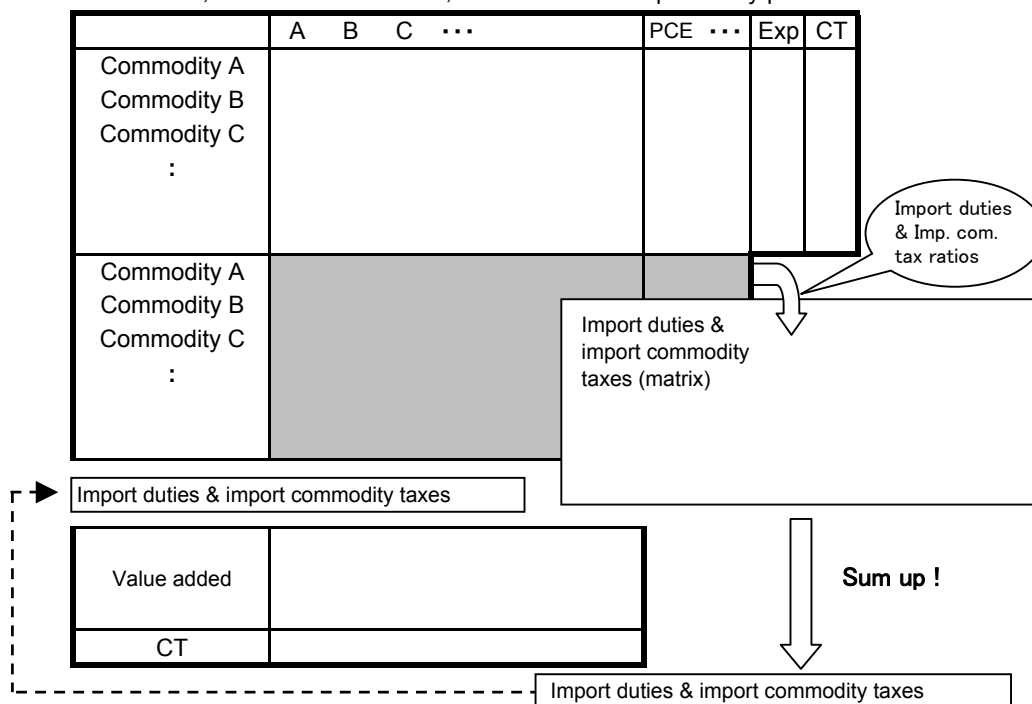
**U.S.A.**

(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.

| | A | B | C | ⋯ | WT | ⋯ | | ⋯ | Imp | | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | | | | | | | | | | | |
| Commodity B | | | | | | | | | | | | |
| Commodity C | | | | | | | | | | | | |
| : | | | | | | | | | : | | | |
| **Wholesale trade** | | | | | | | | | (100) | | | ↓ 100 |
| : | | | | | | | | | : | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comp. of employee | | | | | | | | | | | | |
| **Indirect tax** | | | | | ↓ 100 | | | | | | | |
| Other VA | | | | | | | | | | | | |
| CT | | | | | ↓ 100 | | | | | | | |

(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 / ∑Import 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.

| | A | B | C | ⋯ | WT | ⋯ | | ⋯ | Imp | Dty | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | | | | | | | | 0.01 ↑ 1 | −1 | | |
| Commodity B | | | | | | | | | 0.00 ↑ 0 | −0 | | |
| Commodity C | | | | | | | | | 0.02 ↑ 2 | −2 | | |
| : | | | | | | | | | : | : | | |
| **Wholesale trade** | | | | | | | | | (100) | | | |
| : | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comp. of employee | | | | | | | | | | | | |
| Indirect tax | | | | | | | | | | | | |
| Other VA | | | | | | | | | | | | |
| CT | | | | | | | | | | | | |

Composition ratio of import duties vector

24

# 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).

| | A | B | C | ⋯ | RT | ⋯ | PCE | ⋯ | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | | | | | | | | | |
| Commodity B | | | | | | | | | | |
| Commodity C | | | | | | | | | | |
| : | | | | | | | | | | |
| **Retail Trade** | **(-5)** | **10** | **(-3)** | ⋯ | | | | | | ↑ 8 |
| : | | | | | | | | | | |
| Commodity A | | | | | | | | | | |
| Commodity B | | | | | | | | | | |
| Commodity C | | | | | | | | | | |
| : | | | | | | | | | | |
| Operating surplus | | | | | ↑ 8 | | | | | |
| : | | | | | | | | | | |
| Subsidies | ↓ 5 | | ↓ 3 | | | | | | | |
| CT | | | | | ↑ 8 | | | | | |

# 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.

|  | A | B | C | ⋯ | **Dmy** | ⋯ | PCE | ⋯ | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A |  |  |  |  | **(20)** |  |  |  |  |  |
| Commodity B |  |  |  |  | **(10)** |  |  |  |  |  |
| Commodity C |  |  |  |  | **(35)** |  |  |  |  |  |
| : | 0.14 | 0.08 | 0.20 |  | : |  | 0.30 |  | 0.02 | ←**Distribution ratios: domestic** |
| **Dummy** | (14) | (8) | (20) | ⋯ | **(0)** | ⋯ | (30) | ⋯ | (2) | (100) |
| : |  |  |  |  | : |  |  |  |  |  |
| Commodity A |  |  |  |  | **(12)** |  |  |  |  |  |
| Commodity B |  |  |  |  | **(0)** |  |  |  |  |  |
| Commodity C |  |  |  |  | **(4)** |  |  |  |  |  |
| : | 0.30 | 0.00 | 0.10 |  | : |  | 0.80 | ←**Distribution ratios: import** |  |  |
| **Dummy** | (3) | (0) | (1) | ⋯ | **(0)** | ⋯ | (8) |  |  |  |
| : |  |  |  |  | : |  |  |  |  |  |
| Operating surplus | ↓ 15 | ↓ 13 | ↓ 18 | ⋯ |  |  |  |  |  |  |
| CT | ±0 | ±0 | ±0 | ⋯ |  |  |  |  |  |  |

**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 | | | | | | | | | | | |

| new method | ··· | Pulp & Paper | Paper prdct | Metal prdct | Printing | Recycling... | | PCE | ··· | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| : | | | | | | | | | | | |
| Paper products | | | | | | : | | | | | |
| Metal products | | | | | | : | | | | | |
| Used paper | | | | | -4 | 7 | | -3 | | | 0 |
| Metal scrap | | | | | | 2 | | -2 | | | 0 |
| : | | | | | | : | | | | | |
| **Recycling...** | | 8 | 4 | 3 | ··· | | | | | | 20 |
| : | | | | | | | | | | | |
| Gas & electricity | | | | | | 2 | | | | | |
| Wages | | | | | | 4 | | | | | |
| Operating surplus | | | | | | 1 | | | | | |
| : | | | | | | : | | | | | |
| CT | | | | | | 20 | | | | | |

The total outputs of scraps

Expense for collection and processing

8 = 5 + 3
5: un[...] 
3: un[...]
   col[...]
   pr[...]

4 = 2 + 2
2: un[...]
2: un[...]
   col[...]
   pr[...]

3 = 2 + 1
2: units of scraps
1: units of
   collection and
   processing fee
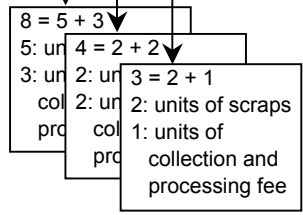
The "Recycling of reproducible resources" sector is divided into scrap/byproducts themselves and the activities of collecting and processing them.

(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."

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

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

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

(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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| : <br> Paper products <br> Metal products | | | | | | | : | | | | | |
| **Used paper** | **5** | **2** | | -4 | (7) | | | | -3 | | | |
| **Metal scrap** | ▲ | ▲ | **2** | | (2) | | | | -2 | | | |
| : | | | ▲ | | | | | | | | | |
| **scrap/by-prdct** | (5) | (2) | (2) | ••• | | | | | | | | (12) |
| : <br><br> Wholesale <br> : <br> Gas & electricity | ↑3 | ↑2 | ↑1 | ••• | | | ↑2 | | | | | ↑8 |
| 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| : **Financial service** : | | ··· ↑d ··· | ↑ b | | (i) | | ↑ a | | | |
| Operating surplus | | ··· ↓d ··· | ↓ 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 | | | ↓5 |
| : | | | : | | | | | | |
| **Lessors of ...** | (25) (5) | | | ··· | | | (−12) (17) | (255) → | (250) |
| : | | | : | | | | | | |
| 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").

|  | A | ··· | Les | Est | ··· | ··· | Imp | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|
| Commodity A |  |  | → | (18) |  |  |  |  |  |
| Commodity B |  |  | → | (10) |  |  |  |  |  |
| Commodity C |  |  | → | (35) |  |  |  |  |  |
| : |  |  |  | : |  |  |  |  |  |
| **Lessors of ...** | (25) | (5) | ··· |  | ··· |  |  |  |  |
| : |  |  | → | : |  |  |  |  |  |
| Comp. of employee |  |  | → | (10) |  |  |  |  |  |
| Indirect tax |  |  |  |  |  |  |  |  |  |
| Other VA |  |  |  |  |  |  |  |  |  |
| CT |  |  |  | (175) |  |  |  |  |  |

Estimation using the ratio from economic census data

(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.

|  | A | ··· | Les | Est | ··· | ··· | Imp | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|
| Commodity A |  |  |  | (18) |  |  |  |  |  |
| Commodity B |  |  |  | (10) |  |  |  |  |  |
| Commodity C |  |  |  | (35) |  |  |  |  |  |
| : |  |  |  | : |  |  |  |  |  |
| **Lessors of ...** | (25) | (5) |  |  |  |  |  |  |  |
| : |  |  | Total 150 | : |  |  |  |  |  |
| Comp. of employee |  |  | 25 | (10) |  |  |  |  |  |
| Indirect tax |  |  | (20) 0.2 | 5 |  |  |  |  |  |
| Other VA |  |  | (80) 0.8 | 20 |  |  |  |  |  |
| CT |  |  |  | (175) |  |  |  |  |  |

32

(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.

| | A | B | ··· | **Rty** | | ··· | Imp | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | | | | | | | | |
| Commodity B | | | | | | | | | |
| Commodity C | | | | | | | | | |
| : | | | | | | | | | |
| Royalty | (20) | (4) | ··· | | | | | | (75) |
| | 0.26 | 0.05 | ··· | Output distribution ratio | | | | | |
| Comp. of employee | | | | | | | | | |
| Indirect tax | ↑4 | ↑1 | ··· | (15) | | | | | |
| Other VA | ↑16 | ↑3 | ··· | (60) | | | | | |
| CT | ±0 | ±0 | ··· | (75) | | | | | |

**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.

| | Fd | Tx | Oi | ··· | **RI** | ··· | PCE | ··· | Exp | CT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Food | | | | | | | | | | 200 | 0.20 |
| Textile | | | | | | | | | | 500 | 0.50 |
| Other industry | | | | | | | | | | 300 | 0.30 |
| : | | | | | | | | | | | |
| **Rural industry** | (10) | (12) | (8) | (24) ··· | | | (32) | | | (200) | |
| : | | | | | | | | | | | |
| Commodity A | | | | | | | | | | | |
| Commodity B | | | | | | | | | | | |
| Commodity C | | | | | | | | | | | |
| : | | | | | | | | | | | |
| Value added | | | | | | | | | | | |
| CT | | | | | | | | | | | |

(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.

|  | Fd | Tx | Oi | ··· | RI | ··· | PCE | ··· | Exp | CT |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | (16) |  |  |  |  |  |  |
| Food | ↑2 | ↑2 | ↑2 | ↑4 ··· | (8) |  | ↑6 ··· |  |  | ↑40 | 0.20 |
| Textile | ↑5 | ↑6 | ↑4 | ↑10 ··· | (0) |  | ↑16 ··· |  |  | ↑100 | 0.50 |
| Other industry | ↑3 | ↑4 | ↑2 | ↑6 ··· | (12) |  | ↑9 ··· |  |  | ↑60 | 0.30 |
| : |  |  |  |  | : |  |  |  |  |  |  |
| **Rural industry** |  |  |  |  |  |  |  |  |  |  |  |
| : |  |  |  |  |  |  |  |  |  |  |  |
| Commodity A Commodity B Commodity C : |  |  |  |  |  |  |  |  |  |  |  |
| Value added |  |  |  |  | (24) (8) : |  |  |  |  |  |  |
| CT |  | ↑40 ↑100 ↑60 |  |  | (200) |  |  |  |  |  |  |
|  |  | 0.20 0.50 0.30 |  |  |  |  |  |  |  |  |  |

**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.

|  | A | B | C | ··· | Mgt | ··· | ··· | Imp | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | (5) |  |  |  |  |  |
| Commodity A Commodity B Commodity C : |  |  |  |  | (5) (1) : |  |  |  | −10 | −10 |
| **Mgt.of comp.&ent.** |  | (20) | (10) ··· |  |  | ··· | (4) |  | (10) | 110) |
| : |  |  |  |  | : |  |  |  |  |  |
| Comp. of employee Indirect tax Other VA |  |  |  |  | (15) : (30) |  | −10 −10 |  |  |  |
| CT |  |  |  |  | (110) |  |  |  |  |  |

35

(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.

| | A | B | C | ··· | Mgt | ··· | | ··· | Imp | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | ↑ | ↑ | | (5) | 0.05 | ↑ | | | | |
| Commodity B | | | | | (5) | 0.05 | | | | | |
| Commodity C | | | | | (1) | 0.01 | | | | | |
| : | | | | | : | : | | | | | |
| **Mgt.of comp.&ent.** | | (20) | (10) | ··· | | ··· | (4) | | | 0 | (100) |
| : | | | | | : | | | | | | |
| Comp. of employee | | | | | (15) | 0.15 | | | | | |
| Indirect tax | | | | | : | : | | | | | |
| Other VA | | ↓ | ↓ | | (20) | 0.20 | ↓ | | | | |
| CT | | | | | (100) | | | | | | |

**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.

| | Industry A | B | C | ⋯ | ⋯ | CT |
|---|---|---|---|---|---|---|
| ⋮ | | | | | | |
| Machinery x | ↑ 60  0.30 | ↑ 36 | ↑ 20  0.20 | ⋯ | | |
| Machinery y | ↑ 100  0.50 | ↑ 72 | ↑ 40  0.40 | ⋯ | | |
| Machinery z | ↑ 40  0.20 | ↑ 72 | ↑ 40  0.40 | ⋯ | | |
| ⋮ | | | | | | |
| **Machine-repair** | (200) | (180) | (100) | ⋯ | | |
| | | | | | | |
| ⋮ | | | | | | |
| Machinery x | ↑ 12  0.30 | ↑ 4 | ↑ 0  0.20 | ⋯ | | |
| Machinery y | ↑ 20  0.50 | ↑ 8 | ↑ 0  0.40 | ⋯ | | |
| Machinery z | ↑ 8  0.20 | ↑ 8 | ↑ 0  0.40 | ⋯ | | |
| ⋮ | | | | | | |
| **Machine-repair** | (40) | (20) | (0) | ⋯ | | |
| | | | | | | |
| Value added | | | | | | |
| CT | | | | | | |

**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.

| | A | B | C | ⋯ | PCE | ⋯ | CT |
|---|---|---|---|---|---|---|---|
| ⋮ | | | | | | | |
| Machinery x | | | | | +3  30  0.33 | | |
| Machinery y | | | | | +5  45  0.50 | | |
| Machinery z | | | | | +2  15  0.17 | | |
| ⋮ | | | | | | | |
| **Machine-repair** | | | | | (10) | | |
| | | | | | | | |
| ⋮ | | | | | | | |
| Machinery x | | | | | +0  0  0.00 | | |
| Machinery y | | | | | +2  4  0.67 | | |
| Machinery z | | | | | +0  2  0.33 | | |
| ⋮ | | | | | | | |
| **Machine-repair** | | | | | (2) | | |
| | | | | | | | |
| Value added | | | | | | | |
| CT | | | | | | | |

(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.



0.243 0.443 0.314

| | | Industry x | Industry y | Industry z | Machine repair | PCE | ⋯ | CT | |
|---|---|---|---|---|---|---|---|---|---|
| | ⋮ | | | | | | | ↑119 | 0.243 |
| | | | | | ⋮ | | | ↑217 | 0.443 |
| | ⋯ | ← | | | ⋮ | | | ↑154 | 0.314 |
| | ⋮ | | | | ⋮ | | | | CT ratio |
| | ⋮ | | | | | | | | |
| | ⋯ | ← | | | ⋮ | | | | |
| | ⋮ | | | | ⋮ | | | | |
| Value added | | ← | | | ⋮ | | | | |
| CT | | ↑119 | ↑217 | ↑154 | | | | | |

39

# 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.

| | A   B ··· ··· | Unclassified | | PCE ··· | Exp | CT |
|---|---|---|---|---|---|---|
| Commodity A<br>Commodity B<br>Commodity C<br>: | | | | | | |
| **Financial service** | | (i) ⟶ | | +i | | ±0 |
| : | | | | | | |
| Commodity A<br>Commodity B<br>Commodity C<br>: | | | | | | |
| Operating surplus | | +i | | | | |
| Total Input | | ±0 | | | | |

## 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<br>Commodity B<br>Commodity C<br>: | | : | : | |
| **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<br>Commodity B<br>Commodity C<br>: | | | | | |
| **Gold, silver, ...** | | **↑3.1** | **↓3.1** | | |
| : | | | | | |
| Value added | | *1 The value of "pure import" can be collected from NIPA's database. For 2000, the value is known to be $3.1 billion. | | | |
| CT | | | | | |

## 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<br>Commodity B<br>Commodity C<br>: | | | | |
| Commodity A<br>Commodity B<br>Commodity C<br>: | | | **( 8) --> 0<br>( 0) --> 0<br>(22) --> 0<br>:** | |
| 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).

| | A | B | C | ⋯ | Tel | | PCE | ⋯ | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | | | | | | | | | |
| Commodity B | | | | | : | | | | | |
| Commodity C | | | | | | | | | | |
| : | | | | | : | | | | | |
| **Telecom.** | 20 | 50 | 30 | | | | 100 | | | 200 |
| | 0.10 | 0.25 | 0.15 | | | | 0.50 | | | |
| Commodity A | | | | | | | | | | |
| Commodity B | | | | | | | | | | |
| Commodity C | | | | | | | | | | |
| : | | | | | | | | | | |
| **Telecom.** | +4 | +10 | +6 | | (40) | | +20 | | | |
| | | | | | | | | | | |
| Value added | | | | | | | | | | |
| CT | | | | | 200 | | | | | |

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

| | A | B | C | ⋯ | Tel | | PCE | ⋯ | Exp | CT |
|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | | | | | | | | | |
| Commodity B | | | | | | | | | | |
| Commodity C | | | | | | | | | | |
| : | −4 | −10 | −6 | | | | −20 | | | |
| **Telecom.** | 16 | 40 | 24 | ⋯ | | | 80 | | | ↓ 40 |
| Commodity A | | | | | | | | | | |
| Commodity B | | | | | | | | | | |
| Commodity C | | | | | | | | | | |
| : | | | | | | | | | | |
| **Telecom.** | 4 | 10 | 6 | ⋯ | **0** | | 20 | | | |
| Value added | | | | | | | | | | |
| CT | ±0 | ±0 | ±0 | ⋯ | ↓ 40 | | | | | |

44

# 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.

# 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.

46

## 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.

| | A B C ⋯ | PA | ⋯ | GCE ⋯ | Exp | CT |
|---|---|---|---|---|---|---|
| Commodity A | | 12 | ← | (12) | | |
| Commodity B | | 18 | ← | (18) | | |
| Commodity C | | 6 | ← | (6) | | |
| : | | : | | : | | |
| **Public admin.** | | | | 86+54 | | ↑ 54 |
| : | | : | | : | | |
| Commodity A | | 4 | ← | (4) | | |
| Commodity B | | 2 | ← | (2) | | |
| Commodity C | | 8 | ← | (8) | | |
| : | | : | | : | | |
| **Public admin.** | | 3 | ← | (3) | | |
| : | | : | | : | | |
| Total Int. Input | | ↑ 54 ← | | | | |
| Value added | | | | | | |
| CT | | ↑ 54 | | | | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|
| Commodity A | | | | 4 | | | 3 | | | |
| Commodity 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 | | | | | | | | | | |

(private education only)

(private & public education)

(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 | **GF CE** | 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  &lt;non-educational&gt;

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 | | | *private only* | 4 | 5 | | 0 | 150 | 12 | 6 | 3 | 4 | | |
| Commodity B | *private & public* | | | 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 | | | | | | | |

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 $\beta_k$ 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 <u>exports</u> are computed.

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

AIO 001
AIO 002
⋮

INDONESIA | MALAYSIA | PHILIPPINES | SINGAPORE | THAILAND | CHINA | TAIWAN | KOERA | JAPAN | USA | HONG KONG | EU

AIO export vectors to 11 countries of destination, aggregated from the Foreign Trade Statistics (FOB). (Of course, <u>there is no export vector to your own country</u>.)
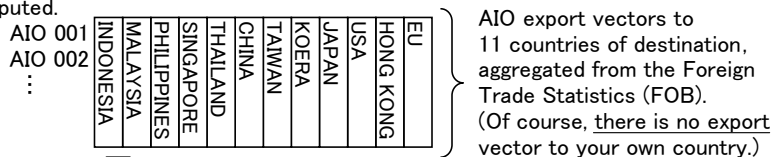
<STEP 2>
Remove TTMs from the export vectors to 11 countries of destination, using the TTM rates derived in Step 1.

TTMs

Wholesale & retail trade (matrix)

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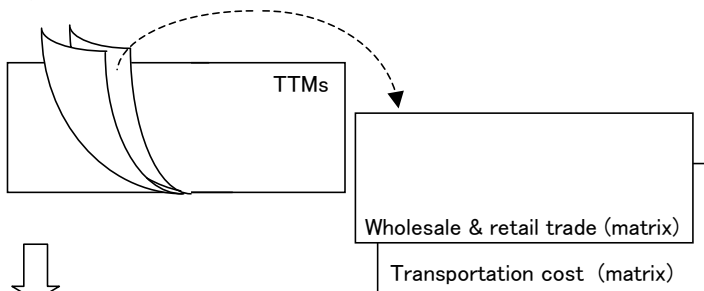
<STEP 3>
Aggregate each TTM matrix in a columnwise direction to obtain a corresponding TTM vector.

INDONESIA | MALAYSIA | PHILIPPINES | SINGAPORE | THAILAND | CHINA | TAIWAN | KOERA | JAPAN | USA | HONG KONG | EU | (Row Totals)

Columnwise aggregation by each TTM sector.

Goods Export

Wholesale & Retail trade (vector)

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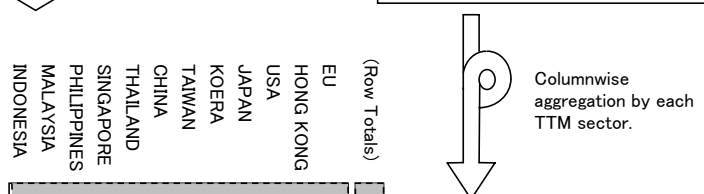
<STEP 4>
Assemble the parts thus derived to obtain export vectors at producer's price, with TTMs being registered as the export of domestic trade and transportation services.

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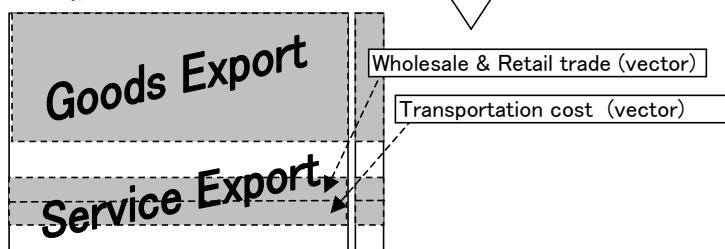
<STEP 5>
Derive the export vector to the Rest of the World, by taking the difference between the export vector of a national I-O (producer's price) and the row-totals of the export vectors obtained in Step 4 above.

∗ 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.

| Ad | Fd | L | X |
| Am | Fm | | |
| V | | | |
| X | | | |

EXPORT VECTOR  −  11 countries' totals  =  EXPORT TO ROW
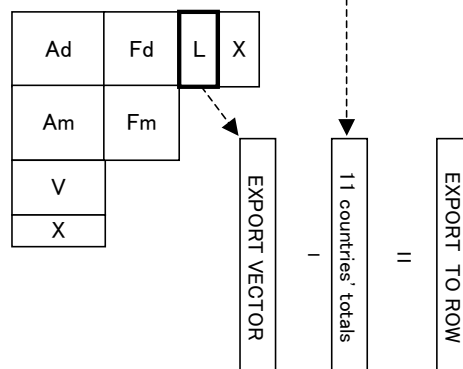
<STEP 6>
Compile export vectors required for linking.

```
┌─────────────────┐          ┌─────────────────┐
│       10        │          │       00        │
│  TTM on export  │          │ Export vector   │
│                 │          │ (referring to   │
│                 │          │ the national table)│
└─────────────────┘          └─────────────────┘
```
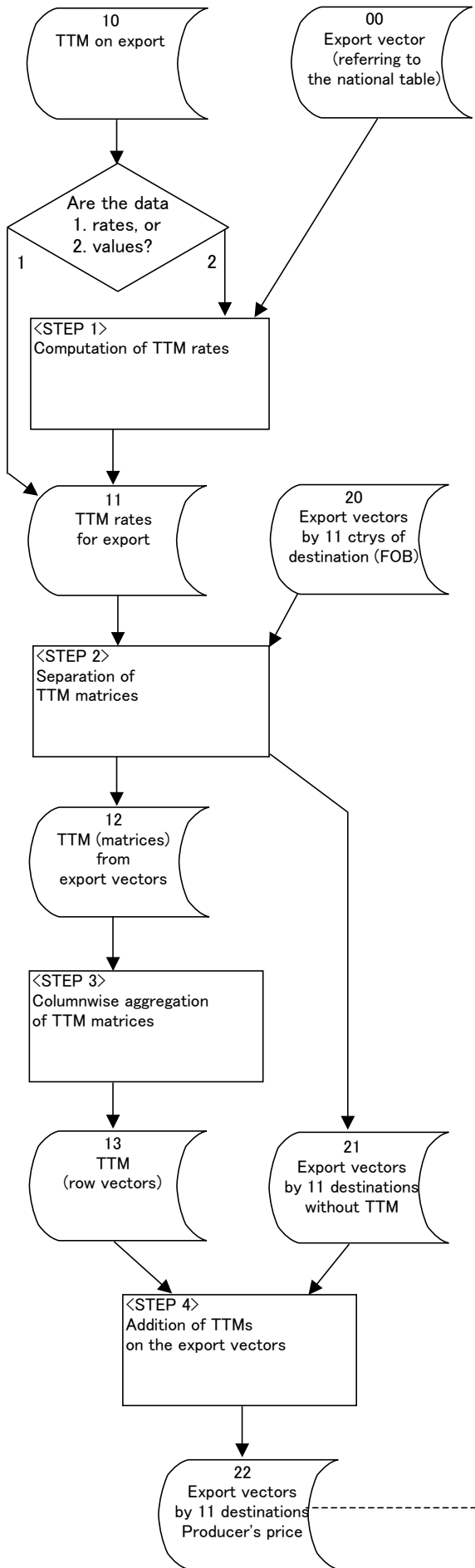
* The pages on the left show visual images of the process, which are coupled with the right-hand pages that show a flowchart of the corresponding jobs in a juxtaposed layout.

```
        ◇ Are the data
          1. rates, or
          2. values?
      1 ◇ 2

<STEP 1>
Computation of TTM rates

        11                    20
     TTM rates           Export vectors
     for export          by 11 ctrys of
                         destination (FOB)

<STEP 2>
Separation of
TTM matrices

        12
    TTM (matrices)
      from
    export vectors

<STEP 3>
Columnwise aggregation
of TTM matrices

        13                    21
       TTM               Export vectors
    (row vectors)        by 11 destinations
                         without TTM

<STEP 4>
Addition of TTMs
on the export vectors

        22
    Export vectors
    by 11 destinations
    Producer's price
```

```
        22                    00
   Export vectors        Export vector
   by 11 destinations    (referring to
   Producer's price      the national table)

<STEP 5>
Derivation of the export
vector to the ROW

        23
    Export vector
    to the ROW
    Producer's price

<STEP 6>
Compilation of export vectors

        24                Export vectors
   Export vectors         to member countries
   to EU, Hong Kong,      Producer's price
   and the ROW
   Producer's price

     ( JOB 4 )
```

# 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.

| Ad | Fd | L | X |
|----|----|---|---|
| Am | Fm | | |
| V | | | |
| X | | | |

001 002 ⋯ PCE FCF ⋯

001
002
⋮
⋮

Goods Import
CIF including
Duties & Imp. Com. taxes

Service Import

Goods
Import
CIF excluding
Duties & Taxes

Duties &
Comm. taxes

Service Import

Duties &
Import commodity taxes
(matrix)

SUM UP!

SUM UP!

Goods
Import
(CIF)
from ROW

Service Import

Duties & Taxes (vector)

Goods Import (CIF) from INDONESIA
Goods Import (CIF) from MALAYSIA
Goods Import (CIF) from THE PHILIPPINES
Goods Import (CIF) from SINGAPORE
Goods Import (CIF) from THAILAND
Goods Import (CIF) from CHINA
Goods Import (CIF) from TAIWAN
Goods Import (CIF) from KOREA
Goods Import (CIF) from JAPAN
Goods Import (CIF) from THE USA
Goods Import (CIF) from HONG KONG
Goods Import (CIF) from EU

Of course, there is no import matrix from your own.

① 

Goods Import (CIF)
from
THE REST OF THE WORLD

Service Import

② (((

Duties & Taxes (vector)   ))) ③

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      │   │     30      │   │     00      │   │     40      │
  │National Table│   │ Duties and  │   │Import vector│   │Import vectors│
  │    non-     │   │Imp.Com.Taxes│   │(column: referring│ │ by 11 countries│
  │ competitive │   │  (column)   │   │to row totals of│ │of origin (CIF)│
  └─────────────┘   └─────────────┘   │import matrix)│   └─────────────┘
                                      └─────────────┘
```

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) │
  └─────────────┘
```
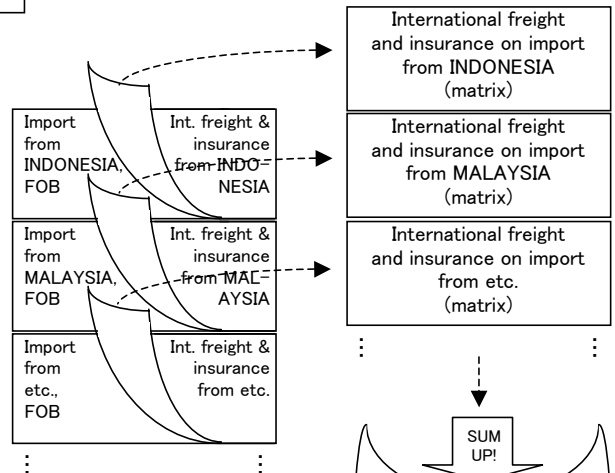
Row totals
Column totals

( JOB 4 )

( JOB 3 )

59

# 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
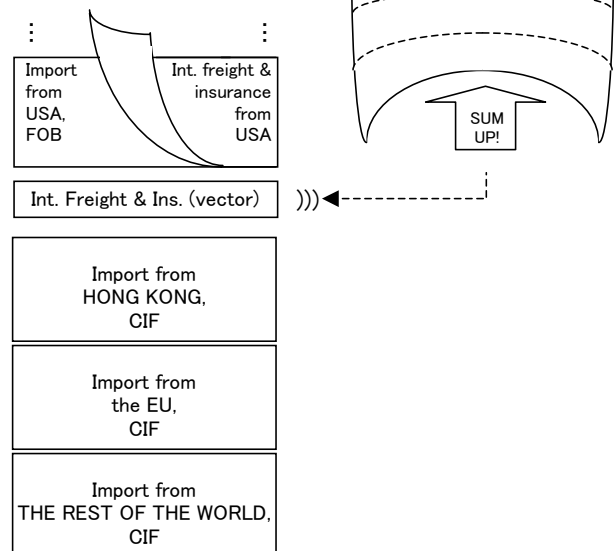
Import from
INDONESIA, CIF

Import from
MALAYSIA, CIF

Import from
etc., CIF

⋮

Import from
HONG KONG,
CIF

Import from
the EU,
CIF

Import from
THE REST OF THE WORLD,
CIF

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

Import from
INDONESIA,
FOB

Int. freight & insurance from INDONESIA

Import from
MALAYSIA,
FOB

Int. freight & insurance from MALAYSIA

Import from
etc.,
FOB

Int. freight & insurance from etc.

International freight and insurance on import from INDONESIA (matrix)

International freight and insurance on import from MALAYSIA (matrix)

International freight and insurance on import from etc. (matrix)
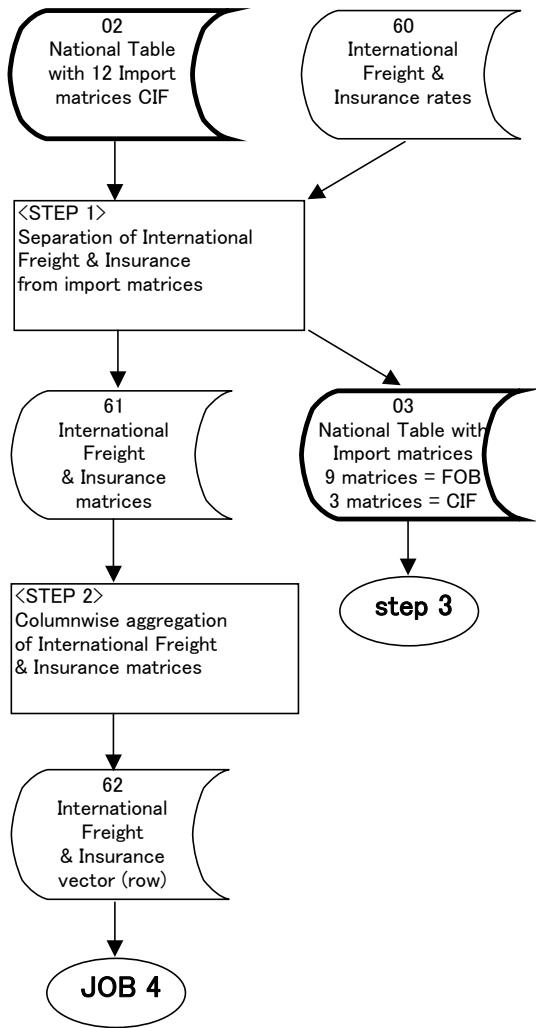
⋮

SUM UP!

<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.

Import from
USA,
FOB

Int. freight & insurance from USA

Int. Freight & Ins. (vector)   )))◄

SUM UP!

Import from
HONG KONG,
CIF

Import from
the EU,
CIF

Import from
THE REST OF THE WORLD,
CIF

60

```
┌─────────────┐        ┌─────────────┐
│     02      │        │     60      │
│  National   │        │ International│
│ Table with  │        │  Freight &  │
│ 12 Import   │        │ Insurance   │
│ matrices CIF│        │   rates     │
└──────┬──────┘        └──────┬──────┘
       │                      │
       ▼                      ▼
┌──────────────────────────────┐
│ <STEP 1>                      │
│ Separation of International    │
│ Freight & Insurance           │
│ from import matrices          │
└──────┬──────────────┬─────────┘
       │              │
       ▼              ▼
┌─────────────┐  ┌──────────────────┐
│     61      │  │       03         │
│ International│  │ National Table with│
│   Freight   │  │  Import matrices │
│ & Insurance │  │  9 matrices = FOB│
│  matrices   │  │  3 matrices = CIF│
└──────┬──────┘  └────────┬─────────┘
       │                  │
       ▼                  ▼
┌─────────────┐       ╭─────────╮
│ <STEP 2>    │       │ step 3  │
│ Columnwise  │       ╰─────────╯
│ aggregation │
│ of International│
│ Freight     │
│ & Insurance matrices│
└──────┬──────┘
       │
       ▼
┌─────────────┐
│     62      │
│ International│
│   Freight   │
│ & Insurance │
│ vector (row)│
└──────┬──────┘
       │
       ▼
   ╭─────────╮
   │ JOB 4   │
   ╰─────────╯
```

# JOB 3: CONVERSION OF IMPORT MATRICIES into producer's price (continued)
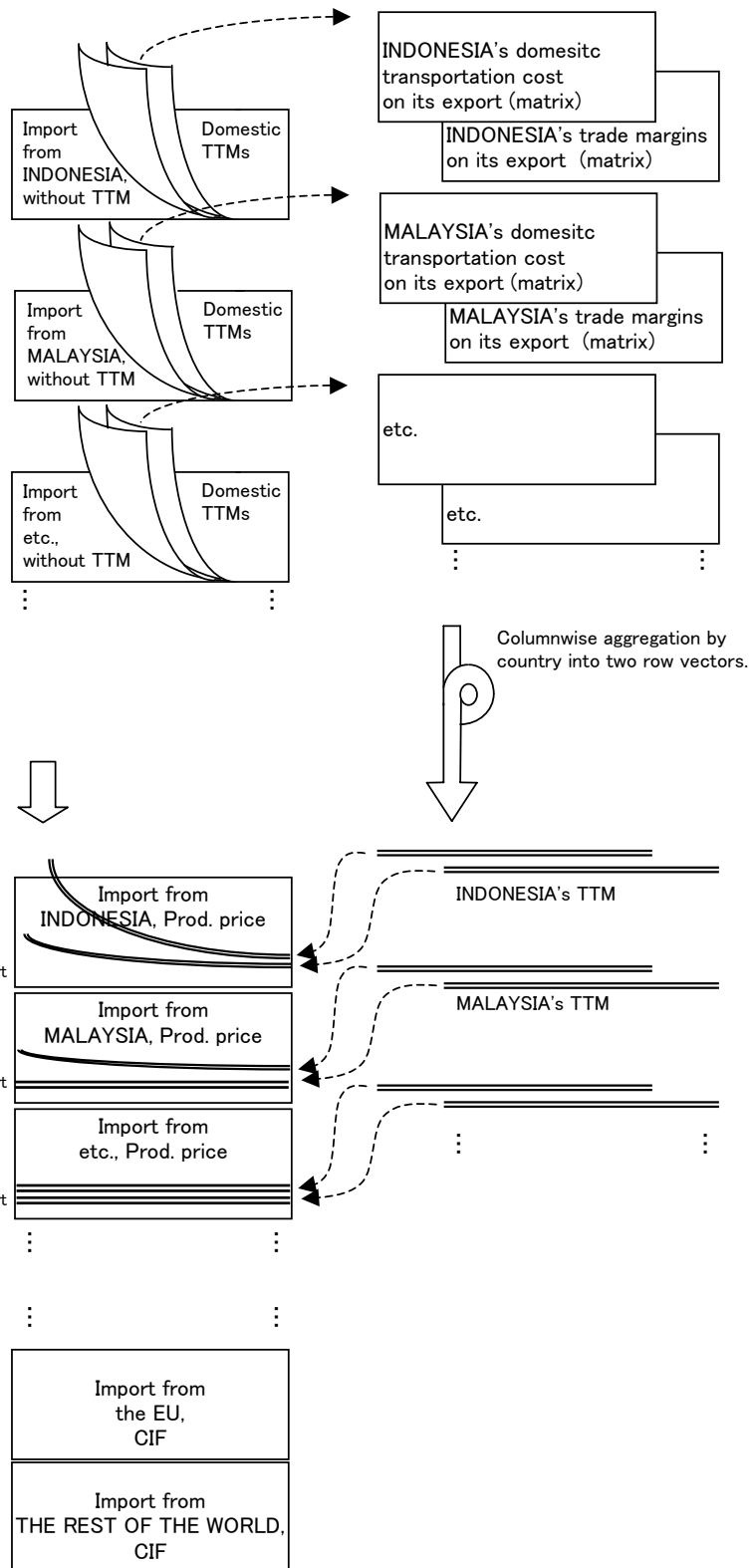
**〈STEP 1〉**
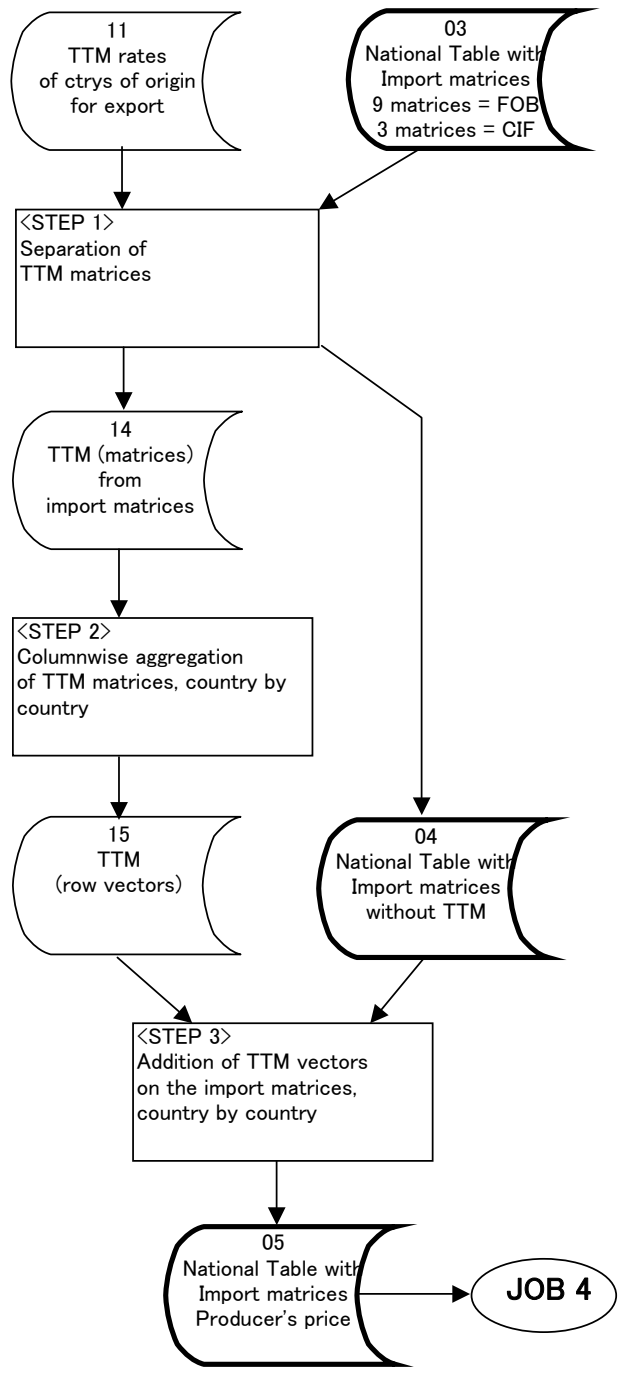 TTMs are removed from import matrices, country by country, using the rates computed in Job 1.

**〈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.

| Import from INDONESIA, without TTM | Domestic TTMs |
| Import from MALAYSIA, without TTM | Domestic TTMs |
| Import from etc., without TTM | Domestic TTMs |

INDONESIA's domesitc transportation cost on its export (matrix)

INDONESIA's trade margins on its export (matrix)

MALAYSIA's domesitc transportation cost on its export (matrix)

MALAYSIA's trade margins on its export (matrix)

etc.

etc.

Columnwise aggregation by country into two row vectors.

| Import from INDONESIA, Prod. price |
| 065 Trade / 066 Transport |

INDONESIA's TTM

| Import from MALAYSIA, Prod. price |
| 065 Trade / 066 Transport |

MALAYSIA's TTM

| Import from etc., Prod. price |
| 065 Trade / 066 Transport |

Import from the EU, CIF

Import from THE REST OF THE WORLD, CIF

```
┌─────────────────┐          ┌─────────────────────┐
│       11        │          │         03          │
│    TTM rates    │          │  National Table with│
│ of ctrys of origin│        │   Import matrices   │
│   for export    │          │  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        │              │         04          │
│      TTM        │              │  National Table with│
│  (row vectors)  │              │   Import matrices   │
│                 │              │    without TTM      │
└─────────────────┘              └─────────────────────┘
         \                              /
          \                            /
           ▼                          ▼
      ┌─────────────────────────────┐
      │ <STEP 3>                    │
      │ Addition of TTM vectors     │
      │ on the import matrices,     │
      │ country by country          │
      └─────────────────────────────┘
                    │
                    ▼
         ┌─────────────────────┐       ┌──────────┐
         │         05          │       │          │
         │  National Table with│─────▶ │  JOB 4   │
         │   Import matrices   │       │          │
         │  Producer's price   │       └──────────┘
         └─────────────────────┘
```

# JOB 4: LINKING

| | code | 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) | $X^{I}$ | $X^{M}$ | $X^{P}$ | $X^{S}$ | $X^{T}$ | $X^{C}$ | $X^{N}$ | $X^{K}$ | $X^{J}$ | $X^{U}$ | | | | | | | | | | | | | | | |

Intermediate Demand (A) — Final Demand (F) — Export (L) — Korean I-O Table

Korean I-O Table cells: X, L, Fd, Fm, Ad, Am, V, X

<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.
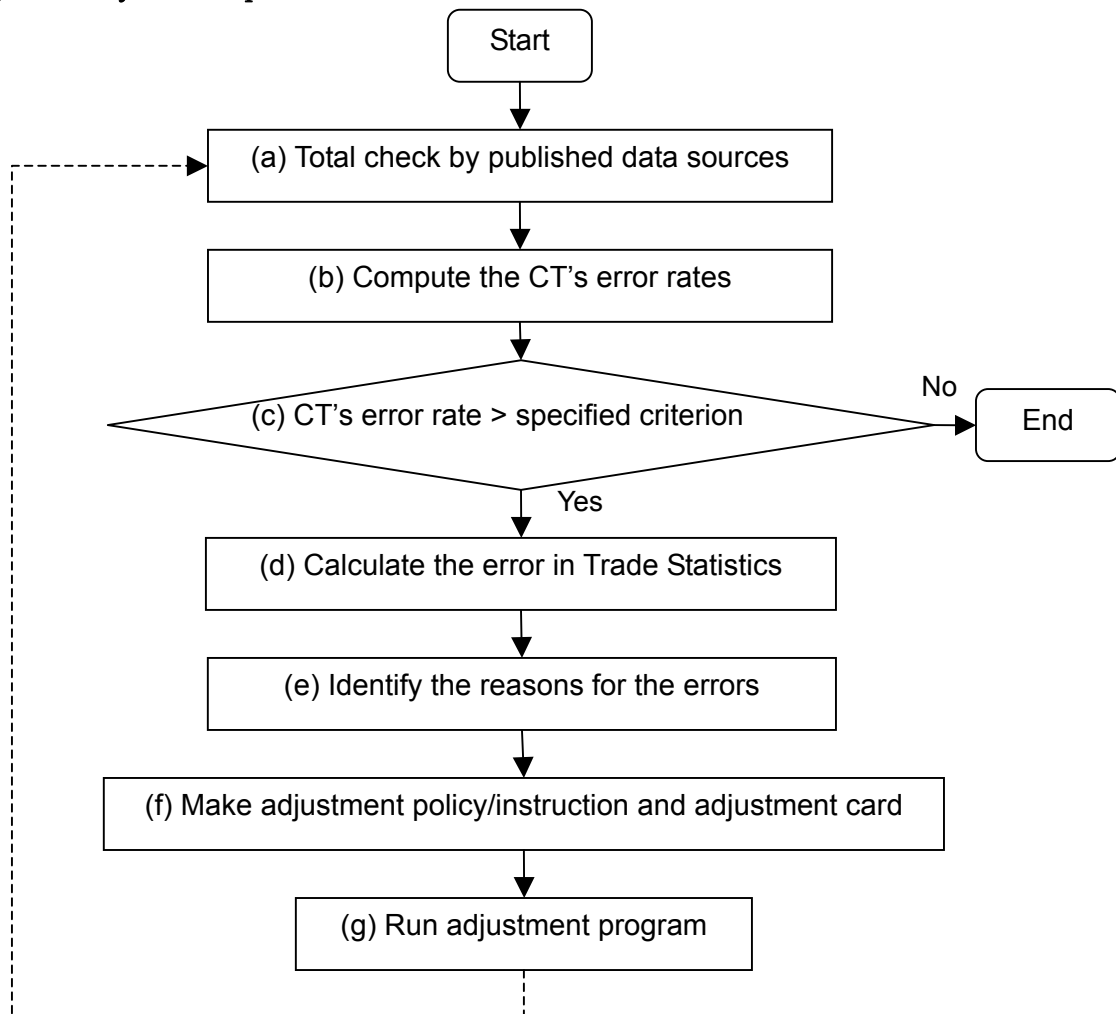
Here, let us consider the case of Korea. As explained in the previous section, the blocks $A^{KK}$, $F^{KK}$, and $L^{KZ}$ ($Z = H, O, W$) in the diagram in the left page are calculated from Korea's input-output table, and they should conform to the transactions recorded in the Korean input-output table. 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**

```
                        ┌──────────┐
                        │  Start   │
                        └────┬─────┘
                             ▼
┌───────────────────────────────────────────────────────┐
│      (a) Total check by published data sources          │◄┄┄┄┐
└────────────────────────┬──────────────────────────────┘     ┊
                         ▼                                     ┊
┌───────────────────────────────────────────────────────┐     ┊
│           (b) Compute the CT's error rates              │     ┊
└────────────────────────┬──────────────────────────────┘     ┊
                         ▼                                     ┊
              ◇────────────────────────────◇      No    ┌────────┐
              (c) CT's error rate > specified  ────────►│  End   │
              ◇────── criterion ────────────◇           └────────┘
                         │ Yes                                 ┊
                         ▼                                     ┊
┌───────────────────────────────────────────────────────┐     ┊
│        (d) Calculate the error in Trade Statistics      │     ┊
└────────────────────────┬──────────────────────────────┘     ┊
                         ▼                                     ┊
┌───────────────────────────────────────────────────────┐     ┊
│          (e) Identify the reasons for the errors        │     ┊
└────────────────────────┬──────────────────────────────┘     ┊
                         ▼                                     ┊
┌───────────────────────────────────────────────────────┐     ┊
│  (f) Make adjustment policy/instruction and adjustment card │ ┊
└────────────────────────┬──────────────────────────────┘     ┊
                         ▼                                     ┊
┌───────────────────────────────────────────────────────┐     ┊
│            (g) Run adjustment program                   │     ┊
└────────────────────────┬──────────────────────────────┘     ┊
                         └┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┘
```

(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**
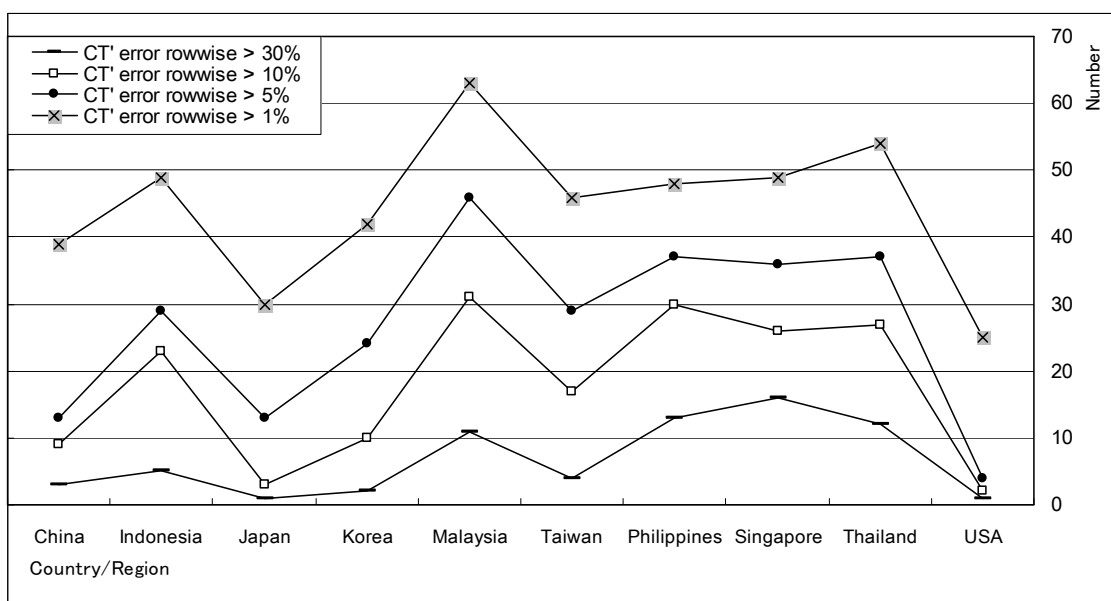


(c) Though 5% is determined as the criterion for the preliminary adjustment, considering that positive errors may offset some negative errors in the row sector, we have to investigate the structure of the error rowwise. As stated in the previous section, the AIO table is based on the import matrices 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.

## References

Anderson, James E., "A Theoretical Foundation for the Gravity Equation," *American Economic Review*, Vol. 69, No. 1, March 1979: 106–116.

Geraci, Vincent J. and Wilfried Prewo, "Bilateral Trade Flows and Transport Costs," *Review of Economics and Statistics*, Vol. 59, No. 1, February 1977: 67–74.

Leontief, W. and A. Strout, Multiregional Input-Output Analysis, in T. Barna, (ed.), *Structural Interdependence and Economic Development*, St. Martin's Press, 1963.

Limao, Nuno and Anthony J. Venables, "Infrastructure, Geographical Disadvantage, Transport Costs, and Trade," *World Bank Economic Reviews*, Vol. 15, No. 3, 2001: 451–479.

Miller R.E. and P.D. Blair, *Input-Output Analysis: Foundations and Extensions*, Prentice-Hall, Inc., 1985.

Furukawa S., International Input-Output Analysis: Compilation and Case Studies of Interaction between ASEAN, Korea, Japan, and the United States, 1975, *I.D.E. Occasional Papers Series*, No.21, 1986.

I.D.E., Asian International Input-Output Table 1995, *I.D.E. Statistical Data Series*, No.82, 2001.

# 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.

| | SNA recommendation | CHINA | INDONESIA | JAPAN | KOREA | MALAYSIA | PHILIPPINES | SINGAPORE | TAIWAN | THAILAND | USA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PRESENTATION FORMAT OF NATIONAL I-O TABLES** | | | | | | | | | | | |
| **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 | not 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 |
| **2.1 Level of classification** | What follows is recommended | | | | | | | | | | |
| 2.1.1 Basic classification | Row: Central Product Classification (CPC) | 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) | …over 1,800 items at 5-digit level | 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) | Column: ISIC Rev3 | 006 x 006 | 019 x 019 | 104 x 104 | 077 x 077 | -- | 011x011 | -- | -- | 026 x 026 | 013 x 012 |
| 2.1.4 Other level (3) | …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 | B / B | B / B | 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, (1), (2) | 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Valuation scheme (overall)** 3.1  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 | - | - | - |
|   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 | no | 9211-20 | none | none | 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 | 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 | 156 | none | 402 | 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) | net value only VA004 | 205 | 9405-00 | 410 | net value only | net value only IT-S | none | net value only 164 | net value only 204 | 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 | | | | | | | | | | |
| 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 | merged in Direct Purchase | not included | not identified | merged in Direct Purchase | total value only | recorded on the corresponding activites in domestic intermediate transaction | 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 freight 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 intermediate 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) Imputed 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 | | 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 | | | | | | | | | | | |
| 6.3.1 Public enterprises | | 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 | no description given for SNA treatment | 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 |

<Abbreviations> I = Intermediate demand, H = Household, N = Non-profit instit. for household, G = Government, O = Other final demand

| 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 interemediate 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

<div align="right">

IDE I-O team

</div>

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 | 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 |

92

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

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

| AIO code | Description | National I-O Classifications | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Indonesia | Malaysia | Philippines | Singapore | Thailand | China | Taiwan | Korea | Japan | U.S.A.(DOC) |
| | | | | | | | | 05190 | 130<br>131<br>132 | 182109<br>182901<br>182909 | 32222B<br>322231<br>322232<br>322233<br>322291<br>322299<br>323116<br>323118 |
| 028 | Printing and publishing | 093 | 036A | 099<br>100<br>101 | 034<br>035 | 083 | 1023033 | 05210<br>05220<br>05290<br>05300 | 133<br>134<br>135<br>136 | 191101<br>191102<br>191103 | 323117<br>32311A<br>323121<br>323122<br>511110<br>511120<br>511130 |
| 029 | Synthetic resins and fiber | 097 | 037A | 104 | 039 | 067B | 1228045 | 05710<br>05720<br>05731<br>05732<br>05790<br>05810<br>05890<br>05910<br>05920<br>05930<br>05940<br>05950<br>05960<br>05970<br>05981<br>05982<br>05983<br>05990<br>05999 | 154<br>156<br>157 | 204101<br>204102<br>204103<br>204109<br>205101<br>205102 | 325211<br>325221<br>325222<br>325991 |
| 030 | Basic industrial chemicals | 094 | 037B | 102 | 037<br>038 | 084<br>086 | 1226038<br>1226041 | 0510<br>05430<br>05441<br>05442<br>05449<br>05450<br>05511<br>05512<br>05513<br>05514<br>05521<br>05522<br>05530<br>05541<br>05542<br>05550<br>05560<br>05580<br>05590<br>05650<br>06020 | 148<br>149<br>151<br>152<br>153<br>155 | 202101<br>202902<br>202909<br>203101<br>203102<br>203201<br>203202<br>203301<br>203901<br>203902<br>203903<br>203909 | 325110<br>325120<br>325180<br>325190<br>325212 |
| 031 | Chemical fertilizers and pesticides | 095<br>096 | 037C | 103<br>105 | | 085 | 1226039<br>1226040 | 05570<br>05610<br>05620<br>05630<br>05640<br>05660<br>05690<br>06300 | 158<br>159<br>160 | 113102<br>201101<br>207401 | 325311<br>325312<br>325314<br>325320 |
| 032 | Drugs and medicine | 099<br>100 | 039 | 107 | 040 | 088 | 1227044 | 06210<br>06220<br>06230<br>06240 | 161 | 206101 | 325400 |
| 033 | Other chemical products | 098<br>101<br>102<br>103 | 038<br>040 | 106<br>108<br>109<br>110 | 041<br>042<br>043<br>044<br>045<br>046 | 087<br>089<br>090<br>091<br>092 | 1226042<br>1226043 | 05420<br>05490<br>06030<br>06090<br>06110<br>06120<br>06410<br>06420<br>06510<br>06520 | 162<br>163<br>164<br>165<br>166<br>167<br>168<br>170<br>171 | 202901<br>203904<br>207101<br>207102<br>207201<br>207202<br>207301<br>207901<br>207909 | 325130<br>325510<br>325520<br>325611<br>325612<br>325613<br>325620<br>325910<br>325920<br>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 | Indonesia | Malaysia | Philippines | Singapore | Thailand | China | Taiwan | Korea | Japan | U.S.A.(DOC) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 09150<br>09190<br>09191<br>09195 | | | 333993<br>333994<br>333995<br>333996<br>811300 |
| 046 | Metal working machinery | 124 | 052B<br>055D | 138 | 082 | 114 | 1635063 | 08720<br>08730<br>08740<br>08790<br>08791<br>08795<br>08710 | 236<br>237 | 302401<br>302402<br>303101 | 332991<br>333511<br>333512<br>333513<br>33351A |
| 047 | Specialized machinery | 124 | 055E | 137<br>139B | 066<br>079<br>081<br>083 | 113<br>115B | 1636065<br>1636066 | 08910<br>08810<br>08820<br>08830<br>08841<br>08842<br>08850<br>08860<br>08890<br>08891<br>08895<br>08920<br>08930<br>08960<br>08970<br>08990<br>08991<br>08995 | 234<br>238<br>239<br>240<br>241<br>242<br>243<br>244<br>245 | 302101<br>302201<br>302301<br>302901<br>302902<br>302903<br>302904<br>302909<br>311201 | 333111<br>333112<br>333120<br>333131<br>333132<br>333210<br>333220<br>333291<br>333292<br>333293<br>333294<br>333295<br>333298<br>333319<br>33331A |
| 048 | Heavy Electrical equipment | 125<br>126 | 059B | 143 | 084<br>085<br>086 | 117 | 1840073 | 09310<br>09320<br>09395 | 246<br>247<br>248<br>249<br>253 | 341101<br>341102<br>341103<br>341109 | 335311<br>335312<br>335313<br>335314 |
| 049 | Television sets, radios,audios and communication equipment | 127 | 057A | 144A<br>144B | 070<br>071<br>072 | 118A | 1941077<br>1941079 | 10010<br>10020<br>10030<br>10090<br>10091<br>10095<br>10110<br>10120<br>10130<br>10140<br>10150<br>10190<br>10195<br>10200<br>11150 | 262<br>263<br>264<br>265<br>266<br>267 | 321101<br>321102<br>321103<br>332101<br>332102<br>332103<br>332109 | 334210<br>334220<br>334290<br>334300 |
| 050 | Electronic computing equipment | 127 | 056B | 140B | 068<br>069 | 116B | 1941076 | 09610<br>09620<br>09630<br>09690<br>09695<br>09710<br>09720<br>09730<br>09790<br>09910<br>09920<br>09930<br>09990 | 268<br>269 | 331101<br>331102<br>331103 | 334111<br>334112<br>334113<br>334119 |
| 051 | Semiconductors and integrated circuits | 127 | 057B | 145A<br>145B<br>146 | 073<br>074<br>075<br>076 | 118B | 1941078 | 10310<br>10320<br>10330<br>10390 | 256<br>257 | 334101<br>334102 | 334413 |
| 052 | Other electronics and electronic products | 127 | 056C<br>057C | 140A | 077<br>078<br>087 | 116A | 2042081 | 10410<br>10420<br>10490<br>10510<br>10590<br>10595<br>09810<br>09820 | 169<br>254<br>255<br>258<br>259<br>260<br>261 | 272101<br>272102<br>311101<br>311109<br>333101<br>333201<br>335901<br>335902 | 333313<br>333315<br>334411<br>33441A<br>334510<br>334511<br>334512<br>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<br>310 | 512101<br>512201 | |
| 062 | Water supply | 143 | 067 | 173 | 108 | 137 | 2646089 | 11610<br>11620 | 311 | 521101<br>521102<br>521103 | 221300 |
| 063 | Building construction | 144 | 068A | 170A | 109 | 138<br>139 | 2749090A | 11710<br>11720<br>11795<br>11810<br>11820<br>11895 | 312<br>313<br>314<br>315<br>316 | 411101<br>411102<br>411201<br>411202<br>412101 | 230110<br>230120<br>230130<br>230140<br>230210<br>230220<br>230310<br>230320<br>230340 |
| 064 | Other construction | 145<br>146<br>147<br>148 | 068B | 170B | 110 | 140<br>141<br>142<br>143<br>144 | 2749090B | 11910<br>11920<br>11930<br>11940<br>11950<br>11960<br>11990<br>12010<br>12020<br>12030<br>12040<br>12050<br>12060<br>12070<br>12090 | 317<br>318<br>319<br>320<br>321<br>322<br>323<br>324<br>325<br>326<br>327<br>328 | 413101<br>413102<br>413103<br>413201<br>413202<br>413203<br>413209 | 230230<br>230240<br>230250<br>230330 |
| 065 | Wholesale and retail trade | 149 | 044C<br>069 | 174 | 111 | 145<br>146 | 3065100 | 12100<br>12210<br>12220<br>12300 | 329<br>330 | 392101<br>611101<br>611201 | 420000<br>4A0000 |
| 066 | Transportation | 153<br>154<br>155<br>156<br>157<br>158 | 071 | 175<br>176<br>177<br>178<br>179<br>180<br>181<br>182<br>183<br>184<br>185<br>186<br>187 | 114<br>115<br>116<br>117<br>118<br>119<br>120<br>121<br>122<br>123<br>125<br>126 | 149<br>150<br>151<br>153<br>154<br>155<br>156<br>157<br>158 | 2852091<br>2853092<br>2855094<br>2856095<br>2858096<br>2859097<br>3252102<br>3253103<br>3255104<br>3256105 | 12510<br>12520<br>12530<br>12540<br>12610<br>12620<br>12630<br>12640<br>12710<br>12720<br>12730<br>12740<br>12810<br>12820<br>12830<br>12910<br>12920<br>12930<br>12940<br>12990<br>13010<br>13110<br>13120<br>15620<br>15690 | 333<br>334<br>335<br>336<br>337<br>338<br>339<br>340<br>341<br>342<br>343<br>344<br>345 | 711101<br>711201<br>712101<br>712102<br>712201<br>714101<br>714201<br>714301<br>715101<br>716101<br>717101<br>718101<br>718901<br>718902<br>718903<br>718904<br>718905<br>718906<br>718909 | 481000<br>482000<br>483000<br>484000<br>485000<br>486000<br>48A000<br>492000<br>493000<br>561500<br>S00201 |
| 067 | Telephone and telecommunication | 159 | 072 | 188<br>189<br>190 | 127 | 159 | 2960098<br>2960099 | 13200<br>13300 | 346<br>347<br>348<br>349 | 731101<br>731201<br>731202<br>731203<br>731909 | 491000<br>513300 |
| 068 | Finance and insurance | 160<br>161<br>162 | 073<br>074<br>075 | 191<br>192<br>193<br>194<br>195 | 128<br>129<br>130<br>131 | 160<br>161<br>162 | 3368106<br>3370107 | 13410<br>13420<br>13490<br>13510<br>13520<br>13610<br>13620<br>13690<br>13630 | 352<br>353<br>354<br>355<br>356<br>357 | 621101<br>621201<br>621202 | 522A00<br>523000<br>524100<br>524200<br>525000<br>52A000 |
| 069 | Real estate | 163 | 076 | 196<br>197 | 132<br>155 | 163 | 3474108 | 13910<br>13920 | 358<br>359 | 641101<br>641102 | 531000<br>S00800 |

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

| National code | Description | Reference for Split ratios | AIO | AIO Description |
|---|---|---|---|---|
| 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 |

| National code | Description | Reference for Split ratios | AIO | AIO Description |
|---|---|---|---|---|
| 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 Industial 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)