Part1. Features of the Asian International Input-Output Table

Part 1

Features of
Asian International Input-Output Table

Ⅰ. GENERAL OUTLINE

The *2000 Asian International Input-Output Table* is designed to depict the industrial network extended over the ten countries, namely, China, Indonesia, Korea, Malaysia, Taiwan, the Philippines, Singapore, Thailand, Japan and the United States of America, and gives a minute picture of input composition and output destribution of each domestic industry vis-à-vis home as well as foreign countries' industries.

On the assumption of stable (or linear) technical correlation between input and output, the table also serves as an effective analytical tool for the study of economic repercussion and forward and backward linkages among the countries of concern. Since the *Asian International Input-Output Table* was already made available for the years of 1985 and 1990, and partly available even for the year of 1975 (China and Taiwan excluded), the 2000 table is expected to contribute to the studies on the technological changes that took place among these countries for decades.

Ⅱ. SCHEMATIC IMAGE OF ASIAN INTERNATIONAL INPUT-OUTPUT TABLE

The whole picture of the *2000 Asian International Input-Output Table* is given in Figure 1. As seen column-wise, each cell in the table shows the input composition of the industries of respective country. $\mathbf{A}^{\mathrm{II}}$, for example, shows the input compositions of Indonesian industries vis-à-vis domestically produced goods and services. $\mathbf{A}^{\mathrm{MI}}$, on the other hand, shows input composition of Indonesian industries for the imported goods and services from Malaysia. The cells $\mathbf{A}^{\mathrm{PI}}$, $\mathbf{A}^{\mathrm{SI}}$, $\mathbf{A}^{\mathrm{TI}}$, $\mathbf{A}^{\mathrm{CI}}$, $\mathbf{A}^{\mathrm{NI}}$, $\mathbf{A}^{\mathrm{KI}}$, $\mathbf{A}^{\mathrm{JI}}$ and $\mathbf{A}^{\mathrm{UI}}$ allow the same interpretation for the imports from other countries.

The transaction values thus tabulated are all given at producers' prices of the countries of origin. International freight and insurance paid by Indonesian industries for these imported transactions are all recorded in the row vector $\mathbf{BA}^{\mathrm{I}}$. $\mathbf{A}^{\mathrm{HI}}$, $\mathbf{A}^{\mathrm{OI}}$ and $\mathbf{A}^{\mathrm{WI}}$ are input compositions of Indonesian industries vis-à-vis imported goods and services from Hong Kong, from **EU** and from the Rest of the World, presented in CIF value. Import duties and import commodity taxes levied on all Indonesian imports are recorded in the row vector $\mathbf{DA}^{\mathrm{I}}$.

The value added items of Indonesian industries are shown in $\mathbf{V}^{\mathrm{I}}$. The bottom of the column gives $\mathbf{X}^{\mathrm{I}}$, the gross inputs of Indonesian industries.

Turning to the 11^{th} column from the left side of the table, it shows the compositions of goods and services that have gone to final demand sectors of Indonesia. $\mathbf{F}^{\mathrm{II}}$ and $\mathbf{F}^{\mathrm{MI}}$, for example, maps the inflow into Indonesian final demand sectors, of goods and services domestically produced and of those imported from Malaysia, respectively. The rest of the column is read in the same manner as is done for the 1^{st} column of the table.

Seen in rowwise direction, the table shows the output distributions of the commodities produced by domestic industries, to Malaysian industries, to the Philippines industries, and so on. $\mathbf{F}^{\mathrm{II}}$ is the distribution of Indonesian goods and services to final demand sectors of Indonesia, and $\mathbf{F}^{\mathrm{IM}}$ is to the final demand sectors of Malaysia, and so on.

$\mathbf{L}^{\mathrm{IH}}$, $\mathbf{L}^{\mathrm{IO}}$ and $\mathbf{L}^{\mathrm{IW}}$ are Indonesia's export to Hong Kong, to EU and to the Rest of the World. $\mathbf{Q}^{\mathrm{I}}$ is the statistical discrepancies and $\mathbf{X}^{\mathrm{I}}$ shows the gross outputs of Indonesian industries.

The columns and rows for the other countries can be read in the same manner.

Figure1. Layout of the *2000 Asian International Input-Output Table*

		Intermediate Demand (A)										Final Demand (F)										Export (L)				
	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}
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}					
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}															

Ⅲ. CODING SYSTEM AND TECHINICAL NOTES

1. Coding System

Row	Column	Description
AI001	AI001	
｜	｜	Intermediate sectors, Indonesia
AI076	AI076	
AI900	AI900	Sub-total (AI001 to AI076)
AM001	AM001	
｜	｜	Intermediate sectors, Malaysia
AM076	AM076	
AM900	AM900	Sub-total (AM001 to AM076)
AP001	AP001	
｜	｜	Intermediate sectors, Philippines
AP076	AP076	
AP900	AP900	Sub-total (AP001 to AP076)
AS001	AS001	
｜	｜	Intermediate sectors, Singapore
AS076	AS076	
AS900	AS900	Sub-total (AS001 to AS076)
AT001	AT001	
｜	｜	Intermediate sectors, Thailand
AT076	AT076	
AT900	AT900	Sub-total (AT001 to AT076)
AC001	AC001	
｜	｜	Intermediate sectors, China
AC076	AC076	
AC900	AC900	Sub-total (AC001 to AC076)
AN001	AN001	
｜	｜	Intermediate sectors, Taiwan
AN076	AN076	
AN900	AN900	Sub-total (AN001 to AN076)
AK001	AK001	
｜	｜	Intermediate sectors, Korea
AK076	AK076	
AK900	AK900	Sub-total (AK001 to AK076)
AJ001	AJ001	
｜	｜	Intermediate sectors, Japan
AJ076	AJ076	
AJ900	AJ900	Sub-total (AJ001 to AJ076)
AU001	AU001	
｜	｜	Intermediate sectors, the U.S.A.
AU076	AU076	
AU900	AU900	Sub-total (AU001 to AU076)
BF001		International Freight&Insurance

Row	Column	Description
CH001		
｜		Intermediate input from Hong
CH076		Kong (CIF prices)
CH900		Sub-total (CH001 to CH076)
CO001		
｜		Intermediate input from European Union
CO076		(CIF prices)
CO900		Sub-total (CO001 to CO076)
CW001		
｜		Intermediate input from Rest of
CW076		the World (CIF prices)
CW900		Sub-total (CW001 to CW076)
DT001		Duties & import sales tax
ET900	ET900	Total intermediate input
		or total intermediate output
VV001*1		Wages and salary
VV002*2		Operating surplus
VV003		Depreciation of fixed capital
VV004		Indirect taxes less subsidies
VV900 *3		Sub-total (VV001 to VV004)
	FI001*4	
	｜	Final demands, Indonesia
	FI004	
	FI900	Sub-total (FI001 to FI004)
	FM001	
	｜	Final demands, Malaysia
	FM004	
	FM900	Sub-total (FM001 to FM004)
	FP001	
	｜	Final demands, Philippines
	FP004	
	FP900	Sub-total (FP001 to FP004)
	FS001	
	｜	Final demands, Singapore
	FS005*5	
	FS900	Sub-total (FS001 to FS005)
	FT001	
	｜	Final demands, Thailand
	FT004	
	FT900	Sub-total (FT001 to FT004)
	FC001	
	｜	Final demands, China
	FC005*6	
	FC900	Sub-total (FC001 to FC005)

Row	Column	Description	Row	Column	Description
	FN001			FU001	
	｜	Final demands, Taiwan		｜	Final demands, the U.S.A.
	FN004			FU004	
	FN900	Sub-total (FN001 to FN004)		FU900	Sub-total (FU001 to FU004)
	FK001				
	｜	Final demands, Korea		LH001	Export to Hong Kong
	FK004			LO001	Export to EU
	FK900	Sub-total (FK001 to FK004)		LW001	Export to the Rest of the World
	FJ001				
	｜	Final demands, Japan			
	FJ004			QX001	Statistical discrepancies
	FJ900	Sub-total (FJ001 to FJ004)	XX600	XX600	Total input, Total output

*1 In Malaysian part, VV001 includes wages and salary, VV002 includes operating surplus, depreciation of fixed capital, and Indirect taxes less subsidies.

*2 In U.S.A. part, VV004 includes other value added except wage and salary. VV002 includes only indirect taxes.

*3 China’s GDP figure in AIO2000 is based on the updated China I-O table 2000 and does not reflect the result of the first National Economic Census published on Jan. 9, 2006.

*4 Common final demand items are as follows:

- 001 Private consumption
- 002 Government consumption
- 003 Gross domestic fixed capital formation
- 004 Increase in stocks.

*5 FS005 for Singapore consists of the balancing items for (1) domestic commodity taxes and GST, which came out of the adjustment process of domestic transactions from basic price to producer's price; (2) domestic trade margins and domestic transport cost (TTM) on exported goods, which came out of the adjustment process of export vector from FOB to producer's price. This balancing vector is necessary as the CTs of Singapore part are valued at basic price. (See part 1 of the volume Ⅰ, "Explanatory Notes".)

*6 In China’s part, FC005 represents the statistical error which is included in China’s original national I-O table.

2. Sector Classification of the 2000 Asian Input-Output Table

7 Sector		24 Sector Classification		76 Sector Classification(2000)		78 Sector Classification(1995)	
Code	Description	Code	Description	Code	Description	Code	Description
				INTERMEDIATE SECTORS			
001	Agriculture, livestock, forestry and fishery	001	Paddy	001	Paddy	001	Paddy
		002	Other agricultural products	002	Other grain	007A	Other grain
				003	Food crops	002	Cassava
						004	Sugar cane and beet
						005	Oil parm and coconuts
						007B	Other food crops
				004	Non-food crops	003	Natural rubber
						006	Fiber crops
						008	Other commercial crops
		003	Livestock and poultry	005	Livestock and poultry	009	Livestock and poultry
		004	Forestry	006	Forestry	010	Forestry
		005	Fishery	007	Fishery	011	Fishery
002	Mining and quarrying	006	Crude petroleum and natural gas	008	Crude petroleum and natural gas	012	Crude petroleum and natural gas
		007	Other mining	009	Iron ore	015A	Iron ore
				010	Other metallic ore	013	Copper ore
						014	Tin ore
						015B	Other metallic ore
				011	Non-metallic ore and quarrying	016	Non-metallic ore and quarrying
003	Manufacturing	008	Food, beverage and tobacco	012	Milled grain and flour	018	Milled rice
						019	Other milled grain and flour
				013	Fish products	021A	Fish products
				014	Slaughtering and meat and dairy products	021B	Slaughtering and meat and dairy products
				015	Other food products	017	Oil and fats
						020	Sugar
						021C	Other food products
				016	Beverage	022A	Beverage
				017	Tobacco	022B	Tobacco
		009	Textile, leather, and the products thereof	018	Spinning	023	Spinning
				019	Weaving and dyeing	024	Weaving and dyeing
				020	Knitting	025	Knitting
				021	Wearing apparel	026	Wearing apparel
				022	Other made-up textile products	027	Other made-up textile products
				023	Leather and leather products	028	Leather and leather products
		010	Timber and wooden products	024	Timber	029	Timber
				025	Wooden furniture	030A	Furniture
				026	Other wooden products	030B	Other wooden products
		011	Pulp, paper and printing	027	Pulp and paper	031	Pulp and paper
				028	Printing and publishing	032	Printing and publishing
		012	Chemical products	029	Synthetic resins and fiber	033A	Synthetic resins and fiber
				030	Basic industrial chemicals	033B	Other basic industrial chemicals
				031	Chemical fertilizers and pesticides	034	Chemical fertilizers and pesticides
				032	Drugs and medicine	035A	Drugs and medicine
				033	Other chemical products	035B	Other chemical products
		013	Petroleum and petro products	034	Refined petroleum and its products	036	Refined petroleum and its products
		019	Other manufacturing products	035	Plastic products	050A	Plastic products
		014	Rubber products	036	Tires and tubes	037	Tires and tubes
				037	Other rubber products	038	Other rubber products
		015	Non-metallic mineral products	038	Cement and cement products	039	Cement and cement products
				039	Glass and glass products	040	Glass and glass products
				040	Other non-metallic mineral products	041	Other non-metallic mineral products
		016	Metal products	041	Iron and steel	042	Iron and steel
				042	Non-ferrous metal	043	Non-ferrous metal
				043	Metal products	044	Metal products
		017	Machinery	044	Boilers, Engines and turbines	045E	Engines and turbines
				045	General machinery	045C-2	Ordinary industrial machinery
				046	Metal working machinery	045B-1	Specialized industrial machinery
						045C-2	Ordinary industrial machinery
				047	Specialaized machinery	045A	Agricultural machinery
						045B-2	Specialized industrial machinery
				048	Heavy Electrical equipment	045D	Heavy Electric machinery
				049	Television sets, radios,audios and communication equipment	046A	Electronics and electronic products
				050	Electronic computing equipment		
				051	Semiconductors and integrated circuits		
				052	Other electronics and electronic products		
				053	Household electrical equipment	046B	Other electric machinery and appliance
				054	Lighting fixtures, batteries, wiring and others		
		018	Transport equipment	055	Motor vehicles	047A	Motor vehicles
				056	Motor cycles	047B-1	Motor cycles and bicycles (Motor cycles)
				057	Shipbuilding	048B	Shipbuilding
				058	Other transport equipment	047B-2	Motor cycles and bicycles (Bicycles)
						048A	Aircrafts
						048C	Other transport equipment
		019	Other manufacturing products	059	Precision machines	049	Precision machines
				060	Other manufacturing products	050B	Other manufacturing products
004	Electricity, gas and water supply	020	Electricity, gas, and water supply	061	Electricity and gas	051	Electricity, gas and water supply
				062	Water supply		

7 Sector		24 Sector Classification		76 Sector Classification(2000)		78 Sector Classification(1995)	
Code	Description	Code	Description	Code	Description	Code	Description
INTERMEDIATE SECTORS							
005	Construction	021	Construction	063	Building construction	052A	Building construction
				064	Other construction	052B	Other construction
006	Trade and transport	022	Trade and transport	065	Wholesale and retail trade	053A	Wholesale and retail trade
				066	Transportation	053B	Transportation
007	Services	023	Services	067	Telephone and telecommunication	054A	Telephone and telecommunication
				068	Finance and insurance	054B	Finance and insurance
				069	Real estate	054D-1	Other services
				070	Education and research	054C	Education and research
				071	Medical and health service	054D-2	Other services
				072	Restraunts	054D-3	Other services
				073	Hotel	054D-4	Other services
				074	Other services	054D-5	Other services
				076	Unclassified	056	Unclassified
		024	Public administration	075	Public administration	055	Public administration
FINAL DEMAND SECTORS							
001	Private consumption	001	Private consumption	001	Private consumption	001	Private consumption
002	Governemtn consumption	002	Governemtn consumption	002	Governemtn consumption	002	Governemtn consumption
003	Gross fixed capital formation	003	Gross fixed capital formation	003	Gross fixed capital formation	003	Gross fixed capital formation
004	Changes in stocks	004	Changes in stocks	004	Changes in stocks	004	Changes in stocks
VALUE ADDED SECTORS							
001	Wages and salary	001	Wages and salary	001	Wages and salary	001	Wages and salary
002	Operating surplus	002	Operating surplus	002	Operating surplus	002	Operating surplus
003	Depreciation	003	Depreciation	003	Depreciation	003	Depreciation
004	Indirect taxes less subsidies	004	Indirect taxes less subsidies	004	Indirect taxes less subsidies	004	Indirect taxes less subsidies

3. Technical Notes

In this publication, some annex tables are presented for analytical purpose. The definitions and calculation formulae for these tables are given as follows.

(1) Input Coefficient Matrix and Inverse Matrix

Taking up the intermediate transaction segment given in Figure 1, set

$$\mathbf{X} = (x^{\alpha\beta}_{ij}) \qquad \begin{pmatrix} A^{II} & A^{IM} & A^{IP} & A^{IS} & A^{IT} & A^{IC} & A^{IN} & A^{IK} & A^{IJ} & A^{IU} \\ A^{MI} & A^{MM} & A^{MP} & A^{MS} & A^{MT} & A^{MC} & A^{MN} & A^{MK} & A^{MJ} & A^{MU} \\ A^{PI} & A^{PM} & A^{PP} & A^{PS} & A^{PT} & A^{PC} & A^{PN} & A^{PK} & A^{PJ} & A^{PU} \\ A^{SI} & A^{SM} & A^{SP} & A^{SS} & A^{ST} & A^{SC} & A^{SN} & A^{SK} & A^{SJ} & A^{SU} \\ A^{TI} & A^{TM} & A^{TP} & A^{TS} & A^{TT} & A^{TC} & A^{TN} & A^{TK} & A^{TJ} & A^{TU} \\ A^{CI} & A^{CM} & A^{CP} & A^{CS} & A^{CT} & A^{CC} & A^{CN} & A^{CK} & A^{CJ} & A^{CU} \\ A^{NI} & A^{NM} & A^{NP} & A^{NS} & A^{NT} & A^{NC} & A^{NN} & A^{NK} & A^{NJ} & A^{NU} \\ A^{KI} & A^{KM} & A^{KP} & A^{KS} & A^{KT} & A^{KC} & A^{KN} & A^{KK} & A^{KJ} & A^{KU} \\ A^{JI} & A^{JM} & A^{JP} & A^{JS} & A^{JT} & A^{JC} & A^{JN} & A^{JK} & A^{JJ} & A^{JU} \\ A^{UI} & A^{UM} & A^{UP} & A^{US} & A^{UT} & A^{UC} & A^{UN} & A^{UK} & A^{UJ} & A^{UU} \end{pmatrix}$$

where α denotes a code of the country to supply goods and services;
β denotes a code of the country to demand goods and services;
i denotes the i-th industry of country α, given $1 \leqq i \leqq n$;
j denotes the j-th industry of country β, given $1 \leqq j \leqq n$;
and n is the number of industries.

Then, **X** is a square matrix with the size of (10*n)×(10*n)

Let **x'** be the transposed vector of the gross output **x**, also shown at the bottom of Figure 1, that is

$$\mathbf{x}' = (x^{I}_{1} \cdots x^{I}_{n}, x^{M}_{1} \ldots x^{M}_{n}, \cdots\cdots, x^{\beta}_{1} \cdots x^{\beta}_{n}, \cdots\cdots, x^{J}_{1} \cdots x^{J}_{n}, x^{U}_{1} \cdots x^{U}_{n}) .$$

Then "Input Coefficient Matrix" is defined as

$$\mathbf{A} = (a^{\alpha\beta}_{ij}) \qquad \text{where} \qquad a^{\alpha\beta}_{ij} = x^{\alpha\beta}_{ij} / x^{\beta}_{j} .$$

Then, "Inverse Matrix" **B**, known as "Leontief Inverse", is defined as

$$\mathbf{B} = (b^{\alpha\beta}_{ij}) = (\mathbf{I}-\mathbf{A})^{-1} \qquad \begin{pmatrix} B^{II} & B^{IM} & B^{IP} & B^{IS} & B^{IT} & B^{IC} & B^{IN} & B^{IK} & B^{IJ} & B^{IU} \\ B^{MI} & B^{MM} & B^{MP} & B^{MS} & B^{MT} & B^{MC} & B^{MN} & B^{MK} & B^{MJ} & B^{MU} \\ B^{PI} & B^{PM} & B^{PP} & B^{PS} & B^{PT} & B^{PC} & B^{PN} & B^{PK} & B^{PJ} & B^{PU} \\ B^{SI} & B^{SM} & B^{SP} & B^{SS} & B^{ST} & B^{SC} & B^{SN} & B^{SK} & B^{SJ} & B^{SU} \\ B^{TI} & B^{TM} & B^{TP} & B^{TS} & B^{TT} & B^{TC} & B^{TN} & B^{TK} & B^{TJ} & B^{TU} \\ B^{CI} & B^{CM} & B^{CP} & B^{CS} & B^{CT} & B^{CC} & B^{CN} & B^{CK} & B^{CJ} & B^{CU} \\ B^{NI} & B^{NM} & B^{NP} & B^{NS} & B^{NT} & B^{NC} & B^{NN} & B^{NK} & B^{NJ} & B^{NU} \\ B^{KI} & B^{KM} & B^{KP} & B^{KS} & B^{KT} & B^{KC} & B^{KN} & B^{KK} & B^{KJ} & B^{KU} \\ B^{JI} & B^{JM} & B^{JP} & B^{JS} & B^{JT} & B^{JC} & B^{JN} & B^{JK} & B^{JJ} & B^{JU} \\ B^{UI} & B^{UM} & B^{UP} & B^{US} & B^{UT} & B^{UC} & B^{UN} & B^{UK} & B^{UJ} & B^{UU} \end{pmatrix}$$

(2) Forward and Backward Linkages Effects

(i) Forward Linkages Effects ($\mathbf{FE}^{\alpha}{}_{i}$)

Firstly, the row-totals vector $\mathbf{b}^{\alpha}{}_{i}$ is calculated from the inverse matrix $\mathbf{B} = (b^{\alpha\beta}{}_{ij})$ as

$$\mathbf{b}^{\alpha}{}_{i} = \sum_{\beta j=1}^{n} \sum b^{\alpha\beta}{}_{ij}$$

Then, "Forward Linkages Effects" of the i-th industry of the country α is defined as

$$\mathbf{FE}^{\alpha}{}_{i} = \mathbf{b}^{\alpha}{}_{i} \Big/ \frac{\sum_{\alpha} \sum_{i} b^{\alpha}{}_{i}}{10 * n}$$

(ii) Backword Linkages Effects ($\mathbf{BE}^{\beta}{}_{j}$)

Similarly, the column-totals vector $\mathbf{b}^{\beta}{}_{j}$ is calculated by

$$\mathbf{b}^{\beta}{}_{i} = \sum_{\alpha i=1}^{n} \sum b^{\alpha\beta}{}_{ij}$$

Then, "Backward Linkages Effects" of the j-th industry of the country β is defined as

$$\mathbf{BE}^{\beta}{}_{j} = \mathbf{b}^{\beta}{}_{j} \Big/ \frac{\sum_{\beta} \sum_{j} b^{\beta}{}_{i}}{10 * n}$$

(3) Impact of Final Demand on Gross Output

Let $\mathbf{f}^{\alpha}$ be a column vector of final demand sub-totals of, or an export vector to, a country α, or tha vector of statistical discrepancies, with the column length of 10* n. Then, "Impact of Final Demand on Gross Output" is defined as

$$\mathbf{IFx}^{\alpha} = \mathbf{B} \cdot \mathbf{f}^{\alpha}$$

wher **B** is the "Inverse Matrix" as defined in the section (1).

(4) Impact of Final Demand on Gross Value Added

Let **v** be a vector of total value added by sector, that is

$$\mathbf{v} = (v^{I}_{1} \cdots v^{I}_{n}, v^{M}_{1} \ldots v^{M}_{n}, \cdots\cdots, v^{\beta}_{1} \cdots v^{\beta}_{n}, \cdots\cdots, v^{J}_{1} \cdots v^{J}_{n}, v^{U}_{1} \cdots v^{U}_{n})$$

wher the superscript of each element denotes "country" and the subscript denotes "industry".

Then, the vector of value added ratios υ is defined as

$$\upsilon = (\upsilon^{I}_{1} \cdots \upsilon^{I}_{n}, \upsilon^{M}_{1} \ldots \upsilon^{M}_{n}, \cdots\cdots, \upsilon^{\beta}_{1} \cdots \upsilon^{\beta}_{n}, \cdots\cdots, \upsilon^{U}_{1} \cdots \upsilon^{U}_{n}),$$

$$\text{and } \upsilon^{\beta}_{i} = v^{\beta}_{i} / x^{\beta}_{i}$$

wher $x^{\beta}{}_{i}$ is an element in **x'** (= the transpose of gross output vector **x**) for the i-th industry of the country β.

Using the same notations, the "Impact of Final Demand on Gross Value Added" is calculated as

$$\mathbf{FIv}^{\alpha} = \hat{\mathbf{v}} \cdot \mathbf{B} \cdot \mathbf{f}^{\alpha}$$ whera $\hat{\mathbf{v}}$: the diagonal matrix constructed from $\mathbf{v}$

$$= \begin{pmatrix} v^{I}_{1} & & & 0 \\ & \ddots & & \\ & & v^{U}_{1} & \\ 0 & & & v^{U}_{n} \end{pmatrix}$$

(5) Contribution Ratios of Final Demand on Value Added

Upon the result of "Impact of Final Demand on Value Added", the Contribution Ratio of final demand item α on the value added of the i-th sector is given by

$$\mathbf{CRi} = \mathbf{IFv}^{\alpha}_{i} \; / \; \sum_{\alpha} \mathbf{IFv}^{\alpha}_{i} \times 100\%$$

4. Comments on Supporting Tables

4. 1 Duties and import commodity taxes ratio

Duties and import commodity taxes is defined as the taxes imposed when the commodity is imported to the country from other countries. The ratio is calculated from the following formulae:

Duties and import commodity taxes ratio
= Duties and import commodity taxes / (CIF price + duties and import commodity taxes)

4. 2 Employment matrix

Except the country which has an employment matrix as the supporting table of IO accounts, the employment matrix by sector and by employment status was estimated from the Labor Force Statistics. However, some countries can not estimate the data in the same definition. Please see the following notes.

Notes on 2000 Employment Matrix

	INDONESIA	MALAYSIA	PHILIPPINES	SINGAPORE	THAILAND
Primary data source	NLFS	NLFS	NLFS	NLFS	NLFS
Sideline occupations – double counting	No	Yes	Yes	No	No
Military personnel – counted / not counted	Not counted	Counted	Counted	Counted	Not counted
Employment status (1) Three categories	Yes	Yes	Yes	Yes	Yes
(2) Alternative classification					

	CHINA	TAIWAN	KOREA	JAPAN	USA
Primary data source	NLFS	NLFS	IO	IO	IO
Sideline occupations – double counting	No	Yes	Yes	Yes	Yes
Military personnel – counted / not counted	Counted	Not counted	Counted	Counted	Counted
Employment status (1) Three categories	No	Yes	No	Yes	No
(2) Alternative classification	City (Chengshi) Town (Xiangzhen) Rural (Nengcun)		Employee Own Account Worker		Wage and Salaries Job Self-employed and Unpaid Family Worker

* NLFS = National Labor Force Statistics