National Account in Matrix Formats

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(for EE 459)

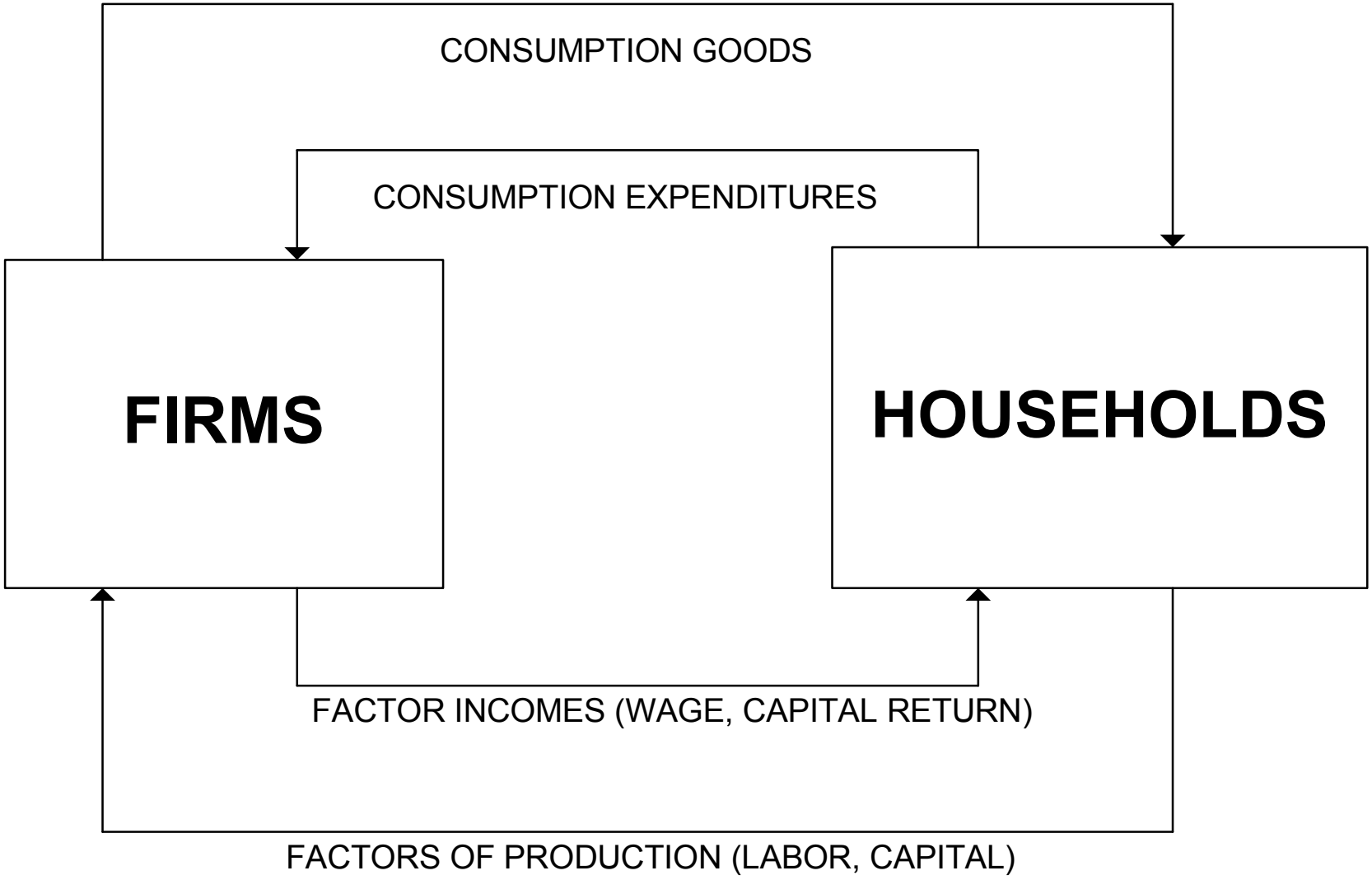
Classification of Matrix Accounting

(1) Social Accounting Matrix (SAM)

(2) Supply and Use Table

(3) Input – Output Table (IO Table)

Circulation within the economy



Structure of SAM Table

	AGR-A	NAGR-A	AGR-C	NAGR-C	LAB	CAP	U-HHD	R-HHD	TOTAL
AGR-A									225
NAGR-A									250
AGR-C									225
NAGR-C									250
LAB									117
CAP									158
U-HHD									150
R-HHD									125
TOTAL	225	250	225	250	117	158	150	125	

Production Outputs

Input – Output Table

Consumption Expenditures

Value Added

Factor Incomes

SAM Exercise : Income and Expenditure Tables

PRODUCTION (FIRMS)

EXPENDITURE

	AGRI activity (AGR-A)	NON-AGRI activity (NAGR-A)
AGR-C	60	40
NAGR-C	40	60
LABOR	62	55
CAPITAL	63	95
TOTAL	**225**	**250**

INCOME

	AGR-A	NAGR-A
AGRI Commodity (AGR-C)	225	
NON- AGRI Commodity (NAGR-C)		250
TOTAL	**225**	**250**

CONSUMPTION (HOUSEHOLDS)

EXPENDITURE

	URBAN-HHD (U-HHD)	RURAL-HHD (R-HHD)
AGRI Commodity (AGR-C)	50	75
Sales of NON- AGRI Commodity (NAGR-C)	100	50
TOTAL	**150**	**125**

INCOME

	URBAN-HHD (U-HHD)	RURAL-HHD (R-HHD)
LABOR	60	57
CAPITAL	90	68
TOTAL	**150**	**125**

SAM Exercise : Completing SAM Table

	AGR-A	NAGR-A	AGR-C	NAGR-C	LAB	CAP	U-HHD	R-HHD	TOTAL
AGR-A									
NAGR-A									
AGR-C									
NAGR-C									
LAB									
CAP									
U-HHD									
R-HHD									
TOTAL									

Computing GDP from Exercise 2

	AGR-A	NAGR-A	AGR-C	NAGR-C	LAB	CAP	U-HHD	R-HHD	TOTAL
AGR-A			225						225
NAGR-A				250					250
AGR-C	60	40					50	75	225
NAGR-C	40	60					100	50	250
LAB	62	55							117
CAP	63	95							158
U-HHD					60	90			150
R-HHD					57	68			125
TOTAL	225	250	225	250	117	158	150	125	

GDP from VA	Value-Added	275

	Net Output	Total Output	- Input	= Net Output
GDP from Net Output	Net Output	475	-200	275

GDP from Income	Income	275

GDP from Expenditure	Expenditure	275

Gross Domestic Product

- Main measure of economic activity and growth
- Can be measured in three ways:

Output = Expenditure = Income *or* GDP(O) = GDP(E) = GDP(O)

Supply = Demand:

Domestic Production + Imports = Household Expenditure + Intermediate Consumption + Capital Formation + Exports + Change in Stocks

GDP(O) = GDP(E)

Domestic Production – Intermediate Consumption = Household Expenditure + Capital Formation + Change in Stocks + Exports - Imports

GDP(I) = wages and salaries + profits

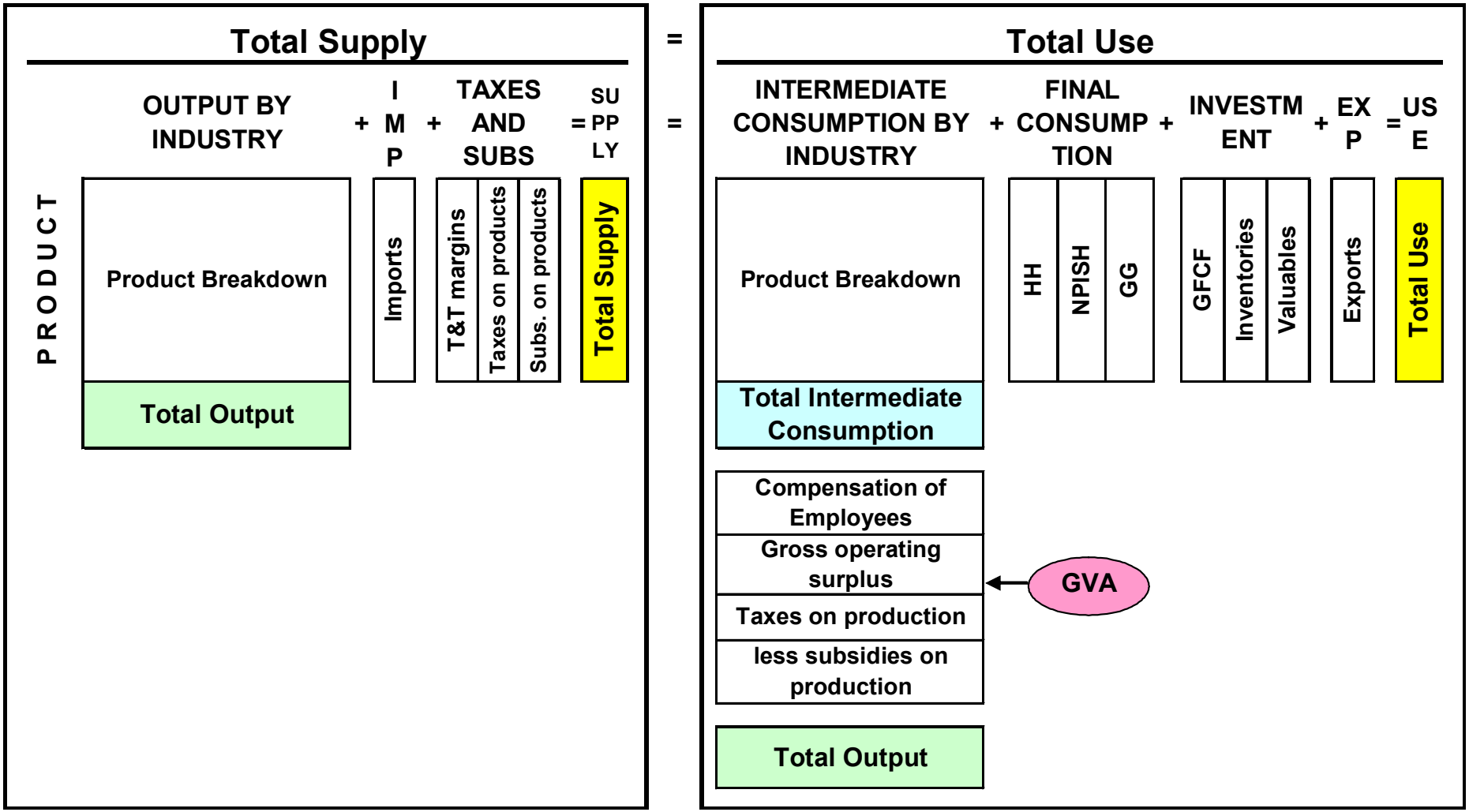
Compilation and Balancing in Matrix Format

- Each component can be measured separately, annually, quarterly or monthly
- Results in three different estimates of GDP
- Data confrontation exercise, known as ‘GDP balancing’ to reconcile these estimates
- Results in one ‘best’ estimate of GDP

2.Supply and Use Tables

- Enables data reconciliation at a more disaggregated level:
  - GDP(O) and GDP(E) by product
  - GDP(O) and GDP(I) by industry

2. Format of Supply and Use Table

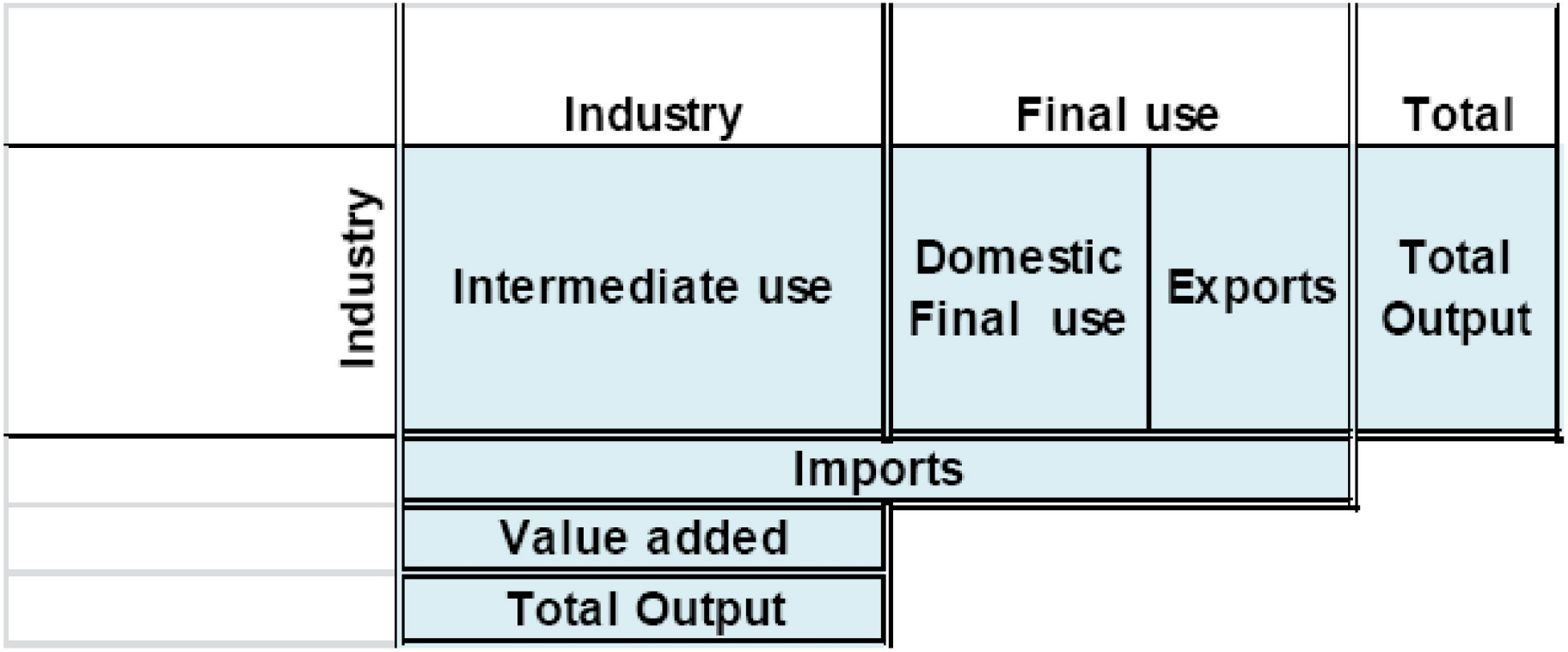


2. Format of Supply and Use Table

	Supply *Product*	Intermediate use *Industry*	Final use		Total
Product		Intermediate use (I)	Domestic final use (F)	Exports (E)	Total use by product (U)
Industry	Domestic supply (S^D)				Total output by industry (GO)
Rest of World	Imports (M)				
		Value added (VA)			
	Total supply by product (S)	Total input by industry			

3.Format of Input – Output Table

One country format



3.Format of Input – Output Table

Format of 3-coutry IO Table

		Country A Intermediate *Industry*	Country B Intermediate *Industry*	Rest of World Intermediate *Industry*	Country A Final domestic	Country B Final domestic	Rest of World Final domestic	Total
Country A	*Industry*	Intermediate use of domestic output	Intermediate use by B of exports from A	Intermediate use by RoW of exports from A	Final use of domestic output	Final use by B of exports from A	Final use by RoW of exports from A	Output in A
Country B	*Industry*	Intermediate use by A of exports from B	Intermediate use of domestic output	Intermediate use by RoW of exports from B	Final use by A of exports from B	Final use of domestic output	Final use by RoW of exports from B	Output in B
Rest of World (RoW)	*Industry*	Intermediate use by A of exports from RoW	Intermediate use by B of exports from RoW	Intermediate use of domestic output	Final use by A of exports from RoW	Final use by B of exports from RoW	Final use of domestic output	Output in RoW
		Value added	Value added	Value added				
		Output in A	Output in B	Output in RoW				

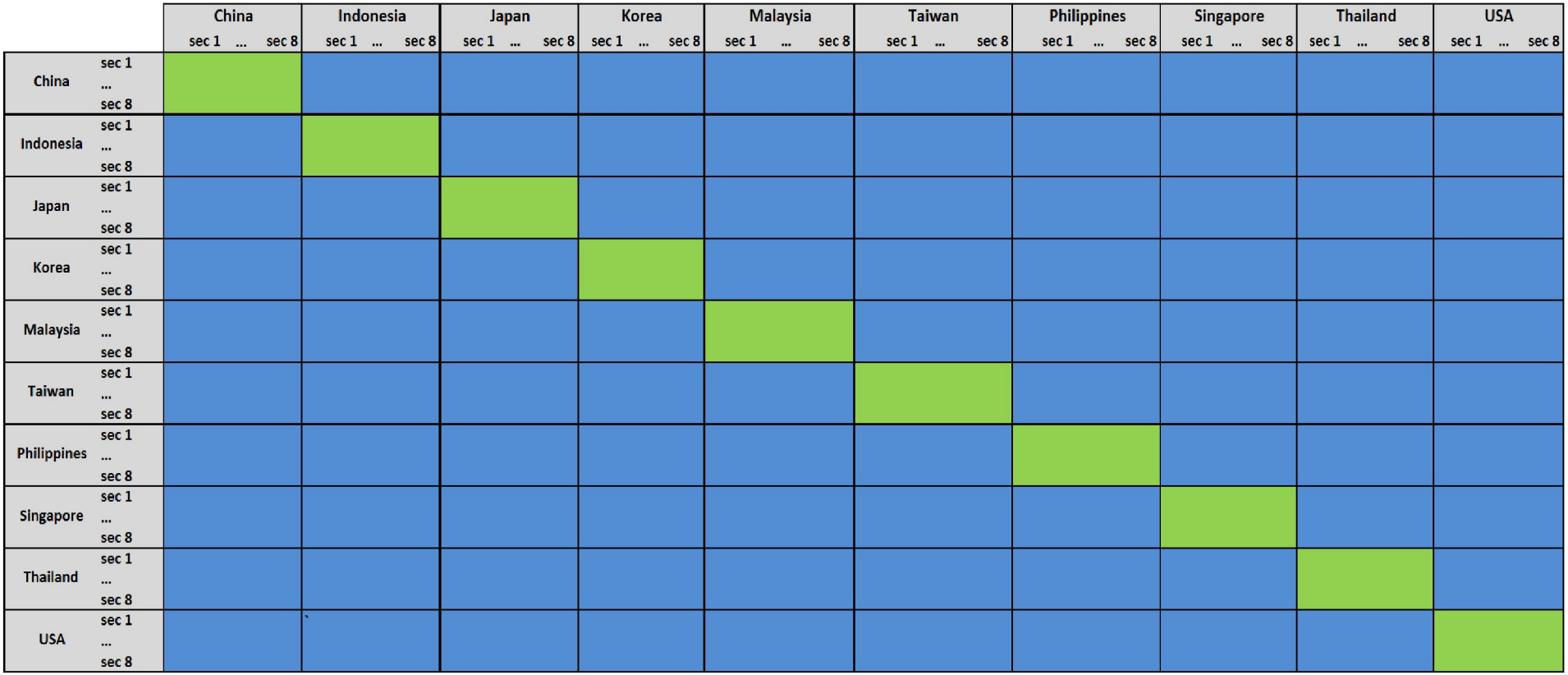
ASEAN+3 - Year 2000 IO Table – Intraregional analysis

Structure of Asian International Input-Output Table

		Intermediate Demand (A)										Final Demand (F)										Export (L)						
	code	Indonesia (AI)	Malaysia (AM)	Philippinos (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 United Kingdom (LE)	Export to France (LF)	Export to Germany (LG)	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}	LH^{I}	LE^{I}	LF^{I}	LG^{I}	LW^{I}	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}	LH^{M}	LE^{M}	LF^{M}	LG^{M}	LW^{M}	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}	LH^{P}	LE^{P}	LF^{P}	LG^{P}	LW^{P}	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}	LH^{S}	LE^{S}	LF^{S}	LG^{S}	LW^{S}	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}	LH^{T}	LE^{T}	LF^{T}	LG^{T}	LW^{T}	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}	LH^{C}	LE^{C}	LF^{C}	LG^{C}	LW^{C}	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}	LH^{N}	LE^{N}	LF^{N}	LG^{N}	LW^{N}	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}	LH^{K}	LE^{K}	LF^{K}	LG^{K}	LW^{K}	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}	LH^{J}	LE^{J}	LF^{J}	LG^{J}	LW^{J}	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}	LH^{U}	LE^{U}	LF^{U}	LG^{U}	LW^{U}	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)	HA^{I}	HA^{M}	HA^{P}	HA^{S}	HA^{T}	HA^{C}	HA^{N}	HA^{K}	HA^{J}	HA^{U}	HF^{I}	HF^{M}	HF^{P}	HF^{S}	HF^{T}	HF^{C}	HF^{N}	HF^{K}	HF^{J}	HF^{U}							
Import from the R.O.W.	(CW)	WA^{I}	WA^{M}	WA^{P}	WA^{S}	WA^{T}	WA^{C}	WA^{N}	WA^{K}	WA^{J}	WA^{U}	WF^{I}	WF^{M}	WF^{P}	WF^{S}	WF^{T}	WF^{C}	WF^{N}	WF^{K}	WF^{J}	WF^{U}							
Import Duty and Sales Tax	(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}																	

ASEAN+3 - Year 2000 IO Table – Intraregional analysis

Matrix and sub-matrices of multiregional Input-Output table



Multipliers of bilateral influence

Multipliers of domestic influence