

Chapter 8.F

Representative Table and Composite Regions

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This chapter describes three sets of regional groupings that are used in the construction of the GTAP Data Base, namely: the representative region, geographic regions, and composite regions. Input-output tables are constructed for the representative region and for composite regions. A classification of the global economy into a few large geographic regions is used in constructing I-O tables for the composite regions and in filling in missing macroeconomic data (see chapter 6).

8.F.1 Representative Table

The representative table is an I-O table created as a linear combination of the set of I-O tables which have full sectoral disaggregation. Ideally, the regions comprising the representative table should represent the broad spectrum of economic development and geographic location of the regions in the data base. Table 8.F.1 provides the list of 21 regions whose I-O tables form the representative I-O table used in the GTAP 8 Data Base.

The representative I-O table is used in several stages in the data base construction process. In the initial stage of checking contributed I-O tables, cost and use shares calculated from an I-O table submitted to GTAP are compared to those from the representative table to identify highly unusual shares and possible errors in the contributed I-O table. Once an I-O table is found to be acceptable and is included in the GTAP data construction process, the I-O table undergoes an initial cleaning procedure where the representative table is used as the source of scaling factors which are then used in revising abnormal or infeasible values in the initial I-O table.

The representative table is also used in the I-O table disaggregation procedure (chapter 8.D). For sectors that are not split in the original I-O table, the structure of production, intermediate usage, and consumption are adapted from the representative table. This is true for the non-agricultural sectors. We use agricultural I-O data for disaggregating agriculture (see chapter 8.A).

8.F.2 Geographic Regions

In the GTAP 8 Data Base, the global economy is represented by 129 regions, 109 of which are regions for which national I-O data are available (referred to as primary regions) and 20 are composite regions. Dividing the global economy into a fewer number of geographic regions is useful in certain aspects of the data base construction. In generating a complete macroeconomic dataset, for each geographic region, averages of the shares of GDP aggregates to total GDP for countries with available data are used for filling in estimates of the GDP aggregates for countries with missing data (see Chapter 6). As discussed in the next section, geographic regions are also used in the construction of I-O tables for composite regions.

Table 8.F.1 Primary Regions Included in the Representative I-O Table

GTAP Regions		GTAP Regions	
AUS	Australia	MEX	Mexico
NZL	New Zealand	URY	Uruguay
JPN	Japan	HRV	Croatia
KOR	Korea	ALB	Albania
SGP	Singapore	BWA	Botswana
TWN	Taiwan	MDG	Madagascar
BGD	Bangladesh	MWI	Malawi
USA	United States	MOZ	Mozambique
COL	Colombia	TZA	Tanzania
BRA	Brazil	ZMB	Zambia
KHM	Cambodia	ZWE	Zimbabwe

The set of 19 geographic regions given in table 8.F.2 are used in constructing the macroeconomic dataset. Table 8.F.3 provides a mapping between the 19 geographic groups and the 244 standard countries.

Table 8.F.2 Geographic Regions used in GTAP Data Construction

Region Code	Description	Region Code	Description
OCEN	Oceania	NEUR	Northern Europe
EAAS	Eastern Asia	WEUR	Western Europe
SEAS	South-eastern Asia	EEUR	Eastern Europe
STAS	Southern Asia	SEUR	Southern Europe
CEAS	Central Asia	NAFR	Northern Africa
WEAS	Western Asia	WAFR	Western Africa
NAMR	North America	CAFR	Central Africa
CARB	Caribbean	EAFR	Eastern Africa
CAMR	Central America	SAFR	Southern Africa
SAMR	South America		

Note: In constructing I-O tables for composite regions, the Caribbean, Central America, and South America are combined into Latin America and Western, Central, Eastern and Southern Africa are combined into Sub-Saharan Africa.

Because of the constraint imposed by the unavailability of a single I-O table for any of the countries included in a geographic region such as the Caribbean, a smaller set of 15 geographic regions is used in constructing the composite regions. This was done by classifying the Caribbean, Central America, and South America together as the larger Latin America region and defining the larger Sub-Saharan Africa region as composed of Eastern Africa, Central Africa, Western Africa, and Southern Africa.

8.F.3 *Composite Regions*

The GTAP 8 Data Base includes contributed I-O tables for 109 of the total of 129 regions. The I-O data for these primary regions are used to construct I-O tables for the 19 composite regions which account for the rest of the economies in the world.

Some changes related to composite regions were introduced in the construction of the GTAP 8 Data Base. A new region XTW (Rest of the World) was introduced, to capture the remote territories such as Antarctica. Other composite regions had different composition in version 8, compared to version 7, because of addition of new IO tables as well as new GTAP countries, as explained in chapters 2 and 3.

It should be noted that although we continue to use the same names as some composite regions in the GTAP 7 Data Base, the composition of some of these regions have changed and now includes a lesser number of countries. We assume here that the average patterns of production, consumption, and savings in any individual country in the 19 composite regions can be approximated by patterns observed in one of its neighboring primary regions.

In constructing an I-O table for a composite region, we start by associating a primary region to each of the member countries in a composite region. The steps involved in the procedure are:

- all the 244 standard countries are matched on the basis of similarity in GDP per capita with a primary region within the same geographic region
- the target total GDP is generated for each composite region; this is the sum of GDP for the individual countries comprising the composite region
- the primary regions matching the countries in the composite region in terms of similarity in GDP per capita are noted and GDP weights (ratio of country GDP to total target GDP) are assigned to each primary region
- the I-O table for each composite region is constructed by combining the I-O data from the primary region tables summed according to the GDP share weights.

The I-O tables for the composite regions are then updated and adjusted to match aggregated regional data on macroeconomic aggregates, trade, protection, and energy in the FIT procedure documented in chapter 15.

Table 8.F.3 Geographic Regions and Mapping

OCEN	Oceania		
		American Samoa	ASM
		Australia	AUS
		Cook Islands	COK
		Fiji	FJI
		French Polynesia	PYF
		Guam	GUM
		Kiribati	KIR
		Marshall Islands	MHL
		Micronesia, Federated States of	FSM
		Nauru	NRU
		New Caledonia	NCL
		New Zealand	NZL
		Niue	NIU
		Norfolk Island	NFK
		Northern Mariana Islands	MNP
		Palau	PLW
		Papua New Guinea	PNG
		Samoa	WSM
		Solomon Islands	SLB
		Tokelau	TKL
		Tonga	TON
		Tuvalu	TUV
		Vanuatu	VUT
		Wallis and Futuna	WLF
EAAS	East Asia		
		China	CHN
		Hong Kong	HKG
		Korea, Democratic People's Republic of	PRK
		Korea, Republic of	KOR
		Macau	MAC
		Mongolia	MNG
		Taiwan	TWN
		Japan	JPN
SEAS	South-Eastern Asia		
		Brunei Darussalam	BRN
		Cambodia	KHM
		Indonesia	IDN
		Lao People's Democratic Republic	LAO
		Malaysia	MYS
		Myanmar	MMR
		Philippines	PHL
		Singapore	SGP
		Thailand	THA
		Timor Leste	TLS
		Vietnam	VNM

Table 8.F.3 Geographic Regions and Mapping (Cont'd)

STAS	Southern Asia		
		Afghanistan	AFG
		Bangladesh	BGD

		Bhutan	BTN
		India	IND
		Iran, Islamic Republic of	IRN
		Maldives	MDV
		Nepal	NPL
		Pakistan	PAK
		Sri Lanka	LKA
CEAS	Central Asia		
		Kazakhstan	KAZ
		Kyrgyzstan	KGZ
		Tajikistan	TJK
		Turkmenistan	TKM
		Uzbekistan	UZB
WEAS	Western Asia		
		Armenia	ARM
		Azerbaijan	AZE
		Bahrain	BHR
		Cyprus	CYP
		Georgia	GEO
		Iraq	IRQ
		Israel	ISR
		Jordan	JOR
		Kuwait	KWT
		Lebanon	LBN
		Oman	OMN
		Palestinian Territory, Occupied	PSE
		Qatar	QAT
		Saudi Arabia	SAU
		Syrian Arab Republic	SYR
		Turkey	TUR
		United Arab Emirates	ARE
		Yemen	YEM
NAMR	North America		
		Bermuda	BMU
		Canada	CAN
		Greenland	GRL
		Saint Pierre and Miquelon	SPM
		United States of America	USA
LAMR	Latin America		
	CARB	Caribbean	
		Aruba	ABW
		Anguilla	AIA
		Netherlands Antilles	ANT
		Antigua & Barbuda	ATG
		Bahamas	BHS
		Barbados	BRB
		Cuba	CUB
		Cayman Islands	CYM
		Dominica	DMA
		Dominican Republic	DOM
		Guadeloupe	GLP
		Grenada	GRD

Table 8.F.3 Geographic Regions and Mapping (Cont'd)

	Haiti	HTI
	Jamaica	JAM
	Saint Kitts and Nevis	KA
	Saint Lucia	LCA
	Montserrat	MSR
	Martinique	MTQ
	Puerto Rico	PRI
	Turks and Caicos	TCA
	Trinidad and Tobago	TTO
	Saint Vincent and the Grenadines	VCT
	Virgin Islands, British	VGB
	Virgin Islands, U.S.	VIR
CAMR	Central America	
	Belize	BLZ
	Costa Rica	CRI
	Guatemala	GTM
	Honduras	HND
	Mexico	MEX
	Nicaragua	NIC
	Panama	PAN
	El Salvador	SLV
SAMR	South America	
	Argentina	ARG
	Bolivia	BOL
	Brazil	BRA
	Chile	CHL
SAMR	South America	
	Colombia	COL
	Ecuador	ECU
	Falkland Islands (Malvinas)	FLK
	French Guiana	GUF
	Guyana	GUY
	Peru	PER
	Paraguay	PRY
	Suriname	SUR
	Uruguay	URY
	Venezuela	VEN
WEUR	Western Europe	
	Austria	AUT
	Belgium	BEL
	France	FRA
	Germany	DEU
	Liechtenstein	LEI
	Luxembourg	LUX
	Monaco	MCO
	Netherlands	NLD
	Switzerland	CHE

Table 8.F.3 Geographic Regions and Mapping (Cont'd)

NEUR	Northern Europe	
	Denmark	DNK
	Estonia	EST
	Faroe Islands	FRO
	Finland	FIN
	Iceland	ISL
	Ireland	IRL
	Latvia	LVA
	Lithuania	LTU
	Norway	NOR
	Sweden	SWE
	United Kingdom	GBR
SEUR	Southern Europe	
	Albania	ALB
	Andorra	AND
	Bosnia and Herzegovina	BIH
	Croatia	HRV
	Gibraltar	GIB
	Greece	GRC
	Italy	ITA
	Macedonia, the former Yugoslav Republic of	MKD
	Malta	MLT
	Portugal	PRT
	San Marino	SMR
	Serbia and Montenegro	SCG
	Slovenia	SVN
	Spain	ESP
EEUR	Eastern Europe	
	Belarus	BLR
	Bulgaria	BGR
	Czech Republic	CZE
	Hungary	HUN
	Moldova, Republic of	MDA
	Poland	POL
	Romania	ROM
	Russian Federation	RUS
	Slovakia	SVK
	Ukraine	UKR
NAFR	Northern Africa	
	Algeria	DZA
	Egypt	EGY
	Libyan Arab Jamahiriya	LBY
	Morocco	MAR
	Tunisia	TUN

Table 8.F.3 Geographic Regions and Mapping (Cont'd)

SSAF	Sub-Saharan Africa	
	WAFR	Western Africa
		Benin
		Burkina Faso
		Cote d'Ivoire
		Cape Verde
		Ghana
		Guinea
		Gambia
		Guinea-Bissau
		Liberia
		Mali
		Mauritania
		Niger
		Nigeria
		Senegal
		Saint Helena
		Sierra Leone
		Togo
	CAFR	Central Africa
		Angola
		Central African Republic
		Cameroon
		Congo, the Democratic Republic of the
		Congo
		Gabon
		Equatorial Guinea
		Sao Tome and Principe
		Chad
	EAFR	Eastern Africa
		Burundi
		Comoros
		Djibouti
		Eritrea
		Ethiopia
		Kenya
		Madagascar
		Mozambique
		Mauritius
		Malawi
		Mayotte
		Reunion
		Rwanda
		Sudan
		Somalia
		Seychelles
		Tanzania, United Republic of
		Uganda
		Zambia
		Zimbabwe

Table 8.F.3 Geographic Regions and Mapping (Cont'd)

SAFR	Southern Africa	
	Botswana	BWA
	Lesotho	LSO
	Namibia	NAM
	Swaziland	SWZ
	South Africa	ZAF