

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 (I-O) 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 22 regions whose I-O tables form the representative I-O table used in the GTAP 9 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 9 Data Base, the global economy is represented by 140 regions, 120 of which are countries 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 9 Data Base includes contributed I-O tables for 120 of the total of 140 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.

Since version 8, some changes related to composite regions were introduced in the construction of the GTAP Data Base. A new region XTW (Rest of the World) was introduced, to capture the remote territories such as Antarctica.

It should be noted that although we continue to use the same names as some composite regions in the GTAP 9 Data Base, the composition of some of these regions have changed due to new I-O tables we received and lowering the number of countries remaining in composite regions.

Further 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

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

	Dominican Republic	DOM
	Guadeloupe	GLP
	Grenada	GRD
	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