

Chapter 14

Representative Table and Composite Regions

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This chapter describes the representative input-output table and the construction of input-output tables for the composite regions in the GTAP version 5 data base.

14.1 Representative Table

A representative table is created from the set of input-output tables which have full sectoral disaggregation. It is an I-O table created as a linear combination of these regions' I-O tables. Ideally, the regions comprising the representative table should represent a broad economic and geographic spectrum. The representative table for GTAP 5 is a linear combination of the I-O tables of the following 12 regions: Australia, Korea, India, Colombia, Denmark, France, Italy, Sweden, Hungary, Botswana, Tanzania, and Zimbabwe.

The representative table is used in several stages in the data base construction process. In the initial I-O table cleaning procedure, the representative table is used together with the initial I-O table as a source of scaling factors which are 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 13). 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 especially true for the non-agricultural sectors (we use agricultural I-O data for disaggregating agriculture; see chapter 12).

14.2 Composite Regions

The GTAP 5 data base includes contributed input-output tables for 56 of the 66 regions¹. The regions for which we have original I-O data are referred to as *primary regions*. The I-O data for the primary regions are used to construct I-O tables for the 11 composite regions which account for the rest of the economies in the world that are not covered by the primary regions. The composite regions are: Rest of South Asia (XSA), Central America and the Caribbean (XCM), Rest of Andean Pact (XAP), Rest of South America (XSM), Rest of Central European Associates (XCE), Rest of Middle East (XME), Rest of North Africa (XNF), Rest of Southern Africa Customs Union (XSC), Other Southern Africa (XSF), Rest of Sub-Saharan Africa (XSS), and Rest of World (XRW).

The I-O tables for the composite regions are constructed from the I-O tables of primary regions which have similar GDP per capita and economic characteristics as the countries that comprise the composite regions (see table 8.2 in chapter 8 for the country composition of the composite regions). We assume here that the average patterns of production, consumption, and savings in any individual country in the 11 composite regions can be approximated by patterns observed in one of the primary regions.

We start by associating a primary region with each of the member countries in a composite region. The steps involved in the procedure are:

- all the 211 standard countries are matched with a primary region on the basis of similarity in GDP per capita
- 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
- for some composite regions, the primary region matching is revised based on similarity of economic characteristics between the country and the 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

¹ The 56 primary regions includes 55 GTAP regions plus the region within South Africa border region (*i.e.* Lesotho, Swaziland, and South Africa) for which we have a contributed input-output table. Together with Namibia, for which we have no I-O table, the region is referred to as the Rest of Southern Africa Customs Union (XSC) which is considered as a composite region in the data base.

Table 14.1 illustrates the procedure described above for the region Rest of South Asia. Thirteen percent of the final XSA I-O table comes from the I-O table of Bangladesh and 87 percent comes from the Indian I-O table. Table 14.2 reports the primary region I-O table sources for all the composite regions in the data base. In the case of XME, XSS, and XRW, no revision was made to the initial calculated matching between country components and primary regions.

Table 14.1 Matching between Primary Regions and Country Components for Rest of South Asia

Country Components	Country GDP	Primary Region Match	Share Weight
Initial Matching:			
Bhutan	273	Bangladesh	0.38
Maldives	4027	New Zealand	5.68
Nepal	4922	Mozambique	6.94
Pakistan	<u>61673</u>	India	<u>87.00</u>
Total GDP in XSA	70895		100.00
Revised Matching:			
Bhutan + Maldives + Nepal	9223	Bangladesh	13.01
Pakistan	<u>61673</u>	India	<u>86.99</u>
	70895		100.00

Table 14.2 Input-Output Primary Region Source Composition of Composite Region Tables

Composite Region / Source Primary Regions	GDP Share Weights
Rest of South Asia (XSA)	
Bangladesh	13.01
India	86.99
Rest of Central America and Caribbean (XCM)	
Bangladesh	4.49
India	3.75
Sri Lanka	6.28
Colombia	9.72
Peru	18.62
Venezuela	9.49
Argentina	11.36
Brazil	9.52
Chile	10.08
Uruguay	11.69
Portugal	1.99
Spain	2.99

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Table 14.2 Input-Output Primary Region Source Composition of Composite Region Tables
(Continued)

Composite Region / Source Primary Regions	GDP Share Weights
Rest of Andean Pact (XAP)	
Peru	100.00
Rest of South America (XSM)	
Colombia	7.04
Venezuela	45.07
Uruguay	47.89
Rest of EFTA (XEF)	
Switzerland	100.00
Rest of Middle East (XME)	
New Zealand	23.43
Bangladesh	1.03
Venezuela	2.73
Argentina	1.93
Uruguay	29.66
Italy	8.99
Former Soviet Union	27.68
Morocco	4.54
Rest of North Africa (XNF)	
Morocco	100.00
Rest of SACU (XCU)	
within South Africa Border	100.00
Rest of Southern Africa (XSF)	
Malawi	8.58
Mozambique	8.58
Tanzania	8.58
Zambia	8.58
Zimbabwe	64.20
Uganda	1.48
Rest of Sub-Saharan Africa (XSS)	
Indonesia	0.29
Philippines	2.64
Vietnam	0.03
Bangladesh	44.39
India	5.29
Sri Lanka	1.93
Uruguay	0.37
Hungary	3.55
Malawi	5.64
Mozambique	11.63
Tanzania	2.75
Zambia	4.74
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Table 14.2 Input-Output Primary Region Source Composition of Composite Region Tables
(Continued)

Composite Region / Source Primary Regions	GDP Share Weights
Zimbabwe	16.05
Uganda	0.69
Rest of World (XRW)	
New Zealand	2.30
China	0.82
Hongkong	0.61
Indonesia	10.19
Thailand	0.76
Bangladesh	0.99
India	4.67
Sri Lanka	3.53
Colombia	0.08
Argentina	3.16
Brazil	6.86
Uruguay	0.61
Belgium	0.28
Greece	2.95
Portugal	0.04
Spain	2.66
Poland	57.75
Former Soviet Union	0.26
Morocco	0.08
Uganda	1.42