

# Chapter 2

## Guide to the GTAP Data Base

*Betina V. Dimaranan and Robert A. McDougall*

The GTAP Data Base is the global data base representing the world economy for a given reference year — 2001 for the GTAP 6 Data Base. The files comprising the GTAP Data Base are packaged with two alternative aggregation packages (see section 2.8). The GTAP Data Base includes all the data files in the data packages, except for the time series trade data (described in chapter 8). It comprises four files: sets, parameters, main data, and energy volume data. All the files are header array files (a GEMPACK binary format) (Harrison and Pearson, 1998).

The sets file enumerates the GTAP regions and commodities and other sets used in the model. The parameters file contains invariant behavioral parameters. The main data file represents the world economy as a system of flows of goods and services, measured as money values, in millions of 2001 U.S. dollars. These flows include both input-output flows within each region and bilateral international trade flows. Since most flows are measured at both tax-free and tax-paid prices, it also implicitly covers indirect taxation. On the other hand, it does not include price or quantity data, and does not include time series data. The energy volume data file contains data on energy purchases by firms and by households and bilateral trade of energy products.

This chapter provides a guide to the components of the four GTAP Data Base files. It also covers the concordances for the 57 sectors and 87 regions of the GTAP 6 Data Base. Details about sources and construction of the individual components such as domestic data bases (or input-output-tables), international data sets, and parameters, are provided in subsequent chapters. The final chapter (chapter 21) provides a summary of the overall data construction process.

### 2.1 GTAP Sets File

Table 2.1 shows the arrays in the sets file. The array H1 is a list of regions in the model. H2 lists ordinary goods and services or *traded commodities*, so called because they can be traded between regions. In this they contrast with the primary factors or *endowment commodities*, listed in array H6. The endowment commodities include land, unskilled labor, skilled labor, capital, and natural resources. One of these, capital, is specified in array H9 as the *capital endowment commodity* (this is for convenience in implementing the investment theory of the model).

The arrays H7 and H8 divide the endowment commodities into two groups. The *mobile* endowment commodities (H8) are perfectly mobile across industries within each region; the *sluggish* endowment commodities (H7) are imperfectly mobile or immobile. In the standard data

base, skilled and unskilled labor and capital are classed as mobile, and land and natural resources as sluggish. This is suitable for long-run simulations. For short-run simulations, users may wish to move capital from H8 to H7, to treat it as sluggish rather than mobile.

The remaining arrays are provided for convenience in implementing the theoretical structure of the GTAP model. The *non-savings commodities*, array H3, comprise the endowment commodities, the traded commodities, and an investment good. The *demanded commodities*, H4, comprise endowment and traded commodities; the *produced commodities*, H5, comprise traded commodities and the investment good. Finally, array MARG lists the margin commodities.

Table 2.1 Arrays in the GTAP Sets File

Name	Dimension	Description
H1	$r$	Regions
H2	$t$	Traded commodities
H3	$s+m+t+1$	Non-saving commodities
H4	$s+m+t$	Demanded commodities
H5	$t+1$	Produced commodities
H6	$s+m$	Endowment commodities
H7	$s$	Sluggish endowment commodities
H8	$m$	Mobile endowment commodities
H9	1	Capital endowment commodity
MARG	$g$	Margin commodities

$g$  number of margins commodities (sectors)  
 $m$  number of primary factors perfectly mobile across industries  
 $r$  number of regions  
 $s$  number of primary factors not perfectly mobile across industries  
 $t$  number of tradeable commodities (sectors)

Users of the GTAP model should note that the derived arrays H3, H4, and H5 are obsolete as of gtap.tab release 5.1 (they are now derived internally in the solution program). Also obsolete are the sluggish and mobile endowment commodity arrays H7 and H8; the sluggish/mobile distinction is now indicated with a parameter, SLUG (section 2.3).

## 2.2.1 GTAP Regions

In the standard GTAP 6 Data Base, there are 57 commodities and 87 regions. The commodity detail and concordance is the same as in the GTAP 5 Data Base. There regional detail has significantly increased from the 66 regions in GTAP 5 through the inclusion of domestic data bases for several new regions and through the revised grouping of composite regions.

Table 2.2 shows the regional definitions used in GTAP 6 Data Base. The 87 regions are defined as aggregates of 226 countries using the GTAP standard country list (see section 2.2.2). The alpha-3 codes defined by the International Organization for Standardization (ISO) are used as country codes for the GTAP primary regions, i.e. regions developed from contributed domestic data bases.

Table 2.2 Regions in the GTAP 6 Data Base

	Code	Name	Code	Member Countries
1	AUS	Australia	AUS	Australia
2	NZL	New Zealand	NZL	New Zealand
3	XOC	Rest of Oceania	ASM	American Samoa
			COK	Cook Islands
			FJI	Fiji
			PYF	French Polynesia
			GUM	Guam
			KIR	Kiribati
			MHL	Marshall Islands
			FSM	Micronesia, Federated States of
			NRU	Nauru
			NCL	New Caledonia
			NFK	Norfolk Island
			MNP	Northern Mariana Islands
			NIU	Niue
			PLW	Palau
			PNG	Papua New Guinea
			WSM	Samoa
			SLB	Solomon Islands
			TKL	Tokelau
			TON	Tonga
			TUV	Tuvalu
			VUT	Vanuatu
			WLF	Wallis and Futuna
4	CHN	China	CHN	China
5	HKG	Hong Kong	HKG	Hong Kong
6	JPN	Japan	JPN	Japan
7	KOR	Korea	KOR	Korea, Republic of
8	TWN	Taiwan	TWN	Taiwan
9	XEA	Rest of East Asia	MAC	Macau
			MNG	Mongolia
			PRK	Korea, Democratic People's Republic of
10	IDN	Indonesia	IDN	Indonesia
11	MYS	Malaysia	MYS	Malaysia
12	PHL	Philippines	PHL	Philippines
13	SGP	Singapore	SGP	Singapore
14	THA	Thailand	THA	Thailand
15	VNM	Viet Nam	VNM	Viet Nam
16	XSE	Rest of Southeast Asia	BRN	Brunei Darussalam
			KHM	Cambodia
			LAO	Lao People's Democratic Republic
			MMR	Myanmar
			TLS	Timor Leste
17	BGD	Bangladesh	BGD	Bangladesh
18	IND	India	IND	India
19	LKA	Sri Lanka	LKA	Sri Lanka
20	XSA	Rest of South Asia	AFG	Afghanistan
			BTN	Bhutan
			MDV	Maldives

Continued

Table 2.2 Regions in the GTAP 6 Data Base (Contd)

	Code	Name	Code	Member Countries
20	XSA	Rest of South Asia (Contd)	NPL	Nepal
			PAK	Pakistan
21	CAN	Canada	CAN	Canada
22	USA	United States of America	USA	United States of America
23	MEX	Mexico	MEX	Mexico
24	XNA	Rest of North America	BMU	Bermuda
			GRL	Greenland
			SPM	Saint Pierre and Miquelon
25	COL	Colombia	COL	Colombia
26	PER	Peru	PER	Peru
27	VEN	Venezuela	VEN	Venezuela
28	XAP	Rest of Andean Pact	BOL	Bolivia
			ECU	Ecuador
29	ARG	Argentina	ARG	Argentina
30	BRA	Brazil	BRA	Brazil
31	CHL	Chile	CHL	Chile
32	URY	Uruguay	URY	Uruguay
33	XSM	Rest of South America	FLK	Falkland Islands (Malvinas)
			GUF	French Guiana
			GUY	Guyana
			PRY	Paraguay
			SUR	Suriname
34	XCA	Central America	BLZ	Belize
			CRI	Costa Rica
			SLV	El Salvador
			GTM	Guatemala
			HND	Honduras
			NIC	Nicaragua
			PAN	Panama
35	XFA	Rest of Free Trade Area of the Americas	ATG	Antigua & Barbuda
			BHS	Bahamas
			BRB	Barbados
			DMA	Dominica
			DOM	Dominican Republic
			GRD	Grenada
			HTI	Haiti
			JAM	Jamaica
			PRI	Puerto Rico
			KNA	Saint Kitts and Nevis
			LCA	Saint Lucia
			VCT	Saint Vincent and the Grenadines
			TTO	Trinidad and Tobago
			VIR	Virgin Islands, U.S.
36	XCB	Rest of the Caribbean	AIA	Anguilla
			ABW	Aruba
			CYM	Cayman Islands
			CUB	Cuba
			GLP	Guadeloupe
			MTQ	Martinique
			MSR	Montserrat
			ANT	Netherlands Antilles

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Table 2.2 Regions in the GTAP 6 Data Base (Contd)

	Code	Name	Code	Member Countries
36	XCB	Rest of the Caribbean (Contd)	TCA	Turks and Caicos
			VGB	Virgin Islands, British
37	AUT	Austria	AUT	Austria
38	BEL	Belgium	BEL	Belgium
39	DNK	Denmark	DNK	Denmark
40	FIN	Finland	FIN	Finland
41	FRA	France	FRA	France
42	DEU	Germany	DEU	Germany
43	GBR	United Kingdom	GBR	United Kingdom
44	GRC	Greece	GRC	Greece
45	IRL	Ireland	IRL	Ireland
46	ITA	Italy	ITA	Italy
47	LUX	Luxembourg	LUX	Luxembourg
48	NLD	Netherlands	NLD	Netherlands
49	PRT	Portugal	PRT	Portugal
50	ESP	Spain	ESP	Spain
51	SWE	Sweden	SWE	Sweden
52	CHE	Switzerland	CHE	Switzerland
53	XEF	Rest of EFTA	ISL	Iceland
			LIE	Liechtenstein
			NOR	Norway
54	XER	Rest of Europe	AND	Andorra
			BIH	Bosnia and Herzegovina
			FRO	Faroe Islands
			GIB	Gibraltar
			MKD	Macedonia, the former Yugoslav Republic of
			MCO	Monaco
			SMR	San Marino
			SCG	Serbia and Montenegro
55	ALB	Albania	ALB	Albania
56	BGR	Bulgaria	BGR	Bulgaria
57	HRV	Croatia	HRV	Croatia
58	CYP	Cyprus	CYP	Cyprus
59	CZE	Czech Republic	CZE	Czech Republic
60	HUN	Hungary	HUN	Hungary
61	MLT	Malta	MLT	Malta
62	POL	Poland	POL	Poland
63	ROM	Romania	ROM	Romania
64	SVK	Slovakia	SVK	Slovakia
65	SVN	Slovenia	SVN	Slovenia
66	EST	Estonia	EST	Estonia
67	LVA	Latvia	LVA	Latvia
68	LTU	Lithuania	LTU	Lithuania
69	RUS	Russian Federation	RUS	Russian Federation
70	XSU	Rest of Former Soviet Union	ARM	Armenia
			AZE	Azerbaijan
			BLR	Belarus
			GEO	Georgia
			KAZ	Kazakhstan
			KGZ	Kyrgyzstan
			MDA	Moldova, Republic of

Continued

Table 2.2 Regions in the GTAP 6 Data Base (Contd)

	Code	Name	Code	Member Countries
70	XSU	Rest of Former Soviet Union (Contd)	TJK	Tajikistan
			TKM	Turkmenistan
			UKR	Ukraine
			UZB	Uzbekistan
71	TUR	Turkey	TUR	Turkey
72	XME	Rest of Middle East	BHR	Bahrain
			IRN	Iran, Islamic Republic of
			IRQ	Iraq
			ISR	Israel
			JOR	Jordan
			KWT	Kuwait
			LBN	Lebanon
			PSE	Palestinian Territory, Occupied
			OMN	Oman
			QAT	Qatar
			SAU	Saudi Arabia
			SYR	Syrian Arab Republic
			ARE	United Arab Emirates
			YEM	Yemen
73	MAR	Morocco	MAR	Morocco
74	TUN	Tunisia	TUN	Tunisia
75	XNF	Rest of North Africa	DZA	Algeria
			EGY	Egypt
			LBY	Libyan Arab Jamahiriya
76	BWA	Botswana	BWA	Botswana
77	ZAF	South Africa	ZAF	South Africa
78	XSC	Rest of South African Customs Union	LSO	Lesotho
			NAM	Namibia
			SWZ	Swaziland
79	MWI	Malawi	MWI	Malawi
80	MOZ	Mozambique	MOZ	Mozambique
81	TZA	Tanzania	TZA	Tanzania, United Republic of
82	ZMB	Zambia	ZMB	Zambia
83	ZWE	Zimbabwe	ZWE	Zimbabwe
84	XSD	Rest of Southern African Development Community	AGO	Angola
			COD	Congo, the Democratic Republic of the
			MUS	Mauritius
			SYC	Seychelles
85	MDG	Madagascar	MDG	Madagascar
86	UGA	Uganda	UGA	Uganda
87	XSS	Rest of Sub-Saharan Africa	BEN	Benin
			BFA	Burkina Faso
			BDI	Burundi
			CMR	Cameroon
			CPV	Cape Verde
			CAF	Central African Republic
			TCD	Chad
			COM	Comoros

Continued

Table 2.2 Regions in the GTAP 6 Data Base (Contd)

Code	Name	Code	Member Countries
87	XSS	Rest of Sub-Saharan Africa (Contd)	COG Congo CIV Cote d'Ivoire DJI Djibouti GNQ Equatorial Guinea ERI Eritrea ETH Ethiopia GAB Gabon GMB Gambia GHA Ghana GIN Guinea GNB Guinea-Bissau KEN Kenya LBR Liberia MLI Mali MRT Mauritania MYT Mayotte NER Niger NGA Nigeria REU Reunion RWA Rwanda SHN Saint Helena STP Sao Tome and Principe SEN Senegal SLE Sierra Leone SOM Somalia SDN Sudan TGO Togo

## 2.2.2 GTAP Standard Countries

A group comprised of 226 countries formed the set of standard countries in the construction of the GTAP 6 Data Base. The identification of a set of standard countries is key to achieving the goal of regional flexibility in the data base construction process. Regional flexibility is attained when new regions can readily be added to the data base by simply including the new region(s) in a list of regions and a mapping file used in the data construction process and supplying the additional country's input-output table.

To achieve regional flexibility, contributors of international data sets to GTAP are encouraged to provide the data on a country basis rather than on a GTAP region basis. This facilitates revision of the GTAP regional classification without having to go back to the data contributors for new, reclassified source data. The contributed data is then mapped or transformed to apply to the set of standard countries. A mapping between the standard set of countries and the set of GTAP regions is then used to aggregate the data (see table 2.2). The mapping file is revised when a new region is introduced in the GTAP Data Base.

The country composition of the set of standard countries for GTAP 6 is such that it omits no significant economies and it captures all significant information from the contributed international data sets. We obtain a GDP estimate for each standard country for use as a scaling factor in aggregating data sets.

### 2.2.3 *GTAP Sectoral Classification (GSC2)*

Tables 2.3 and 2.4 show the sectoral definitions used in the GTAP 5 and 6 Data Bases. We define the GTAP agricultural and food processing sectors by reference to the Central Product Classification (CPC), as shown in table 2.3. The other GTAP sectors are defined by reference to the International Standard Industry Classification (ISIC), as shown in table 2.4. We use the ISIC for most sectors, because it is the reference point for sectoral classification in most I-O statistics. But for agriculture and food processing, the ISIC does not provide the detail we need, so we use instead the CPC. The CPC was developed by the Statistical Office of the United Nations to serve as a bridge between the ISIC and other sectoral classifications (UN 1990, 1991).

Table 2.3 GSC2 Sectors defined by Reference to the Provisional CPC

GSC2 No.	Code	CPC Code	Description
1	pdr	0113	Rice, not husked
		0114	Husked rice
2	wht	0111	Wheat and meslin
3	gro	0112	Maize (corn)
		0115	Barley
		0116	Rye, oats
		0119	Other cereals
4	v_f	012	Vegetables
		013	Fruit and nuts
5	osd	014	Oil seeds and oleaginous fruit
6	c_b	018	Plants used for sugar manufacturing
7	pfb	0192	Raw vegetable materials used in textiles
8	ocr	015	Live plants; cut flowers and flower buds; flower seeds and fruit seeds; vegetable seeds
		016	Beverage and spice crops
		017	Unmanufactured tobacco
		0191	Cereal straw and husks, unprepared, whether or not chopped, ground, pressed, or in the form of pellets; swedes, mangolds, fodder roots, hay, lucerne (alfalfa), clover, sainfoin, forage kale, lupines, vetches and similar forage products, whether or not in the form of pellets
		0193	Plants and parts of plants used primarily in perfumery, in pharmacy, or for insecticidal, fungicidal or similar purposes
		0194	Sugar beet seed and seeds of forage plants
		0199	Other raw vegetable materials

Continued



Table 2.3 GSC2 Sectors defined by Reference to the Provisional CPC (Contd)

GSC2 No.	Code	CPC Code	Description
9	ctl	0211	Bovine cattle, sheep and goats, horses, asses, mules, and hinnies, live
		0299	Bovine semen
10	oap	0212	Swine, poultry and other animals, live
		0292	Eggs, in shell, fresh, preserved or cooked
		0293	Natural honey
		0294	Snails, live, fresh, chilled, frozen, dried, salted or in brine, except sea snails; frogs' legs, fresh, chilled or frozen
		0295	Edible products of animal origin n.e.c.
		0297	Hides, skins and furskins, raw
		0298	Insect waxes and spermaceti, whether or not refined or colored
11	rmk	0291	Raw milk
12	wol	0296	Raw animal materials used in textile
13	frs	03	Forestry, logging and related service activities
19	cmt	21111	Meat of bovine animals, fresh or chilled
		21112	Meat of bovine animals, frozen
		21115	Meat of sheep, fresh or chilled
		21116	Meat of sheep, frozen
		21117	Meat of goats, fresh, chilled or frozen
		21118	Meat of horses, asses, mules or hinnies, fresh, chilled or frozen
		21119	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen
		2161	Fats of bovine animals, sheep, goats, pigs and poultry, raw or rendered; wool grease
20	omt	21113	Meat of swine, fresh or chilled
		21114	Meat of swine, frozen
		2112	Meat and edible offal, fresh, chilled or frozen, n.e.c.
		2113	Preserves and preparations of meat, meat offal or blood
		2114	Flours, meals and pellets of meat or meat offal, inedible; greaves
		2162	Animal oils and fats, crude and refined, except fats of bovine animals, sheep, goats, pigs and poultry
21	vol	2163	Soya-bean, ground-nut, olive, sunflower-seed, safflower, cotton-seed, rape, colza and mustard oil, crude
		2164	Palm, coconut, palm kernel, babassu and linseed oil, crude
		2165	Soya-bean, ground-nut, olive, sunflower-seed, safflower, cotton-seed, rape, colza and mustard oil and their fractions, refined but not chemically modified; other oils obtained solely from olives and sesame oil, and their fractions, whether or not refined, but not chemically modified
		2166	Maize (corn) oil and its fractions, not chemically modified
		2167	Palm, coconut, palm kernel, babassu and linseed oil and their fractions, refined but not chemically modified; castor, tung and jojoba oil and fixed vegetable fats and oils (except maize oil) and their fractions n.e.c., whether or not refined, but not chemically modified
		2168	Margarine and similar preparations

Continued

Table 2.3 GSC2 Sectors defined by Reference to the Provisional CPC (Contd)

GSC2 No.	Code	CPC Code	Description
21	vol (Contd)	2169	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised, whether or not refined, but not further prepared
		217	Cotton linters
		218	Oil-cake and other solid residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; vegetable waxes, except triglycerides; degreas; residues resulting from the treatment of fatty substances or animal or vegetable waxes
22	mil	22	Dairy products
23	pcr	2316	Rice, semi- or wholly milled
24	sgf	235	Sugar
25	ofd	212	Prepared and preserved fish
		213	Prepared and preserved vegetables
		214	Fruit juices and vegetable juices
		215	Prepared and preserved fruit and nuts
		2311	Wheat or meslin flour
		2312	Cereal flours other than wheat or meslin
		2313	Groats, meal and pellets of wheat
		2314	Cereal groats, meal and pellets n.e.c.
		2315	Other cereal grain products (including corn flakes)
		2317	Other vegetable flours and meals
		2318	Mixes and doughs for the preparation of bakers' wares
		232	Starches and starch products; sugars and sugar syrups n.e.c.
		233	Preparations used in animal feeding
		234	Bakery products
		236	Cocoa, chocolate and sugar confectionery
		237	Macaroni, noodles, couscous and similar farinaceous products
		239	Food products n.e.c.
26	b_t	24	Beverages
		25	Tobacco products

n.e.c. Not elsewhere classified

Table 2.4 GSC2 Sectors defined by Reference to the ISIC, Rev. 3

GSC2 No.	Code	ISIC3 Code	Description
14	fsh	015	Hunting, trapping and game propagation including related service activities
		05	Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing
15	coa	101	Mining and agglomeration of hard coal
		102	Mining and agglomeration of lignite
16	oil	111	Extraction of crude petroleum and natural gas (part)
		112	Service activities incidental to oil and gas extraction excluding surveying (part)
		103	Mining and agglomeration of peat
17	gas	111	Extraction of crude petroleum and natural gas (part)
		112	Service activities incidental to oil and gas extraction excluding surveying (part)
18	omn	12	Mining of uranium and thorium ores
		13	Mining of metal ores
		14	Other mining and quarrying
27	tex	17	Manufacture of textiles
		243	Manufacture of man-made fibres
28	wap	18	Manufacture of wearing apparel; dressing and dyeing of fur
29	lea	19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
30	lum	20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
31	ppp	21	Manufacture of paper and paper products
		2211	Publishing of books, brochures, musical books and other publications
		2212	Publishing of newspapers, journals and periodicals
		2213	Publishing of recorded media
		2219	Other publishing (photos, engravings, postcards, timetables, forms, posters, art reproductions, etc.)
		222	Printing and service activities related to printing
		223	Reproduction of recorded media
32	p_c	231	Manufacture of coke oven products
		232	Manufacture of refined petroleum products
		233	Processing of nuclear fuel
33	crp	241	Manufacture of basic chemicals
		242	Manufacture of other chemical products
		25	Manufacture of rubber and plastic products
34	nmm	26	Manufacture of other non-metallic mineral products
35	i_s	271	Manufacture of basic iron and steel
		2731	Casting of iron and steel
36	nfm	272	Manufacture of basic precious and non-ferrous metals
		2732	Casting of non-ferrous metals
37	fmp	28	Manufacture of fabricated metal products, except machinery and equipment
38	mvh	34	Manufacture of motor vehicles, trailers and semi-trailers

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Table 2.4 GSC2 Sectors defined by Reference to the ISIC, Rev. 3 (Contd)

GSC2 No.	Code	ISIC3 Code	Description
39	otn	35	Manufacture of other transport equipment
40	ele	30	Manufacture of office, accounting and computing machinery
		32	Manufacture of radio, television and communication equipment and apparatus
41	ome	29	Manufacture of machinery and equipment n.e.c.
		31	Manufacture of electrical machinery and apparatus n.e.c.
		33	Manufacture of medical, precision and optical instruments, watches and clocks
42	omf	36	Manufacturing n.e.c.
		37	Recycling
43	ely	401	Production, collection and distribution of electricity
44	gdt	402	Manufacture of gas; distribution of gaseous fuels through mains
		403	Steam and hot water supply
45	wtr	41	Collection, purification and distribution of water
46	cns	45	Construction
47	trd	50	Sales, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel
		51	Wholesale trade and commission trade, except of motor vehicles and motorcycles
		521	Non-specialized retail trade in stores
		522	Retail sale of food, beverages and tobacco in specialized stores
		523	Other retail trade of new goods in specialized stores
		524	Retail sale of second-hand goods in stores
		525	Retail trade not in stores
		526	Repair of personal and household goods
		55	Hotels and restaurants
48	otp	60	Land transport; transport via pipelines
		63	Supporting and auxiliary transport activities; activities of travel agencies
49	wtp	61	Water transport
50	atp	62	Air transport
51	cmn	64	Post and telecommunications
52	ofi	65	Financial intermediation, except insurance and pension funding
		67	Activities auxiliary to financial intermediation
53	isr	66	Insurance and pension funding, except compulsory social security
54	obs	70	Real estate activities
		711	Renting of transport equipment
		712	Renting of other machinery and equipment
		713	Renting of personal and household goods n.e.c.
		72	Computer and related activities
		73	Research and development
		74	Other business activities
55	ros	92	Recreational, cultural and sporting activities
		93	Other service activities
		95	Private households with employed persons

Continued

Table 2.4 GSC2 Sectors defined by Reference to the ISIC, Rev. 3 (Contd)

GSC2 No.	Code	ISIC3 Code	Description
56	osg	75	Public administration and defense; compulsory social security
		80	Education
		85	Health and social work
		90	Sewage and refuse disposal, sanitation and similar activities
		91	Activities of membership organizations n.e.c.
		99	Extra-territorial organizations and bodies
57	dwe	n.a.	n.a.

n.a. Not available

n.e.c. Not elsewhere classified

## 2.3 GTAP Parameters File

The parameters file contains invariant behavioral parameters and switch parameters, arranged in ten arrays, as listed in table 2.5. A detailed description of the parameters and their source data is available in chapter 20.

Table 2.5 Arrays in the GTAP Parameters File

Name	Dimension	Description
ESBD	$t$	elasticity of substitution between domestic product and imports
ESBM	$t$	elasticity of substitution between imports from different regions
ESBT	$t$	elasticity of substitution between composite intermediate inputs
ESBV	$t$	elasticity of substitution between primary factors in the production of value-added
ETRE	$s$	elasticity of transformation between industries for sluggish primary factor endowments
INCP	$t \times r$	expansion parameter in the CDE consumer demand system
RDLT	1	binary switch mechanism of allocating investment funds
RFLX	$r$	flexibility of expected net rate of return on capital stock with respect to investment
SLUG	$e$	sluggish-mobile switch parameter
SUBP	$t \times r$	substitution parameter in the CDE consumer demand system

$e$  Number of factor endowments

$r$  Number of regions

$s$  Number of primary factors not perfectly mobile between industries

$t$  Number of tradeable commodities (sectors)

## 2.4 GTAP Data File

The main data file consists of dollar values of flows of goods and services listed in table 2.6. It also includes arrays summarizing the value of revenue generated from protection measures and

the subsidy expenditures related to support measures. These values are all in millions of 2001 U.S. dollars in the GTAP 6 Data Base.

The protection data is available in the GTAP data file both implicitly and explicitly. Implicitly, the rates of different protection instruments may be calculated from two matrices which refer to two different valuations of the same value flow. Table 2.7 shows the protection measures that may be calculated from the data base and the arrays associated with these measures. The import and export duties calculated from the data base are the comprehensive measures, *e.g.*, export duties cover all export distortions – ordinary export subsidies, export tax equivalents of ATC quotas, price undertakings and voluntary export restraints.

The protection data explicitly declared in the GTAP data file are the revenue values or expenditure values associated with the protection measures. The revenues/expenditures from the different types of import and export instruments are given in separate arrays. These explicit arrays are TFRV, XTRV, MFRV, ADRV, PURV, VRRV, OSEP, ISEP, and FBEP in table 2.6. Protection rates are also explicitly summarized in a tax rates file generated by the GTAPView program. More details about the GTAPView program and the tax summary file are given in chapter 10.

Table 2.6 Data Arrays in the GTAP 6 Data File

Name	Dimension	Description
ADRV	$t \times r \times r$	anti-dumping duty
DPSM	$r$	sum of distribution parameters in the household demand system
EVFA	$e \times p \times r$	primary factor purchases, at agents' prices
EVOA	$e \times r$	primary factor sales, at agents' prices
FBEP	$e \times p \times r$	factor-based subsidies
FTRV	$e \times p \times r$	factor employment tax revenue
ISEP	$t \times p \times r \times d$	intermediate input subsidies
MFRV	$t \times r \times r$	export tax equivalent of MFA quota premium
OSEP	$t \times r$	ordinary output subsidy
POP	$r$	population
PURV	$t \times r \times r$	export tax equivalent of price undertakings
SAVE	$r$	net saving, by region
TFRV	$t \times r \times r$	ordinary import duty
TVOM	$t \times r$	sales of domestic product, at market prices
VDEP	$r$	capital depreciation
VDFA	$t \times p \times r$	domestic purchases, by firms, at agents' prices
VDFM	$t \times p \times r$	domestic purchases, by firms, at market prices
VDGA	$t \times r$	domestic purchases, by government, at agents' prices
VDGM	$t \times r$	domestic purchases, by government, at market prices
VDPA	$t \times r$	domestic purchases, by households, at agents' prices
VDPM	$t \times r$	domestic purchases, by households, at market prices
VFM	$e \times p \times r$	primary factor purchases, by households, at market prices
VIFA	$t \times p \times r$	import purchases, by firms, at agents' prices
VIFM	$t \times p \times r$	import purchases, by firms, at market prices
VIGA	$t \times r$	import purchases, by government, at agents' prices
VIGM	$t \times r$	import purchases, by government, at market prices
VIMS	$t \times r \times r$	imports, at market prices
VIPA	$t \times r$	import purchases, by households, at agents' prices
VIPM	$t \times r$	import purchases, by households, at market prices
VIWS	$t \times r \times r$	imports, at world prices
VKB	$r$	capital stock
VRRV	$t \times r \times r$	export subsidy equivalent of voluntary export restraints
VST	$t \times r$	margin exports
VTWR	$m \times t \times r \times r$	margins by margin commodity
VXMD	$t \times r \times r$	non-margin exports, at market prices
VXWD	$t \times r \times r$	non-margin exports, at world prices
XTRV	$t \times r \times r$	ordinary export tax

$d$  = number of trade directions (exports, imports);

$p$  = number of produced commodities;

$e$  = number of endowment commodities (primary factors);

$r$  = number of regions;

$m$  = number of margin commodities (sectors);

$t$  = number of tradeable commodities (sectors)

Table 2.7 Implicit Protection in the GTAP Data File

Protection Measures	Formula*	Description
Import Duties	VIMS / VIWS	power of import tax (comprehensive)
Export Duties	VXMD / VXWD	power of export tax (comprehensive)
Output Subsidies	VOA / VOM	power of output tax
Intermediate Input Subsidies		
Domestic Inputs	VDFA / VDFM	power of domestic intermediate input tax
Imported Inputs	VIFA / VIFM	power of imported intermediate input tax
Factor-Based Payments	EVFA / (VFM + FTRV)	power of factor-based subsidies

\* The difference between the two value flows gives value of revenue or subsidy expenditure.

## 2.5 GTAP Energy Volumes Data File

As shown in table 2.8, the energy volumes data file includes three arrays reporting the volume of energy purchases by firms and by households and also the volume of bilateral trade in energy products, in millions of tons of oil equivalents. Chapter 17 describes the construction of the energy data; chapter 19 documents some slight downstream adjustments.

Table 2.8 Arrays in the Energy Volumes Data File

Name	Dimension	Description
EGY	$n$	energy commodities
EVF	$n \times t \times r$	volume of input purchases by firms (Mtoe)
EVH	$n \times r$	volume of purchases by households (Mtoe)
EVT	$e \times r \times r$	volume of bilateral trade (Mtoe)

$n$  Number of energy commodities (sectors)

$r$  Number of regions

$t$  Number of tradeable commodities (sectors)

$e$  Number of energy commodities (sectors)

## 2.6 GTAP 6 Data Packages

The GTAP 6 Data Base is available in two data packages - the full version and the constrained version. With the full version, the user has access to the full 57-sector x 87-region GTAP Data Base through one of two aggregation packages, FlexAgg and GTAPAgg (see chapter 9). The full GTAP Data Package includes CD-ROMs for GTAPAgg, FlexAgg, and the data documentation volume. A license file that relaxes the 10-sector by 10-region default constraint on the GTAPAgg package is included with the full version. The constrained version includes the dimension-constrained GTAPAgg aggregation package.

Both the full and constrained GTAP Data packages include the RunGTAP software. RunGTAP is a graphical user environment developed by Mark Horridge of the Centre of Policy Studies, Monash University, for use in interactively solving the GTAP model. RunGTAP allows



the user to run simulations interactively in a Windows environment using the GTAP general equilibrium model

Pricing and order information, as well as the online documentation, are available on the GTAP web site: <http://www.gtap.org>.

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