

Iran

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The Iranian input-output table in the GTAP 7 Data Base is constructed from the 2001 input-output table supplied by the Statistical Center of Iran (SCI) ¹ and some supporting tables estimated from other data sources. The data are cleaned and transformed to meet GTAP's requirements. The data provided covers the Iranian calendar year 1380, from March 21, 2001 to March 20, 2002.

This paper describes the provision of the Iranian input-output for the GTAP 7 Data Base. The data for Iran are provided in an array format outlined in the table 2 of Huff, McDougall, and Walmsley (2000). The original SCI table is a commodity by commodity table and covers 91 commodities. Commodities in this table are not matched with the GTAP classification. Hence, the original table is mapped into a 45 by 45 table, in such a way that each of the 57 GTAP commodities corresponded to just one of the 45 new commodities.

Section 1 describes the main data sources used. Section 2 outlines the transformation process of the source data into the corresponding GTAP format and its requirements. Section 3 describes the main differences between this version and the Iran I-O table in the earlier versions of GTAP data bases. Finally, section 4 presents key diagnostics tests applied to the data base before its distribution.

1. Data Source

Several input-output tables (more than 10) have been produced for Iran's economy in the past decades. The SCI and the Central Bank of Islamic Republic of Iran have provided most of these tables. Examples are:

- Input-output table 1969 (25 by 25) provided by the Central Bank (CBI 1976),
- Input-output table 1986 (78 by 78) provided by the SCI (SCI 1995),
- Input-output table 1991 (78 by 78) provided by the SCI (SCI 1997),
- Input-output table 2001 (91 by 91) provided by the SCI (No Date).

The Iranian I-O table in the GTAP 6 Data Base was obtained from the 1991 I-O table listed above. The primary data source used to construct the Iranian I-O table for GTAP 7 Data Base is the 2001 Iran input-output table provided by the SCI of Iran. This table covers the Iranian calendar year 1380, from March 21, 2001 to March 20, 2002. In addition to this table, the SCI has provided several tables of supply, use and derived tables for this year. Table 1 of the appendix lists these tables. Copies of these tables (in Microsoft Excel format) are available on line at: http://www.sci.org.ir/portal/faces/public/sci_en/sci_en.selecteddata/sci_en.inputoutput

¹ The Statistical Center of Iran is a governmental organization.

The 2001 symmetric input-output table of SCI is a commodity by commodity table and covers 91 commodities (table 2 of the appendix lists these commodities). It is a producer price table and figures of the table are in million Rials, the Iranian national currency. The SCI table does not meet the GTAP Data Base requirements. The original table consists of the following sections:

- Table of intermediate uses (91 by 91),
- Table of final demand (91 by 5). The final demand components are: exports, households, non household individuals, government, and gross capital formation,
- Table of value added. The value added is distributed between the following items:
 - o Compensation of employees
 - o Net taxes on production and imports
 - o Mixed income
 - o Operating surplus
 - o Consumption of fixed capital

The classification of commodities in the original table is not consistent with the GTAP classification. In addition, the original table does not distinguish between the domestic and imported sources. However, data on imported intermediate commodities by industries are available on line. Tax rates on the domestic and imported commodities by uses are not available as well.

2. Processing of the Source Data

The SCI I-O does not match with the GTAP Data Base format outlined in Huff, McDougall, and Walmsley (2000). The following adjustments have been applied to the SCI I-O table:

- Reclassification of commodities/sectors,
- Mapping the 91 by 91 commodities table to a 45 by 45 commodities table,
- Determination of imports of goods and services,
- Distribution of uses of commodities between domestic and imported sources,
- Distribution of taxes among alternative uses of commodities,

The above adjustments are explained in the rest of this section.

2.1. Reclassification

Each commodity in the SCI I-O is corresponding to one or more than one commodity of the GTAP classification. Table 3 of the appendix links the SCI and GTAP commodities. This table is made according to tables 1 to 5 outlined in Huff, McDougall, and Walmsley (2000).

2.2. Mapping

According to the above reclassification a mapping table is developed to disaggregate/aggregate some commodities of the SCI table. Table 4 of the appendix represents the mapping schedule.

Table 1 of the appendix lists tables which are produced by the SCI for 2001. The item number 5 on this list is used for the following splits:

- Commodity 1 of the original symmetric table is split between wht, pdr, c_b, and oth_ag,
- Commodity 17 of the original symmetric table is split between two groups: “beverage” and “oth_food”. The first group contains beverage products and the second group contains cmt, omt, mil, pcr, sgr and ofd. Then the “beverage” portion and commodity 18 summed up to generate b_t.

2.3. Determination and distribution of imports of goods and services

In general, the SCI tables do not provide uses of commodities by domestic and imported sources. However, it provided data on imported intermediate commodities (excluding imported services) used by industries (see item 8 of table 1 of the appendix). To provide a complete data set on imports of goods and services, total imports are determined for every commodity, according to the differences between production and demand for every commodity. Then item 8 listed on table 1 of the appendix and the 1991 I-O table is used to distribute imports of commodities across their alternative uses.

2.4. Distribution of taxes among alternative uses of commodities

The SIC I-O table provided data on taxes/subsidies on each commodities. To distribute these taxes/subsidies across alternative uses of commodities, it is assumed that all users of a commodity pay/receive identical tax/subsidy rate on that commodity.

3. Advantages of the New I-O Table

The Iranian I-O table in the earlier version of GTAP Data Base was prepared based on the 1991 Iran’s input-output table. That table illustrates the Iranian economy just right after a long period of war between Iran and Iraq. During the war, Iran has experienced a widespread destruction and at the end of the war the Iranian economy was almost destroyed. The Iranian economy has experienced an economic reform towards an open economy in 1990s. In this period the structure of Iranian economy has changed significantly and improved in several directions. The new I-O table provides more recent data on Iran’s economy. In addition, it covers more commodities and is obtained from a more transparent data base.

4. Diagnostics

The Iranian I-O table for the GTAP 7 Data Base is checked to ensure that:

- There are no negative values
- Total sales are equal total costs in every sector

Reference

Central Bank of Islamic Republic of Iran. 1976. “The 1348 Input-Output Table for the Iranian Economy”, Tehran, Iran (in Farsi).

Huff, K., McDougall, R. and Walmsley, T. 2000. “Contributing Input-Output Tables to the GTAP Data Base,” GTAP Technical Paper No. 1, Release 4.2, January.

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Statistical Centre of Iran. (No date). Input-Output Tables for the Iranian Economy, 2001, Excel Microsoft Format Files, Available at: http://www.sci.org.ir/portal/faces/public/sci_en/sci_en.selecteddata/sci_en.inputoutput.

Appendix

Table 1. Iran 2001 Input-Output Tables*

- 1- Use table at purchasers' prices by market and non-market producers
- 2- Supply table at purchasers' prices by market and non-market producers
- 3- USE table at purchasers' prices (147 products X 99 industries)
- 4- Supply table at producers' prices (147 products X 99 industries)
- 5- Use table at producers' prices (147 products X 99 industries)
- 6- Trade Margins table (91 products X 99 industries)
- 7- Transport Margins table (91 products X 99 industries)
- 8- Imports table at c.i.f prices (91 products X 99 industries)
- 9- Fixed Capital table at purchasers' prices (147 products X 99 industries)
- 10- Symmetric table (91 products X 91 products)
- 11- Direct Coefficient table (91 products X 91 products)
- 12- Direct and Indirect Coefficient table (91 products X 91 products)
- 13- Backward and Forward Linkages Multipliers

*Tables are available at:

http://www.sci.org.ir/portal/faces/public/sci_en/sci_en.selecteddata/sci_en.inputoutput

Table 2. Iran 2001 Input-Output Commodities/Sectors

Sector	Description
1	Products of agriculture & horticulture
2	Gardening products
3	Live animals and animal products
4	Honey, cocoons & other products of bees and silk-worms
5	Forestry and logging products
6	Fish and other fishing products
7	Coal and lignite; peat
8	Crude petroleum & natural gas
9	Iron ores and concentrates
10	Copper, ores and concentrates
11	Stone, sand and clay
12	Other minerals
13	Electricity & electricity distribution services
14	Water & water distribution services
15	Natural gas & gas distribution services
16	Animal and vegetable oils and fats
17	Other food products & beverages
18	Tobacco products
19	Yarns & textiles
20	Wearing apparel
21	Footwear & parts thereof & other leather products
22	Products of wood, cork, straw and plaiting materials
23	Pulp, paper and paper products; printed matter & related articles
24	Coke oven products; refined petroleum products; nuclear fuel
25	Chemical materials & products
26	Rubber & plastics products
27	Glass & glass products
28	Other non-metallic mineral products
29	Furniture
30	Basic iron & steel & products thereof
31	Other metals
32	Metal products
33	General-purpose machinery
34	Special-purpose machinery
35	Domestic appliances & parts thereof

Sector	Description
36	Office, accounting & computing machinery
37	Electrical machinery & apparatus
38	Radio, television and communication equipment & apparatus
39	Medical and surgical equipment & orthopedic appliances
40	Optical and precision instruments ,watches & clocks
41	Motor vehicles, trailers and semi-trailers, bodies, parts and accessories thereof
42	Other transport accessories & equipment & parts thereof
43	Jewellery and other manufactured n.e.c
44	Residential buildings
45	Non-residential buildings
46	Wholesale & retail trade services
47	Lodging services
48	Food & beverage serving services
49	Railway transport services
50	Road transport services of passengers
51	Road transport services of freight
52	Transport services via pipeline
53	Water transport services
54	Air transport services
55	Supporting and auxiliary transport services
56	Postal & telecommunications services
57	Banking services
58	Other financial intermediations & auxiliary to financial intermediations
59	Insurance and pension services
60	Renting services involving own residential property
61	Renting or leasing services involving rented or leased residential property
62	Renting or leasing services involving rented or leased non-residential property
63	Real estate services on a fee or contract basis
64	Leasing or rental services concerning machinery and equipment without operator & other household appliances
65	Research and development services
66	Computer and related services
67	Professional, scientific and technical services except computer , research and development services
68	Agricultural, hunting, forestry, fishing and mining services
69	Maintenance and repair services

Sector	Description
70	News agency services
71	Public administration
72	Military and civil defense services
73	Police and fire protection services
74	Compulsory social security services
75	Governmental primary education services
76	Private primary education services
77	Governmental general, technical and vocational secondary education services
78	Private general, technical and vocational secondary education services
79	Governmental higher education services
80	Private higher education services
81	Education and training services
82	Hospital services
83	Medical and dental services
84	Other human health services
85	Veterinary services
86	Social services
87	Religious services
88	Performing & other arts services
89	Recreational & sporting services
90	Museum & library services
91	Other services

Table 3. SCI Commodities and their Corresponding Commodities in GTAP

Original Commodities/Sectors in SCI I-O	Corresponding Commodities in GTAP	Original Commodities/Sectors in SCI I-O	Corresponding Commodities in GTAP
1	wht, pdr, c_b, gro, osd, pfb, ocr	29, 43	omf
2	v_f	30	i_s
3, 4	ctl, oap, rmk, wol	31	nfm
5	For	32	fmp
6	Fsh	33,34,35,39,40	ome
7	Col	36,37,38	ele
8	oil, gas	41	mvh
9, 10, 11, 12	omn	42	otn
13	ely	44,45	cns
14	wtr	46,47,48, 69	trd
15	gdt	49, 50, 51, 52,55	otp
16	vol	53	wtp
17, 18	cmt, omt, mil,pcr, sgr,ofd, b_t	54	atp
19	tex	56	cmn
20	wap	56	cmn
21	lea	57, 58	ofi
22	lum	59	isr
23	ppp	60	dwe
24	p_c	61, 62, 63, 64, 65, 66, 67, 68, 70	obs
25,26	crp	71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86	osg
27, 28	nmm	87, 88, 89, 90, 91	ros

Table 4. Mapping between 91, 45, and 57 sectors

Row	45 New Sectors	Covering 91 Original SCI I-O Sectors	Covering 57 GTAP Sectors
1	Wht	Part of 1	wht
2	Pdr	Part of 1	pdr
3	c_b	Part of 1	c_b
4	oth_ag	Part of 1	gro, osd, pfb, ocr
5	v_f	2	v_f
6	Crwo	3, 4	ctl, oap, rmk, wol
7	For	5	for
8	Fsh	6	fsh
9	Col	7	col
10	o_g	8	oil, gas
11	Omn	9, 10, 11, 12	omn
12	Ely	13	ely
13	Wtr	14	wtr
14	Gdt	15	gdt
15	Vol	16	vol
16	oth_food	Part of 17	cmt, omt, mil, pcr, sgr, ofd
17	b_t	18 and part of 17	b_t
18	Tex	19	tex
19	Wap	20	wap
20	Lea	21	lea
21	Lum	22	lum
22	Ppp	23	ppp
23	p_c	24	p_c
24	Crp	25, 26	crp
25	Nmm	27, 28	nmm
26	Omf	29, 43	omf
27	i_s	30	i_s
28	Nfm	31	nfm
29	Fmp	32	fmp
30	Ome	33, 34, 35, 39, 40	ome
31	Ele	36, 37, 38	ele
32	Mvh	41	mvh
33	Otn	42	otn
34	Cns	44, 45	Cns

Row	45 New Sectors	Covering 91 Original SCI I-O Sectors	Covering 57 GTAP Sectors
35	Trd	46,47,48, 69	trd
36	Otp	49, 50, 51, 52,55	otp
37	Wtp	53	wtp
38	Atp	54	atp
39	Cmn	56	Cmn
40	Ofi	57, 58	Ofi
41	Isr	59	isr
42	Dwe	60	dwe
43	Obs	61, 62, 63, 64, 65, 66, 67, 68, 70	obs
44	Osg	71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86	osg
45	Ros	87, 88, 89, 90, 91	ros