

China

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1. Data Source

The source of the initial input-output (I-O) table for China is "Input-Output Table of China - 2002" from the Department of National Economy Accounting, State Statistical Bureau (SSB). It is the fourth such I-O table following the 1987, 1992 and 1997 tables. These tables are based on large-scale input-output survey across the country and the First Economic Census of China 2004.

The original 2002 table includes 122 sectors, of which there are 5 sectors for agriculture, 81 sectors for manufacture, and 36 sectors for services. The units are 10 thousands Yuan (RMB) at current producers' prices, which includes value-added tax but excludes commercial margin, transportation and telecommunication cost.

The intermediate input matrix of the Chinese I-O table refers to total intermediate usage, i.e. the sum of domestic and imported intermediate transactions. It is a commodity by commodity matrix. Household consumption, government consumption, capital formation, changes in stock and exports are final demand categories. The original table includes a column vector reporting imports by sector valued at *c.i.f.* price plus custom duties. Exports are valued at *f.o.b.* price.

2. Sector Classification

The sector classification in the contributed table 2002 is the same as it the contributed table 1997, i.e. there are 42 sectors in the contributed table 2002. It includes all sectors for manufacturing and services in the GTAP Sectoral Classification, revision 2 (GSC2). The concordance from GSC2 to the sectoral classification used in the contributed table is listed in Table A1, while Table A2 gives the concordance from the 122 sectors in the 2002 China I-O table to the sector classification in the contributed table.

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3. Processing of the Data Source

3.1 Treatment of the “Error” Item

There is an "Error" vector, by sector, in the original 2002 China I-O table. The errors are relatively large, 16 of them (122 sectors) beyond 4 percent of sectoral gross output. So we used the RAS approach to balance the original table.

3.2 Treatment of the “Negative Value for Capital Usage”

As to the “Water” sector in original 2002 China I-O table, the value for capital usage (operating surplus) is negative. But it plus “depreciation of fixed capital” will be positive. So we do not adjust it.

3.3 Treatment of the “Export large than the Gross Output”

As to the “Cultural and office equipment” sector in original 2002 China I-O table, the export is 103.8 billion RMB Yuan. But the gross output is only 75.0 billion RMB Yuan. That means that there exists re-export in this sector. We assumed the 30 percent² of the processing export is the re-export and subtract the re-export from export and import in this sector.

3.4 Sectoral Split

There are two sectors in the original 2002 China I-O table that had to be split to be consistent with the manufacturing and service sector classifications in GSC2. These are the “crude petroleum and natural gas products” (sector 07008) and “real estate” (sector 72107) sectors. Table 11.C.1 shows the percentage shares used in splitting these sectors to match the GSC2 sectors.

Table 1. Sectoral Splits, Percentage Shares

2002 China Input-Output Table		GCS2		Share (%)
07008	crude petroleum and natural gas products	6	Oil	96.96
		7	Gas	3.04
72107	Real estate	42	Dwellings	83.13
		39	Business services	16.87

The split of sector 07008 of the 2002 China I-O table was estimated based on value-added and gross Industrial output value of all state-owned enterprises and non-state-owned enterprise above designated Size (500 million Yuan sales) from the SSB and HS 8-digit international trade data from China Customs. The data used is shown in table 2.

² It's just an arbitrary assumption

Table 2. Splits of Sector 07008, (%)

	Output	Value-added	Import	Export
Crude Oil	96.96	98.19	100.0	83.8
Natural Gas	3.04	1.81	0.0	16.2

Source: The Data of all state-owned enterprises and non-state-owned enterprise above designated Size (500 million Yuan sales), SSB; HS customs data, China Customs

We used the same approach as 1997 contributed table to split the sector 72107 of 2002 China I-O table. There is no sector for household ownership of dwellings in the original table, however, there is a real estate sector (72107) with household consumption and capital formation as the only component of its final demand. The household consumption in this sector mainly refers to imputed expenditure by the owner occupied dwellings. Therefore, we use the share of household consumption in final demand to separate out a dwelling sector from the real estate sector in the original table.

Table 3. Splits of Sector 72107, (billion, %)

	Household Consumption	Capital Formation	Share of Final Demand
Real estate	437.6	88.8	85.21

Source: 2002 China Input-output table, SSB

3.5 Split of Import and Domestic Matrices

There is only a column vector reporting total imports by commodity in the original China I-O table. Following the procedure suggested in Huff, McDougall and Walmsley (2000), we constructed an import use matrix for the original table by pro-rating the import column across intermediate demand and final demand (except exports) applying the structure implied by the total use matrix. The resulting import matrix was then subtracted from the total use matrix to obtain the domestic use matrix.

3.6 Exchange Rate

To convert Chinese RMB to U.S. currency, the yearly average exchange rate of 827.7 RMB Yuan to 100 US dollars was used (middle rate). The contributed table is in million US dollars.

4. Differences between the Contributed Table and GTAP Data Base

There are several differences between our contributed table with that required by the GTAP Data Base.

The major tax in China is value-added tax and this is included in the 2002 producer price at which all the input-output flows in the original 2002 China I-O table were valued. Therefore, we do

not have UF (tax-free) table, with commodity taxes excluded, in our contributed table. However, a net taxes vector is reported as part of the valued-added. It equals taxes on production minus subsidies. Taxes on production include sales tax and extra charges, value-added tax, various taxes paid in the administrative expense, road toll payable, sewage, extra charges on water and electric power consumed, special revenue turnover to the government by monopolized trade of tobacco and liquor, etc. Subsidies include expenditure covering the loss due to implementation of government policies, price subsidies to the grain institutions, foreign trade corporations' receipts from drawback, etc.

Our MF vector, imports by commodity, includes import duties.

In terms of value-added part, we do not have information on returns to agricultural land, therefore, only value-added by labor and capital are reported in our contributed table. However, two additional categories were included: depreciation of fixed capital and net tax on production. The former refers to the value transferred from fixed assets in the production process in the current period and calculated as part of production cost.

References

- Wang, Zhi, Fan Zhai and Dianqing Xu, 2002. "V5 Documentation - Chapter 11.C: China", GTAP Resource #749.
- Huff, Karen, Robert McDougall and Terrie Walmsley. 2000. "Contributing Input-Output Tables to the GTAP Data Base", GTAP Technical Paper No.1, Release 4.2, January 2000.
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Appendix

Table A1. Concordance from GSC2 to the Classification Used in the Contributed Table

Classification in the Contributed Table		GSC2 Sectors	
1	Crops	1	Paddy rice
		2	Wheat
		3	Cereal grains n.e.c.
		4	Vegetables, fruit, nuts
		5	Oil seeds
		6	Sugar cane, sugar beet
		7	Plant-based fibbers
		8	Crops n.e.c.
2	Livestock products	9	Bovine cattle, sheep and goats, horses
		10	Animal products n.e.c.
		11	Raw milk
		12	Wool, silk-worm cocoons
3	Forestry	13	Forestry
4	Fishing	14	Fishing
5	Coal	15	Coal
6	Oil	16	Oil
7	Gas	17	Gas
8	Minerals n.e.c.	18	Minerals n.e.c.
9	Meat and dairy products	19	Bovine cattle, sheep and goat, horse meat products
		20	Meat products n.e.c.
		22	Dairy products
10	Other food products	21	Vegetable oils and fats
		23	Processed rice
		24	Sugar
		25	Food products n.e.c.
11	Beverages and tobacco products	26	Beverages and tobacco products
12	Textiles	27	Textiles
13	Wearing apparel	28	Wearing apparel
14	Leather products	29	Leather products
15	Wood products	30	Wood products
16	Paper products, publishing	31	Paper products, publishing
17	Petroleum, coal products	32	Petroleum, coal products
18	Chemical, rubber, plastic products	33	Chemical, rubber, plastic products
19	Mineral products n.e.c.	34	Mineral products n.e.c.
20	Ferrous metals	35	Ferrous metals
21	Metals n.e.c.	36	Metals n.e.c.
22	Metal products	37	Metal products
23	Motor vehicles and parts	38	Motor vehicles and parts

Table A1. Concordance from GSC2 to the Classification Used in the Contributed Table

Classification in the Contributed table		GSC2 Sectors	
24	Transport equipment n.e.c.	39	Transport equipment n.e.c.
25	Electronic equipment	40	Electronic equipment
26	Machinery and equipment n.e.c.	41	Machinery and equipment n.e.c.
27	Manufactures n.e.c.	42	Manufactures n.e.c.
28	Electricity	43	Electricity
29	Gas manufacture, distribution	44	Gas manufacture, distribution
30	Water	45	Water
31	Construction	46	Construction
32	Trade	47	Trade
33	Transport n.e.c.	48	Transport n.e.c.
34	Water transport	49	Water transport
35	Air transport	50	Air transport
36	Communication	51	Communication
37	Financial service n.e.c.	52	Financial service n.e.c.
38	Insurance	53	Insurance
39	Business services n.e.c.	54	Business service n.e.c.
40	Recreational services n.e.c.	55	Recreational services n.e.c.
41	Public administration and defense, education, health services	56	Public administration and defense, education, health services
42	Dwellings	57	Dwellings

Table A2. Concordance from the Classification Used in the Contributed Table to the Sectoral Classification of Chinese Input-output Table

Classification in the Contributed Table		Classification in the China's 2002 Input-Output Table	
1	Crops	01001	Crop cultivation
2	Livestock products	03004	Livestock and livestock products
3	Forestry	02002	Forestry
		02003	Logging and transport of timber and bamboo
4	Fishing	04005	Fishery
5	Coal	06007	Coal mining and processing
6	Oil	07008*	Crude petroleum and natural gas products
7	Gas	07008*	Crude petroleum and natural gas products
8	Minerals n.e.c.	08009	Ferrous ore mining
		09010	Non-ferrous ore mining
		10011	Salt mining
		10012	Non-metal minerals and other mining
9	Meat Products	13017	Slaughtering , meat processing, eggs and dairy products
10	Other food products	13013	Grain mill products
		13014	Forage
		13015	Vegetable oil
		13016	Sugar refining
		13018	Prepared fish and seafood
		13019	Other food products
11	Beverages and tobacco products	15020	Wines, spirits and liquors
		15021	Non-alcoholic beverage
		16022	Tobacco products
12	Textiles	17023	Cotton textiles
		17024	Woolen textiles
		17025	Hemp textiles
		17026	Textile made-up article
		17027	Knitted mills
		28046	Chemical fibers
13	Wearing apparel	18028	Wearing apparel
14	Leather products	19029	Leather, furs, down and related products
15	Wood products	20030	Sawmills and products of wood, bamboo, cane, palm, straw, etc.
16	Paper products, publishing	22032	Paper and products
		23033	Printing and record medium reproduction
		24034	Cultural goods
17	Petroleum, coal products	25036	Petroleum refining
		25037	Coking
18	Chemical, rubber, plastic products	26038	Raw chemical materials
		26039	Chemical fertilizers
		26040	Chemical pesticides

Table A2. Concordance from the Classification Used in the Contributed Table to the Sectoral Classification of Chinese Input-output Table

Classification in the Contributed Table		Classification in the China's 2002 Input-Output Table	
		26041	Dope, dye, printing ink and other products
		26042	synthetic material
		26043	Special chemical products
		26044	Chemical products for daily use
		27045	Medical and pharmaceutical products
		29047	Rubber products
		30048	Plastic products
19	Mineral products n.e.c.	31049	Cement, lime and gypsum products
		31050	Glass and glass products
		31051	Pottery, china and earthenware
		31052	Fireproof products
		31053	Other non-metallic mineral products
20	Ferrous metals	32054	Iron-smelting
		32055	Steel-smelting
		32056	Steel processing
		32057	Alloy iron smelting
21	Metals n.e.c.	33058	Nonferrous metal smelting
		33059	Nonferrous metal processing
22	Metal products	34060	Metal products
23	Motor vehicles and parts	37067	Motor vehicles
		37068	Parts of motor vehicles
24	Transport equipment n.e.c.	37066	Railroad transport equipment
		37069	Ship building
		37071	Other transport machinery
25	Electronic equipment	40075	Communication equipment
		40076	Electronic computer
		40077	Other electronic computer equipment
		40078	Electronic element and device
		40079	Household audiovisual equipment
		40080	Other electronic and communication equipment
26	Machinery and equipment n.e.c.	35061	Boiler, engines and turbine
		35062	Metalworking machinery
		35063	Other general industrial machinery
		36064	Agriculture, forestry, animal husbandry and fishing machinery
		36065	Other special industrial equipment
		39072	Generators
		39073	Household electric appliances
		39074	Other electric machinery and equipment
		41081	Instruments, meters and other measuring equipment

Table A2. Concordance from the Classification Used in the Contributed Table to the Sectoral Classification of Chinese Input-output Table

Classification in the Contributed Table		Classification in the China's 2002 Input-Output Table	
		41082	Cultural and office equipment
27	Manufactures n.e.c.	21031	Furniture
		24035	Toys, sporting and athletic and recreation products
		42083	Arts and crafts products
		42084	Other Manufacturing products
		43085	Scrap and waste
28	Electricity	44086	Electricity production and supply
29	Gas manufacture, distribution	45087	Gas production and supply
30	Water	46088	Water production and supply
31	Construction	47089	Construction
32	Trade	63102	Wholesale and retail trade
		66103	Hotels
		67104	Eating and drinking places
33	Transport n.e.c.	51090	Railway passenger transport
		51091	Railway freight transport
		52092	Highway transport
		53093	Urban public transport
		56097	Pipeline transport
		58098	Warehousing
		74110	Tourism
34	Water transport	54094	Water transport
35	Air transport	55095	Air passenger transport
		55096	Air freight transport
36	Communication	59099	Post
		60100	Information communication and Service
37	Financial service n.e.c.	68105	Finance
38	Insurance	70106	Insurance
39	Business services n.e.c.	05006	Technical services for agriculture, forestry, livestock and fishing
		61101	Computer service and software
		72107*	Real estate
		73108	Leasing
		74109	Business service
		75111	Scientific research
		76112	Special technical service and other Scientific technical services
40	Recreational services n.e.c.	82116	Resident services and other services
		88120	Culture and arts, radio, film and television

Table A2. Concordance from the Classification Used in the Contributed Table to the Sectoral Classification of Chinese Input-output Table

Classification in the Contributed Table		Classification in the China's 2002 Input-Output Table	
		91121	Sports
		92122	Recreational services
41	Public administration and defense, education, health services	78113	Geological prospecting
		79114	Water conservancy
		80115	Environment, resource and public facilities management
		84117	Educational services
		85118	Health services
		86119	Social security and social welfare
		93123	Public administration and other sectors
42	Dwellings	72107*	Real estate

* Denotes a China I-O table sector split into more than one GTAP GSC2 sector.