

11.I

India

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11.I.1 The Original Input-Output Table

The source table for the India input-output table included in the GTAP 5 data base is the "Input-Output Transactions Table for 1989-90" from the Central Statistical Organization, Department of Statistics, Ministry of Planning and Program Implementation, Government of India, 1997. This matrix is available for 115 x 115 sectors. The units are in Rupees Lakh (1 Lakh = 100,000). The exchange rate in 1989-90 is 1 US \$ = Rs. 16.649.

The total transactions matrix (domestic plus import use) is presented at both commodity-by-industry (absorption matrix) and industry-by-commodity (make matrix) basis. This matrix is also available at commodity-by-commodity basis. Similarly, the import flow matrix is presented as commodity-by-industry (absorption matrix).

All the entries in the input-output transactions table are at factor cost, i.e. excluding trade and transport margins. The table was originally prepared at purchasers' price, i.e. at the prices at which the actual transactions takes place. The values at factor cost were computed by removing the components of trade and transport margins and net indirect taxes (indirect taxes minus subsidies).

The final use of gross domestic product is classified into six categories, viz. (i) private final consumption expenditure, (ii) government final consumption expenditure, (iii) gross fixed capital formation, (iv) changes in stocks, (v) exports, and (vi) imports.

Imports include the imports of merchandise and other items like transport services of merchandise, imports by resident industries, other transport and communication services by non-residents and miscellaneous commodities, etc. Imports are reported at *c.i.f.* values and exclusive of import duties and domestic taxes.

Exports are comprised of merchandise exports at *f.o.b.* and other items like transport and communication in respect of exports other than merchandise and insurance, etc.

Indirect taxes are distinguished as commodity taxes and other indirect taxes. Commodity taxes include union and state excise duties, sale tax, customs duties on imports and exports, and other duties and cess. Other indirect taxes include tax and stamp duty, etc.

Aggregate value-added is given as a row vector. Its breakup in terms of returns to labor and capital is not available from the table.

11.I.2 Mapping Procedure

We used the total transactions (domestic plus import) matrix at commodity-by-commodity basis from the Central Statistical Office (CSO). The import flow matrix, originally available at commodity-by-industry basis, was converted into a commodity-by-commodity format. Subtracting the import flow matrix from the total transactions matrix generated the domestic flow matrix.

The input-output transaction table (hereafter io89-90) of India was mapped to the GTAP 5 data base 57-sector classification, GSC2 (see Huff, McDougall and Walmsley, 1999). The current io89-90 presents data for 115 sectors. In order to make them comparable, a suitable concordance between the 57 sectors of GTAP 5 and the 115 sectors of io89-90 is required. In doing this, items included under both the schemes were carefully examined. Some of the GTAP 5 sectors correspond directly to the sectors in io89-90. For some sectors, however, a suitable concordance between GTAP 5 and io89-90 was prepared. If necessary, a pro-rata adjustment was done by using some standard weights, either on output value or wholesale price indices (WPI). The International Standard Industrial Classification of All Economic Activities (ISIC), Revision 3, was referred to for further disaggregation of sectors in GSC2. The mapping between GSC2 and io89-90 is presented in Appendix Table 11.I.A1. A listing of the 115 sectors in io89-90 is given in Appendix Table 11.I.A2.

The paddy rice and wheat sectors of GSC2 match directly with the corresponding sectors of io89-90. Similarly, GSC2 sectors 3 to 8 have been mapped with corresponding crop sectors (3-17) of io89-90. For this purpose, a weighting of wholesale price indices was used. The weights used are 0.1206, 0.2485, 0.2346, 0.1644, and 0.1088, respectively. The mapping scheme for GSC2 sectors 9-12 is the same as that used in GTAP 4. A similar approach was followed for some other GSC2 sectors, i.e. 16, 17, 21, 22 and 24-28. We have not been able to map GSC2 sectors 19-20 and 23 due to non-availability of required information.

GTAP 5 provides three different categories of transport --- land transport (otp), water transport (wtp), and air transport (atp). The corresponding sectors available in io89-90 are Railway Transport Services (103) and Other Transport Services (104). To apportion these 2 sectors into GTAP-5 classification, the gross domestic product (GDP) value weights from the National Accounts Statistics (NAS) were used. The NAS provides data on four different types of transport activities, namely, land transport, water transport, air transport, and services incidental to transport. The GDP weights of

these categories are 0.7511, 0.1225, 0.0533, and 0.0731, respectively. Adding the weights for land transport (0.7511) and services incidental to transport (0.0731) amounts to 0.8242. This composite weight is used to apportion sector 104. The resulting value is further added to 2 more sectors: Railway Transport Services (103) and Storage and Warehousing (105) of io89-90. This provides an estimate for land transport (otp). Similarly, weights for 2 other sectors, water transport (0.1225) and air transport (0.0533) are also applied to sector 104 to arrive at values for GSC2's water transport (wtp) and air transport (atp) sectors, respectively.

References

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Appendix

Table 11.I.A1. Sectoral Mapping between GSC2 and the India Input-Output Table, 1989-90

GSC2 Sectors		I-O 1989-90 Sector Mapping
1	PDR	1
2	WHT	2
3	GRO	(0.1206 * 3 - 17)
4	V_F	(0.2485 * 3 - 17)
5	OSD	(0.2346 * 3 - 17)
6	C_B	(0.1644 * 3 - 17)
7	PFB	(0.1088 * 3 - 17)
8	OCR	(0.1231 * 3 - 17)
9	CTL	(0.1653 * 18 - 20)
10	OAP	(0.2762 * 18 - 20)
11	RMK	(0.5555 * 18 - 20)
12	WOL	(0.0030 * 18 - 20)
13	FOR	21
14	FSH	22
15	COL	23
16	OIL	(0.7019 * 24)
17	GAS	(0.2981 * 24)
18	OMN	25-32
19	CMT	--
20	OMT	--
21	VOL	(2. 45 / 10.14) * 33 - 40
22	MIL	(0.64 / 10.14) * 33 - 40
23	PCR	--
24	SGR	(4.06 / 10.14) * 33 - 40
25	OFD	(0.84 / 10.14) * 33 - 40
26	B_T	(2.15 / 10.14) * 33 - 40
27	TEX	41- 46 + (0.12175 * 47 - 49)
28	WAP	(0.87825 * 47 - 49)
29	LEA	54 - 55
30	LUM	50 - 51
31	PPP	52 - 53
32	P_C	58 - 59
33	CRP	56 - 57, 60 - 68
34	NMM	69 - 71
35	I_S	72 - 74
36	NFM	75

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Table 11.I.A1. Sectoral Mapping between GSC2 and the India Input-Output Table, 1989-90
(continued)

GSC2 Sectors		I-O 1989-90 Sector Mapping
37	FMP	81
38	MVH	93
39	OTN	91 - 92, 94 - 96
40	ELE	90
41	OME	79 - 80, 82 - 89
42	OMF	76 - 78, 97 - 98
43	ELY	100
44	GDT	101
45	WTR	102
46	CNS	99
47	TRD	107, 108
48	OTP	103, $(0.8242 * 104)$, 105
49	WTP	$(0.1225 * 104)$
50	ATP	$(0.0533 * 104)$
51	CMN	106
52	OFI	109
53	ISR	110
54	OBS	$(0.75 * 114)$
55	ROS	$(0.25 * 114)$
56	OSG	115, 112 - 113
57	DWE	111

Table 11.I.A2. Description of Sectors in India's Input-Output Table, 1989-90

Sr No	Sectors
1	Paddy
2	Wheat
3	Jowar
4	Bajra
5	Maize
6	Gram
7	Pulses
8	Sugarcane
9	Groundnut
10	Jute
11	Cotton
12	Tea
13	Coffee
14	Rubber
15	Coconut
16	Tobacco
17	Other crops
18	Milk and milk products
19	Animal services(agricultural)
20	Other livestock products
21	Forestry and logging
22	Fishing
23	Coal and lignite
24	Crude petroleum, natural gas
25	Iron ore
26	Manganese ore
27	Bauxite
28	Copper ore
29	Other metallic minerals
30	Lime stone
31	Mica
32	Other non-metallic minerals
33	Sugar
34	Khandsari, boora
35	Hydrogenated oil (vanaspati)
36	Edible oils other than vanaspati
37	Tea and coffee processing
38	Miscellaneous food products
39	Beverages
40	Tobacco products

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Table 11.I.A2. Description of Sectors in India's Input-Output Table, 1989-90 (continued)

Sr No	Sectors
41	Khadi, cotton textiles (handlooms)
42	Cotton textiles
43	Woolen textiles
44	Silk textiles
45	Art silk, synthetic fiber textiles
46	Jute, hemp, mesta textiles
47	Carpet weaving
48	Readymade garments
49	Miscellaneous textile products
50	Furniture and fixtures - wooden
51	Wood and wood products
52	Paper, paper prods. & newsprint
53	Printing and publishing
54	Leather footwear
55	Leather and leather products
56	Rubber products
57	Plastic products
58	Petroleum products
59	Coal tar products
60	Inorganic heavy chemicals
61	Organic heavy chemicals
62	Fertilizers
63	Pesticides
64	Paints, varnishes and lacquers
65	Drugs and medicines
66	Soaps, cosmetics & glycerin
67	Synthetic fibers, resin
68	Other chemicals
69	Structural clay products
70	Cement
71	Other non-metallic mineral prods.
72	Iron, steel and ferro alloys
73	Iron and steel casting & forging
74	Iron and steel foundries
75	Non-ferrous basic metals
76	Hand tools, hardware
77	Miscellaneous metal products
78	Tractors and agri. implements
79	Industrial machinery (F & T)
80	Industrial machinery (others)
81	Machine tools

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Table 11.I.A2. Description of Sectors in India's Input-Output Table, 1989-90 (continued)

Sr No	Sectors
82	Office computing machines
83	Other non-electrical machinery
84	Electrical industrial Machinery
85	Electrical wires & cables
86	Batteries
87	Electrical appliances
88	Communication Equipments
89	Other electrical Machinery
90	Electronic Equipments (incl. TV)
91	Ships and boats
92	Rail Equipments
93	Motor vehicles
94	Motor cycles and scooters
95	Bicycles, cycle - rickshaw
96	Other transport equipments
97	Watches and clocks
98	Miscellaneous manufacturing
99	Construction
100	Electricity
101	Gas
102	Water supply
103	Railway transport services
104	Other transport services
105	Storage and warehousing
106	Communication
107	Trade
108	Hotels and restaurants
109	Banking
110	Insurance
111	Ownership of dwellings
112	Education and research
113	Medical and health
114	Other services
115	Public administration