

11.H

Bangladesh

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11.H.1 Introduction

The procedure followed in the preparation of the Bangladesh input-output (*I-O*) table (1993-94) for GTAP is discussed here. The documentation is organized as follows. Section 2 provides a short description of the general characteristics of the Bangladesh I-O table. Section 3 shows the mapping of Bangladesh I-O table commodities to GTAP commodities. Section 4 explains how negative values in the Bangladesh I-O table were treated. The calculations of the intermediate input matrix of imports is discussed in section 5. Information not available from the Bangladesh I-O table is mentioned in the final section.

11.H.2 Data Sources

The Bangladesh I-O table (1993-94) and the Centre on Integrated Rural Development for Asia and Pacific (*CIRDAP*) data base based on this I-O table are used for the construction of Bangladesh data base for version 5 of the GTAP data base. The Bangladesh I-O table is compiled by the Planning Commission, Government of the Peoples Republic of Bangladesh, and the Bangladesh Institute of Development Studies (*BIDS*), Dhaka, Bangladesh. The Bangladesh I-O table is grouped commodity by commodity and includes 79 sectors. Only the transactions table at producers' prices is available in the Bangladesh I-O table. To calculate the transactions table of imported goods and services, the

share matrix of imported goods and services is calculated and then the share matrix is multiplied by the column of imports to get the matrix of intermediate goods and services for imports. This matrix is then subtracted from the transactions table of total uses to get the transactions table of domestic goods and services.

A similar procedure is followed in generating the final demand matrix for the imported goods and services and the final demand matrix of domestic products. The components of final demand are private consumption expenditure, government consumption expenditure, gross fixed capital formation, change in stock and exports (of course, the final demand matrix of imports does not include a column of imports).

The matrix of value-added in the transactions table at producers' prices includes compensation of employees, operating surplus, indirect taxes. There is no information about subsidies and depreciation in the Bangladesh I-O table.

11.H.3 Commodity Concordance

Table 11.H.A1 in the Appendix shows the mapping between the Bangladesh I-O table commodities and the GTAP sectoral classification (GSC2). To match the GSC2 sectors, several Bangladesh I-O table commodities had to be split. These sectors are: livestock (sector 16), other food (sector 28), petroleum products (sector 49), transport equipment (sector 58), machinery (sector 67), iron and steel basic industry (sector 55), gas (sector 67), transport service (sector 70), banking and insurance (sector 75), and professional service (sector 76). Table 11.H.1 reports the split sectors in the Bangladesh I-O, the corresponding sectors in GSC2 to which they are split, and the shares used to split the sectors. The shares are based on the value of domestic production and imports. For example, the split for the Livestock sector (sector 16) of the Bangladesh I-O table was estimated on the basis of the value of domestic output and imports of bovine cattle, sheep and goats, horses (GSC2 sector 09) and raw milk (GSC2 sector 11). The same procedure was followed in splitting the other sectors.

Because of unavailability of data, percentage shares for the split of the iron and steel basic industry (sector 55) into ferrous metal (GSC2 sector 35) and metal n.e.c. (GSC sector 36), were calculated from relative production shares. The same procedure was followed for splitting the gas sector (sector 67). There are no gas imports for Bangladesh. The gas sector is classified as gas extraction and gas distribution.

The relative weights of transport n.e.c. (GSC2 sector 48), water transport (GSC2 sector 49) and air transport (sector 50) in value-added in the transport sector were calculated and used in splitting the transport service sector (sector 70) of the Bangladesh I-O table. The same procedure was followed in splitting the banking and insurance (sector 75) and professional service (sector 76) sectors.

Table 11.H.1 Shares of Splits of Bangladesh I-O Table Commodities

Bangladesh I-O Table Commodity	Domestic Production		Imports	
GTAP (GSC2) Commodity	Value	Share (%)	Value	Share (%)
16 Livestock				
09 Bovine cattle, sheep and goat	43028	94.61	2220	95
11 Raw milk	2499	5.39	126	5
Total value of Livestock	45477	100	2346	100
28 Other Food				
22 Dairy products	6711	52.04	1860	62.88
25 Food Products n.e.c.	6184	47.96	1098	37.12
Total value of Other food	12895	100	2958	100
49 Petroleum Products				
16 Oil	715	4.88	5884	40.99
32 Petroleum Products	13946	95.12	8468	59.01
Total value of Petroleum Products	14661	100	14352	100
55 Iron and Steel Basic Industry				
35 Ferrous metal		3.33	11853	82.64
36 Metal n.e.c.		96.66	2490	17.36
Total value of Iron and Steel Basic Industry		100	14343	100
67 Gas				
17 Gas	8154	55.56		
44 Gas manufacture, distribution	7611	44.44		
Total value of Gas sector	15815	100		
58 Transport Equipment				
38 Motor Vehicles and Parts	426	4.75	4047	53.16
39 Transport Equipment n.e.c.	8551	95.25	3566	46.84
Total value of Transport equipment	8977	100.0	7613	100
57 Machinery				
40 Electronic Equipment	2723	14.15	5463	21.99
41 Machinery and Equipment n.e.c.	16523	85.85	19385	78.01
Total value of Machinery	19246	100	24848	100
70 Transport Service				
48 Transport n.e.c.	75139	61.17		
49 Water transport	45002	36.63		
50 Air transport	2691	2.19		
Total value of Transport Service Sector	122832	100		
75 Banking and Insurance				
52 Financial services n.e.c.	19393	90.2		
53 Insurance	2107	9.8		
Total value of Banking and Insurance	21500	100		
76 Professional Service				
54 Business service n.e.c.	11740	24.16		
55 Recreational and other services	36853	75.84		
Total value of Professional Service	48593	100		

11.H.4 Adjustment of Negative Values

In the initial Bangladeshi I-O table, some sectors report negative capital earnings. These sectors are gas (sector 17), textiles (sector 27), electronic equipment (sector 40), and machinery and equipment n.e.c.. (sector 41), gas manufacturing and distribution (sector 44) and business n.e.c.. (sector 54). The average capital earnings ratios for these sectors were calculated from the I-O tables of India, Sri Lanka and Rest of Asia from version 4 of the GTAP data base to estimate a normal capital cost for these sectors in Bangladesh. These estimated values were then used as proxies for the respective sectors. The value of the difference between the estimated capital cost and the negative capital earnings in each sector were subtracted from the net non-commodity indirect taxes in each sector to restore sectoral balance.

11.H.5 Calculating Commodity Taxes on Imports

The initial Bangladesh I-O table includes only a column vector reporting commodity taxes on total imports by commodity. This column vector was used as the column total to generate the following arrays:

- AI17: commodity tax on intermediate usage of imports, by commodity and industry
- AI19: commodity tax on household consumption of imports, by commodity
- AI21: commodity tax on investment usage of imports, by commodity
- AI23: commodity tax on government usage of imports, by commodity
- AI26: commodity tax on change in stocks of imports, by commodity.

This was done by first calculating the percentage shares of the base values corresponding to the above arrays to the value of total imports. Then the percentage shares were multiplied to the vector of commodity taxes on total imports.

11.H.6 Information Not Available from the Bangladesh I-O Table

There is no available information from the initial Korean I-O table for some of the arrays required in the GTAP I-O table specification, as given in table 2 of GTAP Technical Paper No. 1, “Contributing Input-Output Tables to the GTAP Data Base.” Zero values were assigned to the following arrays:

- AI15: employment of land, by industry
- AI16: commodity tax on intermediate usage of domestic products, by commodity and industry
- AI18: commodity tax on household consumption of domestic products, by commodity
- AI20: commodity tax on investment usage of domestic products, by commodity
- AI22: commodity tax on government usage of domestic products, by commodity
- AI24: commodity tax on exports, by commodity
- AI25: commodity tax on change in stocks of domestic products, by commodity

In addition, since no separate information is available for these sectors, zero values were also assigned for all activities in the following GSC2 sectors: wool, silk worm, cocoon (sector 12), coal (sector 15), bovine cattle, sheep and goat meat products (sector 19), meat products n.e.c. (sector 20) and water (sector 45).

References

- Bangladesh Planning Commission and BIDS. 1998. An Input-Output Table for Bangladesh Economy, 1993-94. Dhaka, Bangladesh.
- Center on Integrated Rural Development for Asia and Pacific. 1999. Numerical Specification of the Bangladesh Economy: A Social Accounting Matrix 1993-94, February 1999.
- Bangladesh Bureau of Statistics. 1997. Statistical Year Book of Bangladesh-1996, Dhaka, Bangladesh.

Appendix

Table 11.H.A1 Mapping Between Bangladesh I-O Table and GSC2

GSC2 No.	Code	Description	I-O Sector Classification	
1	pdr	Rice, not husked	1	Paddy
2	wht	Wheat	2	Wheat
3	gro	Cereal grain production	3	Other grains
4	v_f	Vegetables, fruits, and nuts	7	Vegetables
			10	Fruits
			8	Pulses
5	osd	Oilseeds	9	Oilseeds
6	c_d	sugarcane	5	Sugar cane
7	pfb	Plant-based fibers	4	Jute
			11	Cotton
8	ocr	Crops n.e.c.	6	Potato
			12	Tobacco
			13	Tea
			14	Major species
			15	Other crops
9	ctl	Bovine cattle, sheep and goat, horses	16*	Livestock
10	oap	Poultry meat, eggs	17	Poultry
11	mk	Raw milk	16*	Livestock
12	wol	Wool, silkworm, cocoons		not existent
13	for	Forestry	20	Forestry
14	fsh	Fishing	18	Shrimp
			19	Other fish
15	col	Coal		not existent
16	oil	Oil	49*	Petroleum products
17	gas	Gas	67*	Gas
18	omn	Minerals	68	Mining and Quarrying
19	cmt	Bovine cattle, sheep and goat meat products		not existent
20	omt	Meat products n.e.c.		not existent
21	vol	Vegetable oils and Fats	24	Edible Oil
22	mil	Dairy products	28	Other food
23	per	Processed rice	21	Rice milling
24	sgr	Sugar	25	Sugar and Gur
25	ofd	Food products n.e.c.	26	Tea (processing & blending)
			28*	Other Food
			22	Ata and Flour milling
			23	Fish and Sea Food processing
			27	Salt

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Table 11.H.A1 Mapping Between Bangladesh I-O Table and GSC2 (continued)

GSC2 No.	Code	Description	I-O Sector Classification	
26	b_t	Beverages and Tobacco products	40	Cigarettes
			41	Bidi
27	tex	Textiles	31	Jute Bailing
			32	Jute Textile
			33	Yarn
			34	Mill Cloth
			35	Handloom cloth
			36	Dying and Bleaching
			39	Other Textile
28	wap	Wearing apparel	37	Ready made Garments
			38	Knitting and Hosiery
29	lea	Leather products	29	Tanning and Leather finishing
30	lum	Wood products	42	Saw and Planning Mills
			43	Wooden Furniture
31	ppp	Paper products, publishing	44	Pulp, paper and board
			45	Printing and publishing
32	P_c	Petroleum and Coal products	49*	Petroleum products
33	crp	Chemical, Rubber and Plastic products	49*	Petroleum products
			47	Fertilizer
			48	Other chemicals
34	nmn	Mineral products n.e.c.	50	Pottery
			51	Ceramics
			52	Glass products
			53	Bricks, tiles and clay
			54	Cement
35	i_s	Ferrous metal	55*	Iron and Steel basic industry
36	nfm	Metals n.e.c.	55*	Iron and Steel basic Industry
37	fmp	Metal products	56	Fabricated metal products
38	mvh	Motor vehicles and parts	58*	Transport equipment
39	otn	Transport equipment n.e.c.	58*	Transport equipment
40	ele	Electronic equipment	57*	Machinery
41	ome	Machinery and equipment n.e.c.	57*	Machinery
42	omf	Manufactures n.e.c.	59	Miscellaneous industries
43	ely	Electricity	66	Electricity
44	gdt	Gas manufacture and Distribution	67*	Gas
45	wtr	Water		not existent
46	cns	Construction	60	Urban building
			61	Rural building
			62	Construction: Electricity and gas
			63	Construction: Rural roads
			64	Construction: Other transport
			65	Other construction

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Table 11.H.A1 Mapping Between Bangladesh I-O Table and GSC2 (continued)

GSC2 No.	Code	Description	I-O Sector Classification
47	trd	Trade	69 Trade service 77 Hotels and Restaurants
48	otp	Transport n.e.c.	70* Transport service
49	wtp	Water Transport	70* Transport service
50	atp	Air Transport	70* Transport service
51	cmn	Communication	48 Communication
52	ofi	Finance service n.e.c.	75* Banking and Insurance
53	isr	Insurance	75* Banking and Insurance
54	obs	Business service n.e.c.	76* Professional service
55	ros	Recreational and other services	76* Professional service 49 Other services
56	osg	Public administration and defense	74 Public administration & defense 73 Education service 72 Health service
57	dwe	Dwellings	Housing service

*Requirements of the GTAP sectoral classification are not fulfilled