

AA.1 Introduction

This chapter describes the transformation of the 2017 Indonesia Social Accounting Matrix (SAM) to the GTAP format. The next section presents the source data. Section 3 describes the reformatting steps. Section 4 describes the concordance between the original classification of sectors and the GTAP sectors.

AA.2 Source Data

The Indonesia SAM was provided by World Bank staff. The table consists of 195 activities and 190 commodities sectors. The SAM contains vectors of net product taxes, indirect taxes and tariffs. Furthermore, the SAM contains value added labor, capital and land.

AA.3 Data processing

The Input-Output Table (IOT) derived from this SAM does not fully satisfy the requirements of the GTAP data base described in Huff et al. 2000. Main adjustments to the derived IOT are as follows:

- Split total use into import and domestic matrices and
- Construct the Product-Tax Matrix

The derivation of the IOT from a SAM and further adjustments to meet the GTAP IOT format are implemented using the GAMS programs documented in Aguiar and Pereira n.d.³¹

The matrix of imports is estimated assuming the import share is uniform across users, except for exports as it would imply re-exports. Domestic flows are then obtained as residual given the initial data and the newly estimated matrix of imports.

The product-tax matrix is constructed for the newly developed domestic and import components. No taxes are levied on changes in stocks and lower taxes are levied on export and intermediate users.

³¹Programs and further documentation are available upon request.

AA.4 Concordance between I-O sectors and GSEC3

The sectors in the original data are first aggregated and then mapped to the GTAP classification of 65 sectors (Table 8.48).

Table 8.48: Concordance between original sectors and GTAP classification

No.	Original sectors	GTAP
1	PADDY	pdr
2	MAIZE	gro
3	SWEET POTATOES	v_f
4	CASSAVA	v_f
5	OTHER ROOT CROPS	v_f
6	GROUNDNUT	osd
7	SOYBEAN	osd
8	OTHER BEANS	osd
9	CEREALS AND OTHER FOOD CROPS	wht
10	VEGETABLES	v_f
11	DECORATIVE PLANTS	ocr
12	SUGARCANE	c_b
13	TOBACCO	ocr
14	FIBRE CROPS	pfb
15	OTHER ESTATE CROPS	ocr
16	FRUITS	v_f
17	BIOFARMING PLANTS	osd
18	RUBBER	ocr
19	COCONUT	v_f
20	OILPALM	osd
21	COFFEE	ocr
22	TEA	ocr
23	CACAO	ocr
24	CLOVE	ocr
25	CASHEW FRUIT	v_f
26	LIVESTOCK AND LIVESTOCK PRODUCT EXCEPT FRESH MILK	ctl
27	FRESH MILK	rmk
28	POULTRY AND ITS PRODUCT	wol_oap
29	OTHER LIVESTOCK RAISING	wol_oap
30	AGRICULTURE SERVICES	obs
31	WOOD	frs
32	OTHER FOREST PRODUCT	frs
33	SEA FISH AND OTHER SEA PRODUCT	fsh
34	SHRIMP	fsh
35	OTHER AQUATIC BIOTA	fsh
36	SEAWEED AND ITS KIND	fsh
37	COAL AND LIGNITE	coa
38	CRUDE OIL	oil
39	NATURAL GAS AND GEOTHERMAL	gas
40	ORE AND SAND IRON	oxt
41	TIN ORE	oxt
42	BAUXITE ORE	oxt
43	COPPER ORE	oxt

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No.	Original sectors	GTAP
44	NICKEL ORE	oxt
45	OTHER MINING	oxt
46	GOLD ORE	oxt
47	SILVER ORE	oxt
48	QUARRYING ALL KINDS	oxt
49	MINING OF CHEMICAL NON METAL	oxt
50	CRUDE SALT	oxt
51	OIL & GAS MINIG SERVICES	oil
52	OTHER MINING AND QUARRYING SERVICES	oxt
53	MEAT, ENTRAILS OF SLAUGHTERED ANIMAL	cmt_omt
54	PROCESSED AND PRESERVED MEAT	cmt_omt
55	SALTY FISH AND DRY FISH	ofd
56	PROCESSED AND PRESERVED FISH	ofd
57	CANNING AND PRESERVING OF FRUITS AND VEGETABLES	ofd
58	ANIMAL AND VEGETABLE OIL	vol
59	COPRA	vol
60	DAIRY PRODUCTS	mil
61	OTHER FLOUR	ofd
62	WHEAT FLOUR	ofd
63	RICE	per
64	BAKERY PRODUCTS AND THE LIKE	ofd
65	SUGAR	sgr
66	CHOCOLATE AND SUGAR CONFECTIONERY	ofd
67	NOODLE, MACARONI AND THE LIKE	ofd
68	MILLED AND PEELED COFFEE	ofd
69	PROCESSED TEA	ofd
70	SOYA BEAN PRODUCTS	ofd
71	OTHER FOODS	ofd
72	ANIMAL FEED	ofd
73	ALCOHOLIC BEVERAGES	b.t
74	NON ALCOHOLIC BEVERAGES	b.t
75	TOBACCO PRODUCTS	b.t
76	CIGARRETES	b.t
77	YARN	tex
78	TEXTILE	tex
79	MANUFACTURE OF CARPET, ROPE AND TEXTILE	tex
80	MADE UP TEXTILE GOODS EXCEPT WEARING APPAREL	tex
81	KNITTING MILLS	tex
82	MANUFACTURE OF WEARING APPAREL	wap
83	LEATHER TANNERIES AND LEATHER FINISHING	lea
84	LEATHER PRODUCTS	lea
85	FOOTWEAR	lea
86	SAWMILL AND PRESERVED WOOD	lum
87	MANUFACTURE OF PLYWOOD AND THE LIKE	lum
88	WOODEN BUILDING COMPONENTS	lum
89	MANUFACTURE OF OTHER PRODUCTS MAINLY MADE OF WOOD, BAMBOO, RATTAN AND CORK	lum
90	PULP	ppp
91	PAPER AND CARDBOARD	ppp
92	PAPER AND CARDBOARD PRODUCTS	ppp
93	PRINTING AND PUBLISHING	ppp

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No.	Original sectors	GTAP
94	OTHER GOODS FROM NON METAL	ppp
95	PRODUCTS OF OIL AND GAS REFINERY	p_c
96	BASIC CHEMICAL EXCEPT FERTILIZER	chm
97	FERTILIZER	chm
98	SYNTHETICS RESIN, PLASTIC, AND FIBBER	rpp
99	PESTICIDES	chm
100	PAINTS	chm
101	VERNISHES AND LACQUERS	chm
102	SOAP AND CLEANING PREPARATION	chm
103	COSMETICS	chm
104	OTHER CHEMICALS PRODUCT	chm
105	DRUG AND MEDICINE	bph
106	NATIVE MEDICINE	bph
107	TIRE	rpp
108	CRUMB RUBBER AND SMOKE RUBBER	rpp
109	OTHER RUBBER PRODUCTS	rpp
110	PLATICS PRODUCT	rpp
111	GLASS PRODUCT	nmm
112	CERAMIC AND EARTHENWARE	nmm
113	CEMENT	nmm
114	BASIC IRON AND STEEL	i_s
115	NONFERROUS BASIC METAL	nfm
116	PRODUCTS OF FOUNDRY	fmp
117	BUILDING MATERIAL FROM METAL	fmp
118	WEAPONS AND AMMUNITION, METALLURGY, AND SERVICES OF PRODUCING METAL GOODS	fmp
119	KITCHEN WARES, HAND TOOLS AND AGRICULTURAL TOOLS	fmp
120	OTHER METAL PRODUCTS	fmp
121	COMMUNICATION EQUIPMENT AND APPARATUS	ele
122	MEASURING, PHOTOGRAPHIC AND OPTICAL EQUIPMENT	ele
123	ELECTRIC GENERATOR AND ELECTRICAL MOTOR	eeq
124	ELECTRICAL MACHINERY AND APPARATUS	eeq
125	BATTERY	eeq
126	OTHER ELECTRICAL APPLIANCES	eeq
127	HOUSEHOLD ELECTRONICS APPLIANCES	eeq
128	PRIME MOVERS ENGINE	ome
129	MACHINERY FOR OFFICE AND ACCOUNTING AND ITS PARTS AND EQUIPMENTS	ome
130	MACHINERY AND APPARATUS	ome
131	MOTOR VEHICLE EXCEPT MOTOR CYCLE	mvh
132	SHIP AND ITS REPAIR	otn
133	TRAIN AND ITS REPAIR	otn
134	AIRCRAFT AND ITS REPAIR	otn
135	OTHER TRANSPORT EQUIPMENT	otn
136	MOTOR CYCLE	otn
137	HOUSEHOLD FURNITURE AND OFFICE NON METAL	omf
138	JEWELRY	omf
139	MUSICALS INSTRUMENTS	omf
140	SPORTING AND ATHLETICS GOODS	omf
141	GAMES TOOLS AND TOYS	omf
142	MEDICAL EQUIPMENTS	omf
143	OTHER MANUFACTURING INDUSTRIES	omf

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No.	Original sectors	GTAP
144	MAINTENANCE AND REPAIR SERVICES OF MANUFACTURED METAL PRODUCTS, MACHINERY AND EQUIPMENTS	omf
145	Coal Power	ely
146	Gas Power	ely
147	Oil Power	ely
148	Hydro Power	ely
149	Other Power	ely
150	Solar Power	ely
151	Wind Power	ely
152	PRODUCT OF NATURAL AND ARTIFICIAL GAS, SUPPLYING STEAM/HOT WATER, COLD AIR AND ICE PRODUCTS	gdt
153	WATER SUPPLY	wtr
154	SOLID WASTE, WASTE AND RECYCLING	wtr
155	RESIDENTIAL AND NON RESIDENTIAL BUILDING	cns
156	CONSTRUCTION AND INSTALLATION ON ELECTRICITY, GAS, WATER SUPPLY AND COMMUNICATION	cns
157	CONSTRUCTION ON AGRICULTURE	cns
158	PUBLIC WORK ON ROAD, BRIDGE AND HARBOR	cns
159	OTHER CONSTRUCTION	cns
160	TRADE OF CAR AND MOTORCYCLE	trd
161	CAR REPAIR	trd
162	TRADE OF NON CAR AND MOTORCYCLE	trd
163	RAILWAY TRANSPORT	otp
164	ROAD TRANSPORT	otp
165	SEA TRANSPORT	wtp
166	RIVER AND LAKE TRANSPORT	wtp
167	AIR TRANSPORT	atp
168	SERVICES ALLIED TO TRANSPORT	whs
169	POST AND MESSENGER SERVICES	cmn
170	HOTEL	afs
171	RESTAURANT	afs
172	PUBLISHING PRODUCT	cmn
173	SERVICES OF BROADCAST, PROGRAM, FILM, AND AUDIO RECORDING	cmn
174	COMMUNICATION SERVICES	cmn
175	SERVICES OF COMPUTER CONSULTING AND INFORMATION TECHNOLOGY	cmn
176	BANKING	ofi
177	INSURANCE AND PENSION FUNDS	ins
178	PENSION FUNDS	ins
179	OTHER FINANCIAL INTERMEDIARIES	ofi
180	REAL ESTATE AND DORMITORY	rsa.dwe
181	PROFESSIONAL, SCIENCE AND TECHNICAL	obs
182	RENTAL SERVICES AND BUSSINESS SUPPORT	obs
183	GENERAL GOVERNMENT	osg
184	GOVERNMENT EDUCATION SERVICES	edu
185	GOVERNMENT KINDERGARTED	edu
186	GOVERNMENT CHILDCARE	hht
187	GOVERNMENT HEALTH SERVICES	hht
188	OTHER GOVERNMENT SERVICES	osg
189	PRIVATE EDUCATION SERVICES	edu
190	PRIVATE KINDERGARTEN	edu
191	PRIVATE CHILDCARE	hht

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No.	Original sectors	GTAP
192	PRIVATE HEALTH SERVICES	hht
193	AMUSEMENT,RECREATIONAL AND CULTURAL SERVICES	ros
194	PERSONAL AND HOUSEHOLD SERVICES	ros
195	OTHER GOODS AND SERVICES N.E.C	ros

AA.5 Diagnostics

Before and after conversion, the IOT met all balance and sign conditions. There were no large tax rates over 100% in the data. The GTAP cost shares comparisons appear correct or at least consistent with the original data.

References

- Aguiar, Angel H and Maria Seara e Pereira (n.d.). “Transforming a Social Accounting Matrix (SAM) into GTAP format”.
- Huff, Karen et al. (2000). *Contributing Input-Output Tables to the GTAP Data Base*. GTAP Technical Paper 01. Department of Agricultural Economics, Purdue University, West Lafayette, IN: Global Trade Analysis Project (GTAP). URL: https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=304.