

BD.1 Introduction

This chapter describes the transformation of the 2016 Vietnam 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.

BD.2 Source Data

The Vietnam SAM was provided by World Bank staff. The table consists of 172 activities and 165 commodities. The SAM contains vectors for net taxes on products and net taxes on production. There are vectors of import values, import duties and land.

BD.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.⁹³

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.

⁹³Programs and further documentation are available upon request.

BD.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 8.124).

Table 8.124: Concordance between original sectors and GTAP classification

No.	Original sectors	GTAP
1	Paddy	pdr
2	Maize & other cereals	gro_wht
3	Edible roots & high-starch tubers	v_f
4	Oleaginous vegetable seeds	osd_vol
5	Sugar cane	c_b
6	Vegetables & beans	v_f
7	Flowers & bonsais	pfb_ocr
8	Other non-perennial crops	pfb_ocr
9	Fruits	v_f
10	Cashew nuts	v_f
11	Peppers	v_f
12	Natural rubber	pfb_ocr
13	Coffee beans	pfb_ocr
14	Tea leaves	pfb_ocr
15	Other perennial crops	pfb_ocr
16	Products of buffaloes & cows	ctl
17	Products of pigs	wol_oap
18	Products of poultry	wol_oap
19	Other farm animal products	rmk
20	Agricultural services	obs
21	Other agricultural services n.e.c	obs
22	Live forest tree plants, forest tree seeds	frs
23	St&ing timber	frs
24	Wild growing non-wood products exploited & collected	frs
25	Support services to forestry	frs
26	Live fish, freshwater, marine, not farmed	fsh
27	Live fish, freshwater, marine, farmed	fsh
28	Hard coal and lignite	coa
29	Crude petroleum	oil
30	Natural gas in liquefied or gaseous state	gas
31	Metal ores	oxt
32	Stone, sand and clay	oxt
33	Other mining and quarrying products n.e.c	oxt
34	Support services to mining and quarrying	oxt
35	Processed and preserved meat and meat products	cmt_omt
36	Processed and preserved fish, crustaceans and molluscs	sgr_ofd
37	Processed and preserved vegetables and fruits	sgr_ofd
38	Vegetables and animal oils and fats	vol
39	Dairy products	mil
40	Grain mill products, starches and starch products	pcr
41	Sugar and molasses	sgr_ofd
42	Cocoa, chocolate and sugar confectionary	sgr_ofd
43	Coffee	sgr_ofd

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No.	Original sectors	GTAP
44	Tea	sgr_ofd
45	Other food products	sgr_ofd
46	Prepared animal feeds	sgr_ofd
47	Wine	b_t
48	Beer	b_t
49	Non-alcoholic beverages, mineral water	b_t
50	Tobacco products	b_t
51	Textiles	tex
52	Other textiles	tex
53	Wearing apparel	wap
54	Tanned and dressed leather, dressed and dyed fur, and related products	lea
55	Footwear	lea
56	Wood, products of wood and cork, except furniture; articles of straw and plaiting materials	lum
57	Paper and paper products	ppp
58	Printing and recording services	ppp
59	Coke oven products	p_c
60	Refined petroleum products	p_c
61	Other petroleum products	p_c
62	Basic chemicals	chm
63	Fertilizers and nitrogen products	chm
64	Plastic and synthetic rubber in primary forms	rpp
65	Pesticides and other agrochemical products	chm
66	Other chemical products, man-made fibres	chm
67	Basic pharmaceutical products, pharmaceutical preparations	bph
68	Rubber products	rpp
69	Plastic products	rpp
70	Glass and glass products	nmm
71	Bricks, blocks, tiles, other ceramic goods of siliceous fossil meals or earth	nmm
72	Cements	nmm
73	Other non-metallic mineral products n.e.c	nmm
74	Products of iron and steel	i_s
75	Colour and precious metals, casting services of metals	nfm
76	Fabricated metal products, except machinery and equipment	fmp
77	Computer, electronic products	ele
78	Communication equipment	ele
79	Consumer electronics	eeq
80	Measuring, testing and navigating equipment, watches and clocks; irradiation, electromedical and electrotherapeutic equipment	eeq
81	Electric motors, generators, transformers, electricity distribution and control apparatus	eeq
82	Batteries and accumulators	eeq
83	Wiring and wiring devices	eeq
84	Electric lighting equipment	eeq
85	Domestic appliances	eeq
86	Other electrical equipment	eeq
87	General purpose machinery	ome
88	Special purpose machinery	ome
89	Motor vehicles	mvh
90	Trailers and semi-trailers	otn
91	Ships and boats	otn
92	Motorcycles	otn
93	Other transport equipment	otn

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No.	Original sectors	GTAP
94	Furniture	omf
95	Jewellery, bijouterie and related articles, musical instruments; sport goods; games and toys	omf
96	Medical and dental instruments and supplies	omf
97	Manufactured goods n.e.c	omf
98	Repair and installation services of machinery and equipment	omf
99	Electricity distribution	ely
100	Coal Power Base	ely
101	Gas Power Base	ely
102	Wind Power Base	ely
103	Hydro Power Base	ely
104	Other Power Base	ely
105	Gas Power Peak	ely
106	Oil Power Peak	ely
107	Solar Power	ely
108	Manufactured gas; distribution services of gaseous fuel through mains	gdt
109	Steam and air conditioning supply services	gdt
110	Natural water; treatment, distribution and trade services of water through mains	wtr
111	Sewerage services	wtr
112	Waste collection, treatment and disposal services, material recovery services	wtr
113	Remediation services and other waste management services	wtr
114	Residential buildings and construction works for residential buildings	cns
115	Non-residential buildings and construction works for non-residential buildings	cns
116	Railways, construction works for railways	cns
117	Roads, construction works for roads	cns
118	Construction works for utility projects	cns
119	Specialized construction works	cns
120	Trade services of motor vehicles and motorcycles	trd
121	Maintenance and repair services of motor vehicles	trd
122	Wholesale and retail trade	trd
123	Passenger rail transport services	otp
124	Freight rail transport services	otp
125	Other passenger land transport services	otp
126	Freight transport services by road, transport services via pipeline	otp
127	Sea and coastal, inland passenger water transport services	wtp
128	Sea and coastal, inland freight water transport services	wtp
129	Passenger air transport services	atp
130	Freight air transport service	atp
131	Warehousing and support services for transportation	whs
132	Postal and courier services	cmn
133	Accommodation services	afs
134	Food and beverage serving service	afs
135	Publishing	cmn
136	Motion picture, video and television programme production services, sound recording and music publishing	cmn
137	Programming and broadcasting services	cmn
138	Telecommunications services	cmn
139	Information technology service	cmn
140	Information services	cmn
141	Financial intermediation services, except insurance and pension funding	ofi
142	Life insurance and reinsurance services	ins
143	Non-life insurance and reinsurance services	ins

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No.	Original sectors	GTAP
144	Other financial services	ofi
145	Real estate services	rsa_dwe
146	Legal and accounting services	obs
147	Services of head offices; management consulting service	obs
148	Architectural and engineering services; technical testing and analysis services	obs
149	Scientific research and development services	obs
150	Advertising and market research services	obs
151	Other professional, scientific and technical services	obs
152	Veterinary services	obs
153	Renting and leasing services of machinery and equipment, renting and leasing services of personal and household goods	obs
154	Employment services	obs
155	Travel agency, tour operator and other reservation services and related services	obs
156	Security and investigation services	obs
157	Services to buildings and landscape	obs
158	Office administrative, office support and other business support services	obs
159	Services of communist party, social-political organizations, public administration and defence services; compulsory social security services	osg
160	Education services except tertiary education services	edu
161	Tertiary education services	edu
162	Human health services	hht
163	Residential care services	hht
164	Social work services without accommodation	hht
165	Creative, arts and entertainment services	ros
166	Library, archive, museum and other cultural services	ros
167	Gambling and betting services	ros
168	Sporting services and amusement and recreation service	ros
169	Services of other organizations and associations	ros
170	Repair services of computers and personal and household goods	ros
171	Other personal services	ros
172	Services of households as employers; undifferentiated goods and services produced by households for own use	ros

BD.5 Diagnostics

Before and after conversion, the IOT met all balance and sign conditions. There were a few large tax rates over 100% in the data. All but one will be revised by GTAP use of import tariffs from MacMAP. The remaining large tax relates to real estate and dwellings sectors and are consistent with the original SAM. 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.