

11.R

Madagascar

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11.R.1 Original Input-Output Data

The source data for the input-output table for the Malagasy economy included in the GTAP 6 Data Base is the "Matrice de la Comptabilite Sociale de Madagascar en 1999" provided by Mr. Jean Razafindravonona, Director General of the National Institute of Statistics (INSTAT). An excellent description and a thorough documentation of the Madagascar 1999 SAM is provided by Dorosh et al. (2003). The units are in billions of Malagasy Francs (FMG) and the exchange rate in 1999 is US\$1 = FMG8660.

11.R.2 Mapping Procedure

The original social accounting matrix (SAM) distinguishes 16 different household groups: four urban, eight rural and agricultural, and the last two rural non-agricultural. These are all aggregated into a single household.

The SAM distinguishes among 34 different productive activities: 10 agricultural, 12 industrial, 11 services and one non-competitive imports. Among the majority of secondary and tertiary activities, the SAM separates out formal and informal segments. The SAM has one category of non-competitive imports - including automobiles, trucks and certain electronic products - for which local substitutes do not exist. Using supplementary data from www.instat.mg, the entries for this sector are split between the following GTAP sectors: Motor vehicles and parts, Transport equipment nec, Electronic equipment, Machinery and equipment nec. Similarly, the SAM has a single entry for Energie/Eau (Energy and water) which was split between water and electricity. The mapping of Madagascar's SAM sectors to GTAP sectors provided in Appendix Table 11.R.A1 includes the shares used in the sectoral splits. Appendix Table 11.R.A2 provides the concordance between GTAP sectors and Madagascar's SAM sectors.

The original twenty-two factors of production (four categories of labor (one rural and three urban), three categories of capital (one formal and two informal), and eight categories of land) are also aggregated to match the GTAP Data Base.

11.R.3 Other Data Adjustments

Madagascar's "Matrice de la Comptabilité Sociale" (MaCS), as provided by INSTAT (2003) and as documented in Dorosh et al. (2003), was already in very good shape and minimal data adjustments.

One calculation that was made was the derivation of the import ratio. It is derived as Imports by Commodity (M_i) divided by Domestic Supply, which is in turn defined as Total Commodity Output (Z_i) minus Exports (E_i). It is assumed that each industry applies the same import ratio of commodity "i" to each production sector. The import ratio is then applied to the various components of the input-output table to split domestic transactions and imports (e.g., the import ratio was used to obtain the import matrix of the USE table (Table A102: Intermediate usage of imports, by commodity and industry).

References

- Dorosh, Paul, Steven Haggblade, Christen Lungren, Tiaray Razafimanantena, and Zaza Randriamiarana. 2003. "Economic Motors for Poverty Reduction in Madagascar," Cornell Food and Nutrition Policy Program (CFNPP) Working Paper 144, May 2003, <http://www.he.cornell.edu/cfnpp/images/wp144en.pdf>.
- INSTAT. 2003. "Matrice de la Comptabilite Sociale de Madagascar en 1999," National Institute of Statistics, Antananarivo, Madagascar.

Appendix

Table 11.R.A1 Concordance between Madagascar's MaCS Sectors and GTAP Sectors

Madagascar's MaCS Sectors		Split Share (Percent)	GTAP Sectoral Classification		
P01	Paddy	100.00	1	pdr	Paddy rice
P02	Cult.Exp	100.00	8	ocr	Crops nec
P03	Cult indust	0.00	2	wht	Wheat
		7.53	3	gro	Cereal grains nec
		86.02	6	c_b	Sugar cane, sugar beet
		6.45	7	pfb	Plant-based fibers
		100.00	8	ocr	Crops nec
P04	Manioc	100.00	8	ocr	Crops nec
P05	Autr Cult	95.00	4	v_f	Vegetables, fruit, nuts
		5.00	5	osd	Oil seeds
		0.00	12	wol	Wool, silk-worm cocoons
P06	Elevage	87.00	9	ctl	Cattle, sheep, goats, horses
		10.00	10	oap	Animal products nec
		3.00	11	rmk	Raw milk
		100.00	14	fsh	Fishing
P07	Pêche	100.00	14	fsh	Fishing
P08	Sylviculture	100.00	13	for	Forestry
P09	Mines	100.00	18	omn	Minerals nec
P10	Energie/Eau	70.00	45	wtr	Water
		30.00	43	ely	Electricity
		65.00	16	oil	Oil
P11	Petrole	35.00	32	p_c	Petroleum, coal products
		100.00	23	pcr	Processed rice
P12	Riz	100.00	23	pcr	Processed rice
P13	Alim	4.97	19	cmt	Meat: cattle, sheep, goats, horse
		0.05	20	omt	Meat products nec
		1.26	21	vol	Vegetable oils and fats
		0.57	22	mil	Dairy products
		22.38	24	sgf	Sugar
		10.04	25	ofd	Food products nec
		60.73	26	b_t	Beverages and tobacco products
		100.00	27	tex	Textiles
		9.91	29	lea	Leather products
		4.08	30	lum	Wood products
P14	Text	17.50	31	ppp	Paper products, publishing
		33.84	33	crp	Chemical, rubber, plastic prods
		0.00	34	nmm	Mineral products nec
		0.00	35	i_s	Ferrous metals
		0.00	36	nfm	Metals nec
		9.09	37	fmp	Metal products
		25.58	42	omf	Manufactures nec
		50.00	28	wap	Wearing apparel
		50.00	27	tex	Textiles
		50.00	46	cns	Construction
P17	BTP	50.00	57	dwe	Dwellings
		54.00	48	otp	Transport nec
		5.00	49	wtp	Sea transport
P18	Trans	20.00	50	atp	Air transport
		21.00	51	cmn	Communication
		100.00	47	trd	Trade
P19	Com	100.00	47	trd	Trade

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Table 11.R.A1 Concordance between Madagascar's MaCS Sectors and GTAP Sectors (Contd)

Madagascar's MaCS Sectors		Split Share (Percent)	GTAP Sectoral Classification		
P20	Tourisme	100.00	55	ros	Recreation and other services
P21	Autserv	60.00	52	ofi	Financial services nec
		20.00	53	isr	Insurance
		20.00	54	obs	Business services nec
		100.00	56	osg	PubAdmin/Defence/Health/Educat
P22	Admin pub	100.00	56	osg	PubAdmin/Defence/Health/Educat
P23	Importcompl	33.68	38	mvh	Motor vehicles and parts
		1.37	39	otn	Transport equipment nec
		30.47	40	ele	Electronic equipment
		34.47	41	ome	Machinery and equipment nec
		0.00	15	col	Coal
Zero	Zero	0.00	17	gas	Gas
		0.00	44	gdt	Gas manufacture, distribution

Table 11.R.A2 Concordance between GTAP Sectors and Madagascar's MaCS

GTAP Sectoral Classification		MaCS Sectors	
1	pdrr	P01	Paddy
2	wht	P03	Cult indust
3	gro	P03	Cult indust
4	v_f	P05	Autr Cult
5	osd	P05	Autr Cult
6	c_b	P03	Cult indust
7	pfbr	P03	Cult indust
8	ocr	P02	Cult Exp
8	ocr	P04	Manioc
9	ctl	P06	Elevage
10	oap	P06	Elevage
11	rmk	P06	Elevage
12	wol	P05	Autr Cult
13	for	P08	Sylviculture
14	fsh	P07	Pêche
15	col	Zero	Zero
16	oil	P11	Petrole
17	gas	Zero	Zero
18	omn	P09	Mines
19	cmt	P13	Alim
20	omt	P13	Alim
21	vol	P13	Alim
22	mil	P13	Alim
23	pcr	P12	Riz
24	sgr	P13	Alim
25	ofd	P13	Alim
26	b_t	P13	Alim
27	tex	P14	Text
27	tex	P16	Zone franche
28	wap	P16	Zone franche
29	lea	P15	Manuf
30	lum	P15	Manuf
31	ppp	P15	Manuf
32	p_c	P11	Petrole
33	crp	P15	Manuf
34	nmm	P15	Manuf
35	i_s	P15	Manuf
36	nfm	P15	Manuf
37	fmp	P15	Manuf
38	mvh	P23	Importcompl
39	otn	P23	Importcompl
40	ele	P23	Importcompl
41	ome	P23	Importcompl
42	omf	P15	Manuf

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Table 11.R.A2 Concordance between GTAP Sectors and Madagascar's MaCS (Contd)

GTAP Sectoral Classification		MaCS Sectors	
43	ely Electricity	P10	Energie/Eau
44	gdt Gas manufacture, distribution	Zero	Zero
45	wtr Water	P10	Energie/Eau
46	cns Construction	P17	BTP
47	trd Trade	P19	Com
48	otp Transport nec	P18	Trans
49	wtp Sea transport	P18	Trans
50	atp Air transport	P18	Trans
51	cmn Communication	P18	Trans
52	ofi Financial services nec	P21	Autserv
53	isr Insurance	P21	Autserv
54	obs Business services nec	P21	Autserv
55	ros Recreation and other services	P20	Tourisme
56	osg PubAdmin/Defence/Health/Educat	P22	Admin pub
57	dwe Dwellings	P17	BTP