Constructing a Social Accounting Matrix (SAM) for Ecuador 2001

1. Aggregate sectors in the 2001 make and use matrices:

Primaries: commodities 01.01-10.09; industries 1-10.
Manufactures: commodities 12.01-31.01; industries 11-32.
Services: commodities 11.01-11.09, 34.01-47.01, direct purchases; industries 33-47.

Make matrix

| | | industry | | | | indirect | | | |
		prim	man	serv	imports	taxes	tariffs	margins	total
commodity	prim	6554776	9604	664	234219	401	19056	1297797	8116517
	man	0	9063588	11562	5363804	1622003	370807	3361600	19793364
	serv	271025	18519	20214384	1010288	197287	0	-4659397	17052106
	total	6825801	9091711	20226610	6608311	1819691	389863		

Use matrix

| | | industry | | | | | | | |
		prim	man	serv	C	I	G	X	total
commodity	prim	672729	2942771	193132	1175085	144885	0	2987915	8116517
	man	879852	3678012	3197025	7594338	2689506	0	1754631	19793364
	serv	792630	731941	4241499	5721724	2560303	2133707	870302	17052106
	value added	4480590	1738987	12594954					
	total	6825801	9091711	20226610					

2. Add commercial margins to the intermediate inputs of services, except in the service sector in use matrix. Add rows for imports and tariffs.

		industry			C	I	G	X	total
		prim	man	serv	C	I	G	X	total
commodity	prim	672729	2942771	193132	1175085	144885	0	2987915	8116517
	man	879852	3678012	3197025	7594338	2689506	0	1754631	19793364
	serv	2090427	4093541	4241499	5721724	2560303	2133707	870302	21711503
	imports	234219	5363804	1010288					
	tariffs	19056	370807	0					
	value added	4480590	1738987	12594954					
	total	8376873	18187922	21236898					

3. Notice that row sums for commodities are not equal to column sums for industries because of the off-diagonal elements in the make matrix. We assume that outputs are produced in fixed proportions and inputs are used in fixed proportions. This assumption allows us to subtract the off-diagonal elements of the make matrix from the corresponding element of the use matrix. We then add these elements to the corresponding diagonal elements to preserve row sums. We now have a balanced input-output matrix.

	prim	man	serv	C	I	G	X	total
prim	682997	2933167	192468	1175085	144885	0	2987915	8116517
man	879852	3689574	3185463	7594338	2689506	0	1754631	19793364
serv	1819402	4075022	4531043	5721724	2560303	2133707	870302	21711503
imports	234219	5363804	1010288					
tariffs	19056	370807	0					
value added	4480590	1738987	12594954					
total	8116517	19793364	21711503					

4. The 2001 use matrix does not have any information about the distribution of value added between returns to labor and returns to capital. We use the 1998 use matrix to obtain an aggregate labor share of 0.503495. For the 1998 use matrix the use of capital and labor in the 3 sectors is

	prim	man	serv
labor	9126803	5965208	41673782
capital	13480975	8940209	33556465

We want a matrix of factor inputs with row sums 4480590, 1738987, 12594954 and column sums 10389234, 10244988. Using the RAS iterative adjustment procedure, we obtain:

	prim	man	serv
labor	2627114	1211770	6550349
capital	1853877	2149220	6241892

This yields the 3 sector input-output matrix

	prim	man	serv	C	I	G	X	total
prim	682997	2933167	192468	1175085	144885	0	2987915	8116517
man	879852	3689574	3185463	7594338	2689506	0	1754631	19793364
serv	1819402	4075022	4531043	5721724	2560303	2133707	870302	21711503
imports	234219	5363804	1010288					6608311
tariffs	19056	370807	0					389863
labor	2627114	1211770	6550349					10389234
capital	1853877	2149220	6241892					10244988
total	8116517	19793364	21711503	14491147	5394694	2133707	5612848	

5. To construct the 4 sector social accounting matrix, we repeat steps 1-3 with a disaggregation in which transportation equipment is commodity 32.01, industry 31. The corresponding row and column are subtracted out of the row and column of manufactures in the 3 sector matrix.

6. We leave indirect taxes out of the calculation of factor inputs in step 4.

7. We assume that half of the commercial mark-up and all of the VAT apply to consumption of the four consumption goods.

8.   We add data for direct taxes paid in 2001: 591660.