

## Appendix 4.1: The 66 Sector Classification for the Indonesian Input-Output Tables

I-O Code	Sector
1	Paddy
2	Beans
3	Maize
4	Root crops
5	Vegetables and fruits
6	Other food crops
7	Rubber
8	Sugarcane
9	Coconut
10	Oil palm
11	Tobacco
12	Coffee
13	Tea
14	Clove
15	Fibre crops
16	Other estate crops
17	Other agriculture
18	Livestock
19	Slaughtering
20	Poultry and its products
21	Wood
22	Other forest products
23	Fishery
24	Coal and metal ore mining
25	Crude oil, natural gas and geothermal mining
26	Other mining and quarrying
27	Manufacture of food processing and preserving
28	Manufacture of oil and fat
29	Rice milling
30	Manufacture of flour, all kinds
31	Sugar factory
32	Manufacture of other food products
33	Manufacture of beverages
34	Manufacture of cigarettes
35	Yarn spinning
36	Manufacture of textile, wearing apparel and leather

(continued)

## Appendix 4.1 (continued)

<b>I-O Code</b>	<b>Sector</b>
37	Manufacture of bamboo, wood and rattan products
38	Manufacture of paper, paper products and cardboard
39	Manufacture of fertiliser and pesticide
40	Manufacture of chemicals
41	Petroleum refinery
42	Manufacture of rubber and plastic wares
43	Manufacture of non metallic mineral products
44	Manufacture of cement
45	Manufacture of basic iron and steel
46	Manufacture of non-ferrous basic metal
47	Manufacture of fabricated metal products
48	Manufacture of machine, electrical machinery and apparatus
49	Manufacture of transport equipment and its repair
50	Manufacture of other products not elsewhere classified
51	Electricity, gas and water supply
52	Construction
53	Trade
54	Restaurant and hotel
55	Railway transport
56	Road transport
57	Water transport
58	Air transport
59	Services allied to transport
60	Communication
61	Financial intermediaries
62	Real estate and business service
63	General government and defence
64	Social and community services
65	Other services
66	Unspecified sector
P-1	Wage and salary
P-2	Operating surplus
P-3	Depreciation
P-4	Indirect tax
P-5	Subsidy

(continued)

## Appendix 4.1 (continued)

<b>I-O Code</b>	<b>Sector</b>
F-1	Private consumption expenditure
F-2	Government consumption expenditure
F-3	Gross fixed capital formation
F-4	Change in stock
F-5	Export of goods
F-6	Export of services
F-7	Import of goods
F-8	Import of sales tax
F-9	Import of services

**Appendix 4.2: Indonesian Input-Output Table 1971 (transactions at producer prices) (million rupiahs)**

SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	320895	50	1686	0	279	0	0	188904	194	136	250	135	26	0	0	0
2	178	130730	656	0	0	0	0	108882	9237	465	1	5106	51	0	0	3345
3	2658	810	39065	0	0	0	0	592	1428	0	0	0	0	0	0	97
4	1289	2260	1	16709	454	14	130	1140	299	11008	115	952	1152	6	2173	96
5	0	0	34	0	41224	0	0	1871	0	0	0	0	9	0	0	0
6	0	1578	0	0	0	1580	0	144	3	1	0	100621	28	10194	392	3
7	0	0	0	0	555	0	0	223	9	1	17	287	3511	0	0	28
8	721	0	627	0	340	0	0	16448	315	2	3	8008	0	0	7	3
9	2072	1114	0	285	481	9	0	649	110929	78	148	25	60	0	156	2595
10	977	2127	289	0	1517	0	1057	1080	65	2234	0	0	49	45	335	82
11	25	312	1	757	49	175	33	2983	1330	48	8021	2652	856	93	612	308
12	19135	9775	212	4219	1726	4494	315	8593	11401	1192	1806	20298	3982	216	7516	888
13	3	20	0	0	5	0	0	1667	3	90	51	1105	1800	7	365	15
14	41	375	0	344	0	33	0	0	0	439	179	118	7	1943	27592	3271
15	4785	6051	187	3955	1880	1448	378	6400	1152	370	365	4132	1015	359	36993	1268
16	94	106	1	72	1	78	6	535	985	46	148	189	50	23	13992	250
17	348	1180	52	1278	100	8154	3	11323	4146	1175	1282	3117	1793	68	4404	279
18	3084	3512	616	2396	15	509	75	1151	432	224	368	1276	1084	35	684	193
19	13513	23186	4149	6873	7039	1414	501	29093	21249	4673	3544	8336	4576	834	26281	2361
20	738	2777	36	1217	1634	1499	49	4403	1455	171	172	1714	734	235	1089	204
21	7035	11174	2076	3662	3192	1384	225	18158	6146	1454	647	4270	2951	419	4710	862
22	556	1589	119	472	375	1156	19	3001	1349	195	136	805	261	78	841	103
23	2364	4438	215	531	821	1071	200	2338	4336	241	406	3833	402	124	2180	371
24	251	1130	57	982	173	2160	53	2676	749	337	376	1165	425	60	1225	52
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	1293	2516	51	771	1035	586	944	5537	2282	331	265	2313	1023	315	4945	426
<b>TOTAL</b>	<b>382056</b>	<b>206810</b>	<b>50130</b>	<b>44524</b>	<b>62896</b>	<b>25766</b>	<b>3988</b>	<b>417791</b>	<b>179495</b>	<b>24909</b>	<b>18300</b>	<b>170455</b>	<b>25846</b>	<b>15053</b>	<b>136493</b>	<b>17100</b>
<b>H-Hold</b>	<b>220859</b>	<b>90922</b>	<b>16558</b>	<b>24692</b>	<b>16703</b>	<b>12415</b>	<b>13248</b>	<b>40102</b>	<b>31116</b>	<b>4268</b>	<b>7553</b>	<b>13854</b>	<b>6583</b>	<b>947</b>	<b>44225</b>	<b>3530</b>
<b>P2</b>	<b>575392</b>	<b>176027</b>	<b>92053</b>	<b>87339</b>	<b>133468</b>	<b>237436</b>	<b>12709</b>	<b>76345</b>	<b>41476</b>	<b>4521</b>	<b>11312</b>	<b>61490</b>	<b>13028</b>	<b>5155</b>	<b>63544</b>	<b>3950</b>
<b>P3</b>	<b>10563</b>	<b>8822</b>	<b>1348</b>	<b>10536</b>	<b>6443</b>	<b>6892</b>	<b>16</b>	<b>7005</b>	<b>7844</b>	<b>574</b>	<b>2109</b>	<b>6848</b>	<b>2037</b>	<b>992</b>	<b>14892</b>	<b>1117</b>
<b>P4</b>	<b>6571</b>	<b>5189</b>	<b>3909</b>	<b>3853</b>	<b>3275</b>	<b>26385</b>	<b>1135</b>	<b>18846</b>	<b>1139</b>	<b>546</b>	<b>967</b>	<b>6636</b>	<b>1657</b>	<b>812</b>	<b>8294</b>	<b>1265</b>
<b>TOTAL</b>	<b>1195442</b>	<b>487770</b>	<b>163999</b>	<b>170943</b>	<b>222786</b>	<b>308894</b>	<b>31095</b>	<b>560089</b>	<b>261070</b>	<b>34819</b>	<b>40241</b>	<b>259282</b>	<b>49150</b>	<b>22959</b>	<b>267447</b>	<b>26962</b>
<b>Employ</b>	<b>24206806</b>	<b>1255084</b>	<b>324647</b>	<b>126322</b>	<b>561017</b>	<b>65497</b>	<b>20331</b>	<b>572711</b>	<b>869080</b>	<b>424073</b>	<b>50490</b>	<b>34694</b>	<b>92795</b>	<b>45963</b>	<b>349950</b>	<b>242646</b>

(continued)

Appendix 4.2 (continued)

SECTOR	17	18	19	20	21	22	23	24	25	26	TOTAL	F1	F2	F3	TOTAL
1	0	1177	153	27847	776	634	0	0	0	3390	546532	638841	11164	-1095	1195442
2	0	7	662	12312	0	98	0	0	0	2311	274040	114978	121358	-22606	487770
3	0	0	0	27799	0	2349	0	0	0	807	75603	86898	2641	-1143	163999
4	0	61417	757	853	351	0	0	16	0	394	101586	23741	45806	-190	170943
5	0	0	0	25790	0	550	0	0	0	2252	71729	145576	5628	-147	222786
6	535	0	0	0	209	0	0	0	0	0	115289	3568	192028	-1991	308894
7	0	22834	0	0	0	0	0	0	0	78	27542	5080	1	-1528	31095
8	0	1	1837	46167	443	3223	3	17	0	9024	87189	497786	36088	-60974	560089
9	0	1153	850	784	42	931	27	0	0	4668	127056	188203	2483	-56672	261070
10	0	7887	957	22	2	139	139	2	0	361	19368	17121	97	-1768	34819
11	311	1222	4135	358	1418	3446	5203	895	0	7389	42634	25725	6	-28124	40241
12	22598	9823	20011	4986	34682	12341	598	603	0	15916	217326	109112	11050	-78207	259282
13	0	57270	0	96	0	42	0	0	0	143	62684	4635	47	-18215	49150
14	0	20261	0	0	0	0	0	2	0	492	55097	2408	8442	-42988	22959
15	943	42457	13672	1903	61922	16914	1192	1274	0	6051	217066	458605	795	-409018	267447
16	126	123	4684	463	490	309	152	263	0	1692	24878	18437	1197	-17549	26962
17	2316	1044	5912	4803	1188	1817	922	652	0	5637	62993	19682	0	0	82676
18	620	782	3290	1293	913	1233	700	17179	0	2008	43672	503076	0	0	546748
19	6145	78391	10770	19469	9820	5685	1574	611	0	11610	301696	581239	46215	-9948	919201
20	1120	4064	4469	669	915	872	1621	681	0	2889	35427	225863	0	0	261290
21	3682	27606	14450	7502	3746	2743	1022	3184	0	4228	136528	192910	13162	-7196	335404
22	880	3982	4341	1443	1360	10291	2137	1074	0	1169	37734	49233	69893	-15988	140872
23	658	4071	15235	1434	1030	2204	2013	2743	0	1696	54954	10257	0	-6494	58718
24	327	2851	10454	2312	509	678	989	4560	0	2690	37243	132254	0	-11359	158138
25	0	0	0	0	0	0	0	0	0	0	0	185854	0	0	185854
26	2154	2634	8761	3278	532	1097	530	1587	0	16436	61642	265380	2191	-13157	316056
<b>TOTAL</b>	42417	351055	125400	191582	120350	67595	18821	35344	0	103332	2837507	4506463	570292	-806356	7107906
<b>H-Hold</b>	14211	99823	160984	19758	45002	20693	20490	18360	177003	122534	1246433	0	0	0	1246433
<b>P2</b>	20471	74006	581440	37308	127805	33851	16643	96716	0	79368	2662852	0	0	0	2662852
<b>P3</b>	7107	9476	38545	6036	39442	15943	2179	6234	8850	5991	227843	0	0	0	227843
<b>P4</b>	-1530	12388	12832	6607	2805	2791	585	1483	0	4831	133272	0	0	0	133272
<b>TOTAL</b>	82676	546748	919201	261290	335404	140872	58718	158138	185854	316056	7107906	4506463	570292	-806356	11378304
<b>Employ</b>	37359	678472	3332695	938491	736306	205423	61873	31589	1325666	4672085	41262064	0	0	0	41262064

**Appendix 4.3: Indonesian Input-Output Table 1985 (transactions at producer prices) (million rupiahs)**

SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	560824	3232	46349	0	945	0	0	7525818	1436	0	475	1323	0	0	0	0
2	11946	572505	54722	0	53	0	0	2175177	250479	325	0	54156	0	0	0	255763
3	55424	8628	1414896	0	129	0	0	39391	25842	0	0	216	332	0	0	6908
4	1503	8014	5391	8395	9486	321	956	6473	1358	743610	1274	5056	3830	0	1998	659
5	0	0	424	0	131059	0	0	112480	0	0	0	0	0	0	0	30
6	0	0	0	0	0	639709	0	161	133	0	0	5875096	11484	214516	248	0
7	0	0	13	0	4200	0	472	3933	282	39	2560	84763	143731	2473	263	255
8	0	0	378827	0	26155	0	0	1134227	3418	23380	1950	34352	3232	0	483	111
9	9446	7892	1126	908	10270	29293	378	26628	1149385	5000	1000	13807	2398	272	11813	58604
10	6761	9673	4120	0	6796	0	980	4983	11134	143249	2117	6378	836	25	21780	2026
11	584	6158	852	6112	1061	3277	2027	105903	9359	2863	296964	37005	58327	832	10678	4950
12	780821	301205	60737	37516	81150	193249	39471	168351	423934	166524	53993	1079059	187793	116584	122395	520080
13	0	1925	503	667	3096	0	0	12408	0	1072	326	18793	98876	3243	12963	2818
14	0	0	0	304	227	1856	0	0	206	947	782	3331	1238	298632	578448	20057
15	21732	47083	10091	41143	42943	112694	5050	87427	26906	26270	4003	80467	8169	56386	2198478	27059
16	3674	8162	5333	2190	4161	485	700	29090	36668	6398	3789	46298	2477	5710	63706	432251
17	0	7248	11255	3037	1485	4477	327	35534	21799	11003	8953	66506	40486	48356	30135	8884
18	15106	54175	15418	16026	5872	94060	11795	17951	6092	6700	2170	48830	11874	3274	11544	4741
19	100665	119817	281681	18109	85722	54111	9663	878687	188705	322418	119456	232423	189497	76793	369898	160121
20	222	5417	2328	4397	4246	81244	11347	39529	4747	15089	2117	106569	7572	22585	12692	3171
21	26050	48967	56583	7559	17830	29170	21214	183133	39362	62741	25717	76181	43853	35442	85882	32512
22	7167	9583	18050	2432	6206	74525	1807	75033	15768	22057	9829	69552	15413	11872	33044	11987
23	81124	60255	24700	12391	25263	213678	3487	158252	33267	21852	6870	141294	12974	28993	53682	7909
24	294	13845	5655	6831	1894	329135	4093	28379	4957	4620	1979	40212	13118	24359	13758	3912
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	10909	62724	10727	39660	6352	157613	22586	45573	5887	10081	17066	115498	6887	58763	14416	25033
<b>TOTAL</b>	1694252	1356508	2409781	207677	476601	2018897	136353	12894521	2261124	1596238	563390	8237165	864397	1009110	3648304	1589841
<b>HHI</b>	2273420	1091356	598534	243824	281110	584200	367551	745739	363659	236311	116598	581439	151068	107072	492391	186806
<b>P2</b>	10426799	2719752	1795260	1039650	1296722	12596664	334726	1704099	605000	666871	169943	4928121	364489	514015	1056778	415927
<b>P3</b>	117380	127272	39773	109369	68054	656114	11762	492681	173636	80905	36885	501659	79809	75246	150009	50253
<b>P4</b>	97988	22836	30177	11588	10455	12484	8454	677328	32173	24170	17360	51609	32964	16017	106512	30142
<b>P5</b>	0	0	0	0	0	0	0	0	0	0	0	-806684	0	0	0	0
<b>TOTAL</b>	14609839	5317724	4873525	1612108	2132942	15868359	858846	16514368	3435592	2604495	904176	13493309	1492727	1721460	5453994	2272969
<b>Employ</b>	30571864	3757707	1507833	388835	1033331	135821	301242	1480799	1110600	1323762	140831	177051	397486	84349	534010	203660

(continued)

Appendix 4.3 (continued)

SECTOR	17	18	19	20	21	22	23	24	25	26	TOTAL	F1	F2	F3	TOTAL
1	0	45175	303	215070	0	606	0	0	0	30013	8431569	6477711	129447	-428888	14609839
2	0	874	215	128795	149	52	0	0	0	3414	3508625	1060082	1126809	-377792	5317724
3	0	0	0	574436	709	617	0	0	0	39813	2167341	2691287	30161	-15264	4873525
4	0	390171	55	14658	73	0	0	0	0	1861	1205142	322961	87610	-3605	1612108
5	0	0	0	132086	0	494	0	0	0	4784	381357	1576155	176769	-1339	2132942
6	100820	0	0	0	51	0	0	0	0	0	6842218	306923	9770627	-1051409	15868359
7	0	727112	18	6	0	0	0	0	0	0	970120	-7039	11384	-115619	858846
8	0	0	3227	918281	64	10131	868	905	0	54087	2593698	13989888	160210	-229428	16514368
9	590	7796	32464	33098	8182	3405	797	2501	0	165399	1582452	1445754	571243	-163857	3435592
10	0	926764	13548	1393	15	287	0	82	0	14840	1177787	430702	1000111	-4105	2604495
11	7047	38724	62066	25058	2433	20652	33221	10732	0	158422	905307	279850	20945	-301926	904176
12	702251	1756057	221101	174815	815830	395449	9940	21923	0	370515	8800743	2424470	5058610	-2790514	13493309
13	0	1352343	3583	10304	178	336	92	837	0	17772	1542135	156438	22629	-228475	1492727
14	0	981218	0	0	1	166	0	0	0	54026	1941439	27174	612601	-859754	1721460
15	61899	1729662	51902	22906	17177	136225	5973	80211	0	637326	5539182	6065871	155572	-6306631	5453994
16	231	132666	43107	7712	2673	3462	2713	7686	0	372563	1223905	706504	746439	-403879	2272969
17	287454	10903	127138	149927	9101	22165	26303	16378	0	214400	1163254	639373	0	0	1802627
18	50293	31392	153958	64989	17836	96256	30118	406513	0	111531	1288514	16568346	0	0	17856860
19	114830	2371872	139920	422025	234723	408340	12793	14973	0	366400	7293642	6652735	1368004	-117597	15196784
20	1908	69007	182942	26366	38108	45545	61773	16786	0	50125	815832	5196187	212737	-431243	5793513
21	25782	448171	109549	85495	68440	22613	26374	14037	0	90807	1683464	3816314	236078	-54346	5681510
22	17626	182910	240832	56699	43076	182107	74272	37208	0	88759	1307814	1840320	464345	-476490	3135989
23	10526	166975	351837	17202	56441	88105	248289	107300	0	45663	1978329	1070933	511302	-440608	3119956
24	3600	242787	347110	196548	58603	98571	123771	128708	0	266913	1963652	3468454	11403	-464327	4979182
25	0	0	0	0	0	0	0	0	0	0	0	6374999	0	0	6374999
26	21858	20729	192375	60990	1085593	30980	85847	82694	0	278952	2469793	7775041	37505	-967001	9315338
<b>TOTAL</b>	<b>1406715</b>	<b>11633308</b>	<b>2277250</b>	<b>3338859</b>	<b>2459456</b>	<b>1566564</b>	<b>743144</b>	<b>949474</b>	<b>0</b>	<b>3438385</b>	<b>68777312</b>	<b>91357432</b>	<b>22522540</b>	<b>-16234097</b>	<b>166423184</b>
<b>HH1</b>	<b>143374</b>	<b>3232797</b>	<b>2365946</b>	<b>707031</b>	<b>847991</b>	<b>586060</b>	<b>889302</b>	<b>409431</b>	<b>6071428</b>	<b>3402485</b>	<b>27076924</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>27076924</b>
<b>P2</b>	<b>197856</b>	<b>2342164</b>	<b>9067677</b>	<b>1342636</b>	<b>1657359</b>	<b>573619</b>	<b>1391891</b>	<b>3121470</b>	<b>0</b>	<b>1995728</b>	<b>62325216</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>62325216</b>
<b>P3</b>	<b>53975</b>	<b>399724</b>	<b>608599</b>	<b>234284</b>	<b>649573</b>	<b>398073</b>	<b>78109</b>	<b>351075</b>	<b>303571</b>	<b>366746</b>	<b>6214536</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6214536</b>
<b>P4</b>	<b>707</b>	<b>248867</b>	<b>877312</b>	<b>170703</b>	<b>67131</b>	<b>11673</b>	<b>17510</b>	<b>147732</b>	<b>0</b>	<b>111994</b>	<b>2835886</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2835886</b>
<b>P5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-806684</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-806684</b>
<b>TOTAL</b>	<b>1802627</b>	<b>17856860</b>	<b>15196784</b>	<b>5793513</b>	<b>5681510</b>	<b>3135989</b>	<b>3119956</b>	<b>4979182</b>	<b>6374999</b>	<b>9315338</b>	<b>166423184</b>	<b>91357432</b>	<b>22522540</b>	<b>-16234097</b>	<b>264069072</b>
<b>Employ</b>	<b>98815</b>	<b>2195978</b>	<b>9245992</b>	<b>354753</b>	<b>1401113</b>	<b>442762</b>	<b>88504</b>	<b>71541</b>	<b>2417740</b>	<b>7000855</b>	<b>66467232</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>66467232</b>

**Appendix 4.4: Indonesian Input-Output Table 1995 (transactions at producer prices) (million rupiahs)**

SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1052057	2050	191727	0	3481	0	0	29405880	0	0	7539	2920	35	0	0	10
2	704878	683278	228275	151885	247115	0	0	11776350	180871	11549	43	263252	0	0	0	3554271
3	183905	35496	6809396	0	1075	0	0	624934	295681	0	0	6049	0	0	0	19838
4	5869	30386	10973	176695	10941	2490	8607	6215	11812	6237175	165998	16234	3066	0	1221	8866
5	0	52	0	0	240188	0	0	3808392	0	0	0	169	0	0	0	2269
6	0	0	0	0	0	681794	0	1612	30	864	16519	13624604	414172	1759854	18640	343
7	0	0	88	0	0	0	8732	22714	11	391	18856	415281	1429369	69395	2447	58211
8	0	29051	3252867	0	380020	0	0	13695588	43661	18994	10352	257999	1050	0	0	244
9	36365	41846	2864	7185	37490	68562	1408	142549	17562804	143504	3366	20491	5345	340	36443	397940
10	33666	25654	16420	0	11977	0	12218	84399	72241	3072003	20927	17436	10246	157	378135	47170
11	4054	29424	6660	28945	3330	6420	5381	1096977	146026	33149	5164339	390070	165226	2455	125316	92265
12	2819506	2017705	297128	249250	517756	564872	552845	1554798	4529123	1180482	879041	11391845	840713	1221937	1329548	5678748
13	0	2841	2117	1151	583	1222	0	53027	28280	10683	412	189338	182574	15232	216523	76000
14	0	0	0	2129	1247	1165	0	2788	1854	2037	1329	8960	66	2532753	5205133	950907
15	99153	257131	46055	319214	260625	488053	132020	893755	220890	281323	26856	383455	38349	139097	18028956	388790
16	22932	62931	49308	14767	38511	795	7438	651403	638284	122877	33146	364169	31591	14784	1744937	3211081
17	0	26498	102173	15261	22471	21421	4598	448554	514482	139692	206099	400459	216042	436038	190711	132816
18	82316	297987	53860	86371	34433	92374	98369	101827	55944	33351	6666	127448	38906	11831	43766	21361
19	210664	253256	1355799	128366	194489	200660	119812	5925390	2105819	1501729	972226	1873293	304595	467539	2731850	1441809
20	18528	31700	14058	104988	25833	12801	130498	284739	171171	217059	52521	284385	73113	204819	158454	129176
21	132796	250371	419044	96019	65802	189580	312824	2128247	552312	1129821	434553	705120	395478	349621	1384434	669553
22	40664	59386	83356	66634	27131	350051	46252	1014098	338105	243259	103419	540917	311229	118779	626980	364403
23	454619	307677	122012	106127	129151	550623	58669	1377253	900293	583627	328751	668590	118937	390968	573469	237453
24	55431	56765	45445	184038	30422	1108884	347067	947543	634254	299606	121688	756358	186268	128319	705009	343745
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	98222	216284	65911	171632	19214	97163	169723	1191776	117836	178878	320604	306484	43000	256011	150495	361215
<b>TOTAL</b>	6055625	4717769	13175536	1910657	2303285	4438930	2016461	77240808	29121784	15442053	8895250	33015326	4809370	8119929	33652468	18188484
<b>HHH</b>	6908988	5233988	3135172	1479832	1700784	3471567	3040354	9685857	5114924	2157840	1542376	5412246	1121569	968533	6120049	2406128
<b>P2</b>	37305232	10459966	10983149	5848706	7421900	27504020	4016360	21601836	7673703	4307686	3756209	11757379	1303192	3614724	8655716	4699591
<b>P3</b>	466440	515289	214763	539407	379657	1492703	669210	3357060	2025081	1203906	339296	2735735	835595	600320	1852151	461445
<b>P4</b>	340911	111584	262317	140833	94812	738511	176503	6029568	796518	210699	208126	880083	621408	388593	1895577	597241
<b>P5</b>	0	0	0	0	0	0	0	0	0	0	0	-50000	0	0	0	0
<b>TOTAL</b>	51077196	21038596	27770936	9919435	11900438	37645732	9918888	117915128	44732008	23322184	14741257	53750768	8691134	13692099	52175960	26352888
<b>Employ</b>	31173596	4563776	3303924	711784	1286222	243045	588251	3764176	2069494	2101966	218907	239341	858309	119631	936920	843248



Appendix 4.3 (continued)

SECTOR	17	18	19	20	21	22	23	24	25	26	TOTAL	F1	F2	F3	TOTAL
1	0	0	1536	1353840	0	809	0	0	0	254083	32275968	21793084	120178	-3112025	51077204
2	0	0	363	253681	165	297	12	9	889	82096	18139280	1709820	1239529	-50032	21038596
3	0	0	0	4587422	1755	7563	0	0	122	335820	12909056	15355818	43055	-536992	27770936
4	0	1833701	286	44715	442	0	0	0	0	14501	8590193	1176324	154284	-1366	9919435
5	0	0	0	848625	0	1453	0	0	0	22560	4923708	6562089	425517	-10876	11900438
6	1423443	71	0	0	1098	0	0	0	0	0	17943044	4675355	18202540	-3175210	37645728
7	0	8216823	213	30	0	0	0	0	0	19779	10262340	102407	188496	-634355	9918888
8	0	0	19558	9421580	2926	94274	3467	6274	0	730099	27968004	88768800	6520374	-5342051	117915128
9	4338	34405	325552	286843	63865	28917	5713	62463	84250	611544	20016392	14839198	16183417	-6306999	44732008
10	0	6385922	79907	16879	1105	12175	0	450	6226	22908	10328221	2394200	10753782	-154018	23322184
11	31486	128226	897409	389291	30233	161127	869468	445951	612203	1790704	12656135	1668574	2698248	-2281700	14741257
12	1290068	4155881	1048556	836813	2094027	1732909	85718	564575	524442	2899187	50857472	9077479	14441375	-20625560	53750768
13	56	7498554	13856	44634	7171	1612	586	9505	26944	51672	8434573	724774	689665	-1157878	8691134
14	0	8854372	0	0	24	2236	0	0	0	80030	17647030	608655	2794136	-7357722	13692099
15	578801	10517291	264960	181034	77578	1200616	35248	2187790	868266	4700968	42616272	54110840	8751464	-53302616	52175960
16	918	1650842	667986	101124	49992	23276	34238	150401	150330	2376625	12214686	12663512	7280893	-5806202	26352888
17	1210797	70349	990379	1157457	58533	159416	273028	330777	319082	627534	8074667	3975743	8	-559	12049859
18	159655	149218	1119453	464376	101577	399170	482260	2944001	992932	515506	8514958	95129696	0	0	103644656
19	620604	10898871	859943	1357644	969466	2388847	89883	478342	370862	1139977	38961736	40020488	12697218	-1246403	90433040
20	6527	378266	1232327	109848	208820	439012	744399	386154	1568155	295101	7282452	37265872	5662860	-2947874	47263312
21	23538	205852	998318	1519570	577399	176495	251629	217998	358355	715702	14260431	10089579	2687425	-1579149	25458286
22	31532	281784	2003302	1214350	205139	1627214	593940	933235	903855	448031	12577045	12561143	3854074	-5700197	23292064
23	78038	1283669	2604518	226059	554449	625452	3449203	3069644	428468	448564	19676284	13511771	4846525	-4218789	33815792
24	713635	5138126	5369970	1937065	676588	1365175	2352951	1583275	439270	1979927	27506824	28931820	627372	-3856325	53209692
25	0	0	0	0	0	0	0	0	0	0	0	28669032	283550	-702894	28249688
26	96241	214233	1292592	355322	3306805	159241	653626	1140199	810645	1930927	13724279	40773624	1213632	-3619718	52091816
TOTAL	6269677	67896456	19790984	26708202	8989157	10607286	9925369	14511043	8465296	22093844	458361056	547159680	122359616	-133727512	994152832
HH1	1307663	18802020	16120663	7000021	3785426	3489974	9598499	6866682	18829796	18075452	163376400	0	0	0	163376400
P2	2237812	12414546	45411432	10704266	9740424	4946386	12987594	26411812	0	8368280	304131936	0	0	0	304131936
P3	2146515	2883113	4812189	1285011	2687211	3970731	1053150	3264944	954595	2738810	43484328	0	0	0	43484328
P4	88192	1648523	4297773	1565810	256069	277688	251180	2155209	0	815434	24849162	0	0	0	24849162
P5	0	0	0	0	0	0	0	0	0	0	-50000	0	0	0	-50000
TOTAL	12049859	103644656	90433040	47263312	25458288	23292064	33815792	53209688	28249688	52091820	994152832	547159680	122359616	-133727512	1529944576
Employ	186675	3768080	13416853	752435	2936201	552032	478401	317705	2958085	8882160	87271216	0	0	0	87271216

## Appendix 5.1: Export Ratio and Import Ratio in 1971

(billion rupiahs at 1995 constant prices)

Sector	Intermediated demand (1)	Final demand (2)	Export (3)	Import (4)	Total output (5) = (1)+(2)+(3)-(4)	Export ratio (6) = (3)/(5)	Import ratio (7) = (4)/(1)+(2)
Farm food crops	12466	14572	255	25	27268	0.94	0.09
Farm nonfood crops	6251	2623	2768	516	11126	24.88	5.81
Livestock	1724	1982	60	26	3740	1.60	0.70
Forestry	2317	542	1045	4	3900	26.79	0.14
Fishery	1636	3321	128	3	5082	2.52	0.06
Coal and petroleum	2630	81	4380	45	7046	62.16	1.66
Other mining	628	116	0	35	709	0.00	4.70
Food, beverages and tobacco	1989	11354	823	1391	12775	6.44	10.42
Textiles and leather	2898	4293	57	1293	5955	0.96	17.98
Wood and furniture	442	391	2	40	795	0.25	4.80
Paper and printing	972	587	0	642	917	0.00	41.18
Chemicals and refining	4957	2489	252	1784	5914	4.26	23.96
Non metallic mineral	1430	106	1	415	1122	0.09	27.02
Basic metals	1257	55	193	981	524	36.83	74.77
Machinery	4951	10461	18	9330	6100	0.30	60.54
Other industry	567	421	27	400	615	4.39	40.49
Electricity, gas and water	1437	449	0	0	1886	0.00	0.00
Construction	996	11475	0	0	12471	0.00	0.00
Trade and storage	6882	13258	1054	227	20967	5.03	1.13
Restaurants and hotel	808	5152	0	0	5960	0.00	0.00
Rail and road transportation	3114	4400	300	164	7650	3.92	2.18
Sea & air transport, and communications	861	1123	1594	365	3213	49.61	18.40
Financial services	1254	234	0	148	1340	0.00	9.95
Real estate	850	3017	0	259	3608	0.00	6.70
Public administration	0	4239	0	0	4239	0.00	0.00
Social and other services	1406	6053	50	300	7209	0.69	4.02
<b>Total</b>	<b>64723</b>	<b>102794</b>	<b>13007</b>	<b>18393</b>	<b>162131</b>	<b>8.02</b>	<b>10.98</b>

## Appendix 5.2: Export Ratio and Import Ratio in 1985

(billion rupiahs at 1995 constant prices)							
Sector	Intermediate demand (1)	Final demand (2)	Export (3)	Import (4)	Total output (5) = (1)+(2)+(3)-(4)	Export ratio (6) = (3)/(5)	Import ratio (7) = (4)/(1)+(2)
Farm food crops	17369	13344	267	884	30096	0.89	2.88
Farm nonfood crops	7228	2184	2321	778	10955	21.19	8.27
Livestock	4465	5544	62	31	10040	0.62	0.31
Forestry	2483	665	180	7	3321	5.42	0.22
Fishery	786	3247	364	3	4394	8.28	0.07
Coal and petroleum	14095	632	20127	2166	32688	61.57	14.71
Other mining	1998	-15	23	238	1768	1.30	12.00
Food, beverages and tobacco	5343	28819	330	473	34019	0.97	1.38
Textiles and leather	3260	2978	1177	338	7077	16.63	5.42
Wood and furniture	2426	887	2060	8	5365	38.40	0.24
Paper and printing	1865	576	43	622	1862	2.31	25.48
Chemicals and refining	18130	4994	10421	5748	27797	37.49	24.86
Non metallic mineral	3177	322	47	471	3075	1.53	13.46
Basic metals	3999	56	1262	1771	3546	35.59	43.67
Machinery	11411	12496	320	12992	11235	2.85	54.34
Other industry	2521	1455	1538	832	4682	32.85	20.93
Electricity, gas and water	2396	1317	0	0	3713	0.00	0.00
Construction	2654	34131	0	0	36785	0.00	0.00
Trade and storage	15025	13705	2818	242	31306	9.00	0.84
Restaurants and hotel	1681	10704	438	888	11935	3.67	7.17
Rail and road transportation	3468	7862	486	112	11704	4.15	0.99
Sea & air transport, and communications	2694	3791	957	982	6460	14.81	15.14
Financial services	4075	2206	1053	908	6426	16.39	14.46
Real estate	4045	7145	23	957	10256	0.22	8.55
Public administration	0	13132	0	0	13132	0.00	0.00
Social and other services	5088	16017	77	1992	19190	0.40	9.44
<b>Total</b>	<b>141682</b>	<b>188194</b>	<b>46394</b>	<b>33443</b>	<b>342827</b>	<b>13.53</b>	<b>10.14</b>

## Appendix 5.3: Export Ratio and Import Ratio in 1995

(billion rupiahs at 1995 constant prices)

Sector	Intermediate demand (1)	Final demand (2)	Export (3)	Import (4)	Total output (5) = (1)+(2)+(3)-(4)	Export ratio (6) = (3)/(5)	Import ratio (7) = (4)/(1)+(2)
Farm food crops	32276	21793	120	3112	51077	0.23	5.76
Farm nonfood crops	18139	1710	1240	50	21039	5.89	0.25
Livestock	12909	15356	43	537	27771	0.15	1.90
Forestry	8590	1176	154	1	9919	1.55	0.01
Fishery	4924	6562	426	11	11901	3.58	0.10
Coal and petroleum	17943	4675	18203	3175	37646	48.35	14.04
Other mining	10262	102	188	634	9918	1.90	6.12
Food, beverages and tobacco	27968	88769	6520	5342	117915	5.53	4.58
Textiles and leather	20016	14839	16183	6307	44731	36.18	18.09
Wood and furniture	10328	2394	10754	154	23322	46.11	1.21
Paper and printing	12656	1669	2698	2282	14741	18.30	15.93
Chemicals and refining	50857	9077	14441	20626	53749	26.87	34.41
Non metallic mineral	8435	725	690	1158	8692	7.94	12.64
Basic metals	17647	609	2794	7358	13692	20.41	40.30
Machinery	42616	54111	8751	53303	52175	16.77	55.11
Other industry	12215	12664	7281	5806	26354	27.63	23.34
Electricity, gas and water	8075	3976	0	1	12050	0.00	0.01
Construction	8515	95130	0	0	103645	0.00	0.00
Trade and storage	38962	40020	12697	1246	90433	14.04	1.58
Restaurants and hotel	7282	37266	5663	2948	47263	11.98	6.62
Rail and road transportation	14260	10090	2687	1579	25458	10.55	6.48
Sea & air transport, and communications	12577	12561	3854	5700	23292	16.55	22.67
Financial services	19676	13512	4847	4219	33816	14.33	12.71
Real estate	27507	28932	627	3856	53210	1.18	6.83
Public administration	0	28669	284	703	28250	1.01	2.45
Social and other services	13724	40774	1214	3620	52092	2.33	6.64
<b>Total</b>	<b>458359</b>	<b>547161</b>	<b>122359</b>	<b>133728</b>	<b>994151</b>	<b>12.31</b>	<b>13.30</b>

## Appendix 5.4: The Sources of Economic Growth 1971–1985

(as absolute growth in billion rupiahs)

Sector	DFD	ED	IS	IO	Total
Farm food crops	8055	14	-72	-5169	2828
Farm nonfood crops	3462	-12	295	-3915	-171
Livestock	5818	126	-32	387	6298
Forestry	2442	-152	56	-2925	-578
Fishery	536	324	-49	-1499	-688
Coal and petroleum	3115	20929	-773	2372	25643
Other mining	965	82	-71	84	1060
Food, beverages and tobacco	18846	-190	2121	467	21244
Textiles and leather	-1230	1884	1319	-851	1122
Wood and furniture	1444	2214	112	800	4571
Paper and printing	603	205	392	-256	945
Chemicals and refining	6222	11779	110	3770	21882
Non-metallic mineral	2004	100	363	-513	1954
Basic metals	709	1210	945	157	3022
Machinery	2975	591	1414	155	5135
Other industry	1245	1727	544	551	4067
Electricity, gas and water	2041	581	67	-863	1827
Construction	23726	248	8	332	24314
Trade and storage	7723	3003	528	-916	10338
Restaurants and hotel	6037	737	-622	-177	5975
Rail and road transportation	5780	676	267	-2670	4053
Sea & air transport, and communications	3052	-426	171	451	3247
Financial services	2791	1551	-118	864	5088
Real estate	4918	486	-131	1376	6650
Public administration	8893	0	0	0	8893
Social and other services	10897	459	-720	1345	11981
<b>Total</b>	<b>133070</b>	<b>48147</b>	<b>6124</b>	<b>-6641</b>	<b>180700</b>

Notes:

DFD = domestic demand effect.

ED = export demand effect.

IS = import substitution effect.

IO = technological change effect.

## Appendix 5.5: The Sources of Economic Growth 1971–1985

(as percentage of sectoral output growth)

Sector	DFD	DE	IS	IO	Total
Farm food crops	285	1	-3	-183	100
Farm nonfood crops	-2024	7	-172	2290	100
Livestock	92	2	-1	6	100
Forestry	-422	26	-10	506	100
Fishery	-78	-47	7	218	100
Coal and petroleum	12	82	-3	9	100
Other mining	91	8	-7	8	100
Food, beverages and tobacco	89	-1	10	2	100
Textiles and leather	-110	168	118	-76	100
Wood and furniture	32	48	2	17	100
Paper and printing	64	22	42	-27	100
Chemicals and refining	28	54	1	17	100
Non-metallic mineral	103	5	19	-26	100
Basic metals	23	40	31	5	100
Machinery	58	12	28	3	100
Other industry	31	42	13	14	100
Electricity, gas and water	112	32	4	-47	100
Construction	98	1	0	1	100
Trade and storage	75	29	5	-9	100
Restaurants and hotel	101	12	-10	-3	100
Rail and road transportation	143	17	7	-66	100
Sea & air transport, and communications	94	-13	5	14	100
Financial services	55	30	-2	17	100
Real estate	74	7	-2	21	100
Public administration	100	0	0	0	100
Social and other services	91	4	-6	11	100
<b>Total</b>	<b>74</b>	<b>27</b>	<b>3</b>	<b>-4</b>	<b>100</b>

## Notes:

DFD = domestic demand effect.

ED = export demand effect.

IS = import substitution effect.

IO = technological change effect.

## Appendix 5.6: The Sources of Economic Growth 1971–1985

(as percentage of total output growth)

Sector	DFD	ED	IS	IO	Incremental Share
Farm food crops	4.46	0.01	-0.04	-2.86	1.57
Farm nonfood crops	1.92	-0.01	0.16	-2.17	-0.09
Livestock	3.22	0.07	-0.02	0.21	3.49
Forestry	1.35	-0.08	0.03	-1.62	-0.32
Fishery	0.30	0.18	-0.03	-0.83	-0.38
Coal and petroleum	1.72	11.58	-0.43	1.31	14.19
Other mining	0.53	0.05	-0.04	0.05	0.59
Food, beverages and tobacco	10.43	-0.10	1.17	0.26	11.76
Textiles and leather	-0.68	1.04	0.73	-0.47	0.62
Wood and furniture	0.80	1.23	0.06	0.44	2.53
Paper and printing	0.33	0.11	0.22	-0.14	0.52
Chemicals and refining	3.44	6.52	0.06	2.09	12.11
Non-metallic mineral	1.11	0.06	0.20	-0.28	1.08
Basic metals	0.39	0.67	0.52	0.09	1.67
Machinery	1.65	0.33	0.78	0.09	2.84
Other industry	0.69	0.96	0.30	0.30	2.25
Electricity, gas and water	1.13	0.32	0.04	-0.48	1.01
Construction	13.13	0.14	0.00	0.18	13.46
Trade and storage	4.27	1.66	0.29	-0.51	5.72
Restaurants and hotel	3.34	0.41	-0.34	-0.10	3.31
Rail and road transportation	3.20	0.37	0.15	-1.48	2.24
Sea & air transport, and communications	1.69	-0.24	0.09	0.25	1.80
Financial services	1.54	0.86	-0.07	0.48	2.82
Real estate	2.72	0.27	-0.07	0.76	3.68
Public administration	4.92	0.00	0.00	0.00	4.92
Social and other services	6.03	0.25	-0.40	0.74	6.63
<b>Total</b>	<b>73.64</b>	<b>26.64</b>	<b>3.39</b>	<b>-3.68</b>	<b>100.00</b>

## Notes:

DFD = domestic demand effect.

ED = export demand effect.

IS = import substitution effect.

IO = technological change effect.

## Appendix 5.7: The Sources of Economic Growth 1985–1995

(as absolute growth in billion rupiahs)

Sector	DFD	ED	IS	IO	Total
Farm food crops	34451	2923	-2343	-14050	20981
Farm nonfood crops	11381	1821	604	-3722	10084
Livestock	17860	1089	-467	-750	17732
Forestry	3758	2799	-16	57	6598
Fishery	5520	365	-36	1657	7506
Coal and petroleum	11558	1680	-1545	-6736	4957
Other mining	4539	406	338	2867	8150
Food, beverages and tobacco	71686	8250	-2660	6619	83895
Textiles and leather	17172	22534	-3837	1786	37655
Wood and furniture	6239	9840	-102	1979	17957
Paper and printing	4731	4388	1021	2738	12878
Chemicals and refining	21373	10581	-5036	-964	25955
Non-metallic mineral	5092	832	40	-348	5616
Basic metals	5625	2600	374	1546	10146
Machinery	29669	10936	-605	940	40941
Other industry	13322	7364	-450	1435	21671
Electricity, gas and water	6912	1198	-54	281	8337
Construction	65841	870	-35	184	66860
Trade and storage	49698	15836	-1005	-5401	59128
Restaurants and hotel	27687	6026	78	1537	35328
Rail and road transportation	8535	4140	-1101	2181	13754
Sea & air transport, and communications	11589	4144	-1329	2428	16832
Financial services	17166	5904	173	4146	27389
Real estate	29932	2809	456	9756	42953
Public administration	15346	284	-512	0	15118
Social and other services	28645	2872	861	524	32902
<b>Total</b>	<b>525327</b>	<b>132492</b>	<b>-17186</b>	<b>10691</b>	<b>651323</b>

## Notes:

DFD = domestic demand effect.

ED = export demand effect.

IS = import substitution effect.

IO = technological change effect.



## Appendix 5.8: The Sources of Economic Growth 1985–1995

(as percentage of sectoral output growth)

Sector	DFD	DE	IS	IO	Total
Farm food crops	164	14	-11	-67	100
Farm nonfood crops	113	18	6	-37	100
Livestock	101	6	-3	-4	100
Forestry	57	42	0	1	100
Fishery	74	5	0	22	100
Coal and petroleum	233	34	-31	-136	100
Other mining	56	5	4	35	100
Food, beverages and tobacco	85	10	-3	8	100
Textiles and leather	46	60	-10	5	100
Wood and furniture	35	55	-1	11	100
Paper and printing	37	34	8	21	100
Chemicals and refining	82	41	-19	-4	100
Non-metallic mineral	91	15	1	-6	100
Basic metals	55	26	4	15	100
Machinery	72	27	-1	2	100
Other industry	61	34	-2	7	100
Electricity, gas and water	83	14	-1	3	100
Construction	98	1	0	0	100
Trade and storage	84	27	-2	-9	100
Restaurants and hotel	78	17	0	4	100
Rail and road transportation	62	30	-8	16	100
Sea & air transport, and communications	69	25	-8	14	100
Financial services	63	22	1	15	100
Real estate	70	7	1	23	100
Public administration	102	2	-3	0	100
Social and other services	87	9	3	2	100
<b>Total</b>	<b>81</b>	<b>20</b>	<b>-3</b>	<b>2</b>	<b>100</b>

## Notes:

DFD = domestic demand effect.

ED = export demand effect.

IS = import substitution effect.

IO = technological change effect.

## Appendix 5.9: The Sources of Economic Growth 1985–1995

(as percentage of total output growth)

Sector	DFD	ED	IS	IO	Incremental Share
Farm food crops	5.29	0.45	-0.36	-2.16	3.22
Farm nonfood crops	1.75	0.28	0.09	-0.57	1.55
Livestock	2.74	0.17	-0.07	-0.12	2.72
Forestry	0.58	0.43	0.00	0.01	1.01
Fishery	0.85	0.06	-0.01	0.25	1.15
Coal and petroleum	1.77	0.26	-0.24	-1.03	0.76
Other mining	0.70	0.06	0.05	0.44	1.25
Food, beverages and tobacco	11.01	1.27	-0.41	1.02	12.88
Textiles and leather	2.64	3.46	-0.59	0.27	5.78
Wood and furniture	0.96	1.51	-0.02	0.30	2.76
Paper and printing	0.73	0.67	0.16	0.42	1.98
Chemicals and refining	3.28	1.62	-0.77	-0.15	3.98
Non-metallic mineral	0.78	0.13	0.01	-0.05	0.86
Basic metals	0.86	0.40	0.06	0.24	1.56
Machinery	4.56	1.68	-0.09	0.14	6.29
Other industry	2.05	1.13	-0.07	0.22	3.33
Electricity, gas and water	1.06	0.18	-0.01	0.04	1.28
Construction	10.11	0.13	-0.01	0.03	10.27
Trade and storage	7.63	2.43	-0.15	-0.83	9.08
Restaurants and hotel	4.25	0.93	0.01	0.24	5.42
Rail and road transportation	1.31	0.64	-0.17	0.33	2.11
Sea & air transport, and communications	1.78	0.64	-0.20	0.37	2.58
Financial services	2.64	0.91	0.03	0.64	4.21
Real estate	4.60	0.43	0.07	1.50	6.59
Public administration	2.36	0.04	-0.08	0.00	2.32
Social and other services	4.40	0.44	0.13	0.08	5.05
<b>Total</b>	<b>80.66</b>	<b>20.34</b>	<b>-2.64</b>	<b>1.64</b>	<b>100.00</b>

## Notes:

DFD = domestic demand effect.

ED = export demand effect.

IS = import substitution effect.

IO = technological change effect.

## Appendix 7.1: Equations, Variables and Parameters of the CGE Model

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The equations, variables and parameters of the CGE model are presented in this appendix. Following common practice in the literature, endogenous variables are denoted by names in capital letters, while exogenous variables and parameters are denoted with Greek letters and by names in lower case letters. Certain variables that can be endogenous, but which in the current CGE version are exogenous, are shown as capital letters with a bar over them. The subscripts used in the model are:

- $i, j$  = sectors
- $ivat$  = sub-set of sectors included in the value-added tax
- $iint$  = sub-set of sectors using intermediate inputs
- $iag$  = sub-set of agricultural sectors
- $iagn$  = all non-agricultural sectors
- $ie$  = sectors with exports
- $im$  = sectors with imports
- $oil$  = petroleum and other mining sectors
- $f$  = factors of production
- $hh$  = households
- $br$  = borrowing institutions
- $ins$  = non-labour institutions.

## Price module

No.	Equation	
1	$PM_i = pwm_i \cdot EXR \cdot (1 + tv_i) \cdot (1 + tm_i)$	(domestic price of import goods)
2	$PE_i = pwe_i \cdot EXR \cdot (1 - te_i)$	(domestic price of export goods)
3	$PQ_i = \frac{(PD_i \cdot D_i) + (PM_i \cdot M_i)}{Q_i}$	(price of composite goods)
4	$PX_i = \frac{(PD_i \cdot D_i \cdot (1 - tx_i - tv_i)) + (PE_i \cdot E_i)}{X_i}$	(average sale price received by producers)
5	$PV_i = \frac{(PX_i \cdot X_i) - (PN_i \cdot N_i)}{V_i}$	(price of value-added)
6	$PN_i = \sum_j a_{ji} \cdot PQ_j \cdot \left[ 1 - \frac{(PD_j \cdot D_j + pwm_j \cdot M_j \cdot EXR)}{PQ_j \cdot Q_j} \cdot tv_j \right] \quad i \in ivat$	(price of composite intermediate input)
	$PN_i = \sum_j a_{ji} \cdot PQ_j \quad i \notin ivat$	
7	$PK_i = \sum_j b_{ji} \cdot PQ_j \cdot \left[ 1 - \frac{(PD_j \cdot D_j + pwm_j \cdot M_j \cdot EXR)}{PQ_j \cdot Q_j} \cdot tv_j \right] \quad i \in ivat$	(price of composite capital goods)
	$PK_i = \sum_j b_{ji} \cdot PQ_j \quad i \notin ivat$	
8	$\overline{PINDEX} = \sum_i wtq_i \cdot PQ_i$	(price level)
9	$PINDOM = \sum_i wtd_i \cdot PD_i$	(domestic price level)

## Production module

No.	Equation		
10	$X_i = \alpha_i^x \left[ \beta_i^x \cdot V_i^{-\rho_i^x} + (1 - \beta_i^x) \cdot N_i^{-\rho_i^x} \right]^{\frac{-1}{\rho_i^x}}$	$i \in iint$	(gross domestic output)
	$X_i = V_i$	$i \notin iint$	
11	$N_i = V_i \cdot \left[ \frac{PV_i(1 - \beta_i^x)}{PN_i \cdot \beta_i^x} \right]^{\frac{1}{\rho_i^x + 1}}$	$i \in iint$	(composite intermediate input)
	$N_i = 0$	$i \notin iint$	
12	$V_i = a_i^v \cdot \left[ \prod_f \beta_{if}^v FDSC_{i,f}^{-\rho_i^v} \right]^{\frac{1}{\rho_i^v}}$		(value added input)
13	$\left( \alpha_i^v \right)^{\rho_i^v} \cdot WF_f \cdot wfdist_{i,f} = PV_i \cdot \beta_{i,f}^v \cdot \frac{V_i}{FDSC_{i,f}}$		(demand for each primary factor)
14	$X_i = \alpha_i^t \left[ \beta_i^t \cdot E_i^{\rho_i^t} + (1 - \beta_i^t) \cdot D_i^{\rho_i^t} \right]^{\frac{1}{\rho_i^t}}$	$i \in ie$	(gross domestic input)
	$X_i = D_i$	$i \notin ie$	
15	$E_i = D_i \cdot \left[ \frac{PE_i \cdot (1 - \beta_i^t)}{PD_i \cdot (1 - tv_i - tx_i) \cdot \beta_i^t} \right]^{\frac{1}{\rho_i^t - 1}}$	$i \in ie$	(export supply)
	$E_i = 0$	$i \notin ie$	
16	$Q_i = \alpha_i^c \left[ \beta_i^c \cdot M_i^{-\rho_i^c} + (1 - \beta_i^c) \cdot D_i^{-\rho_i^c} \right]^{\frac{-1}{\rho_i^c}}$	$i \in im$	(supply of composite goods)
	$Q_i = D_i$	$i \notin im$	
17	$M_i = D_i \cdot \left[ \frac{PD_i \cdot \beta_i^c}{PM_i \cdot (1 - \beta_i^c)} \right]^{\frac{1}{\rho_i^c - 1}}$	$i \in im$	(input demand)
	$M_i = 0$	$i \notin im$	

## Income module

No.	Equation	
18	$YF = \sum_f WF_f \cdot FDSC_{i,f} \cdot wfdist_{i,f}$	(factor income)
19	$YINST_{land} = YF_{land}$	(land returns)
20	$YINST_{ag-cap} = \sum_{iag} WF_{cap} \cdot FDSC_{iag,cap} \cdot wfdist_{iag,cap}$	(capital returns)
21	$YINST_{corp} = YCORP \cdot (1 - ctax) \cdot (1 - csav)$	(corporate income)
22	$YH_{hh} = \sum_{ilab} LFACTOH_{hh,ilab} \cdot YF_{ilab} + \sum_{ins} KFACTOH_{hh,ins} \cdot YINST_{ins}$	(household income)
23	$HHPOP_{hh} = \sum_{ilab} EMPTOHH_{hh,ilab} \cdot FS_{ilab}$	(employment)
24	$HHTAX = \sum_{hh} YH_{hh} \cdot th_{hh}$	(household income tax revenue)
25	$HHSAV = \sum_{hh} YH_{hh} \cdot (1 - th_{hh}) \cdot mps_{hh}$	(household savings)
26	$YCORP = YF_{cap} - YINST_{ag-cap} + \sum_{ivat} \left[ \left( \sum_j b_{j,ivat} \cdot PQ_j \right) - PK_{ivat} \right]$ $DK_{ivat} + EXR \cdot (FACTIN - REPAT - INTER_{priv} - INTER_{pub}) - OILREV$	(corporate income)
27	$CORTAX = ctax \cdot YCORP$	(corporate tax revenue)
28	$CORSAV = YCORP \cdot (1 - ctax) \cdot csav$	(corporate savings)
29	$TARIFF = \sum_i tm_i \cdot (1 + tv_i) \cdot M_i \cdot pwm_i \cdot EXR$	(import tariff revenue)
30	$INDTAX = \sum_i PD_i \cdot D_i \cdot tx_i$	(indirect tax revenue)

## Income module (continued)

No.	Equation	
31	$VATREV = \sum_{ivat} [tv_i \cdot PD_i D_i + pwm_i \cdot tv_i \cdot M_i \cdot EXR - \left\{ \sum_j (a_{j,i} \cdot PQ_j) - PN_i \right\} \cdot N_i - \left\{ \sum_j (b_{j,i} \cdot PQ_j) - PK_i \right\} \cdot DK_i ]$	(value-added tax revenue)
32	$EXPTAX = \sum_i pwe_i \cdot te_i \cdot E_i \cdot EXR$	(export tax revenue)
33	$OILREV = oiltax \cdot \sum_{ioil} (WF_{cap} \cdot wfdist_{ioil, cap} \cdot FDSC_{ioil, cap})$	(government oil revenues)
34	$GR = TARIFF + EXPTAX + IND TAX + OILREV + VATREV + HHTAX + CORTAX$	(government revenue)
35	$SAVING = HHS AV + GOV SAV + COR SAV - CURACT \cdot EXR$	(total savings)
36	$DFR = \sum_{br} (AMORT_{br} - BORROW_{br}) - FORINV - CURACT$	(foreign reserve increase)

## Expenditure module

No.	Equation	
37	$INT_i = \sum_j a_{j,i} \cdot N_j$	(intermediate demand)
38	$CD_i = \frac{\sum_{hh} [cc_{i, hh} \cdot YH_{hh} \cdot (1 - mps_{hh}) \cdot (1 - th_{hh})]}{PQ_i}$	(private consumption final demand)
39	$GD_i = gg_i \cdot GOVCON$	(government consumption demand)
40	$STK_i = inv_i \cdot X_i$	(inventory investment by sector)
41	$INVEST = FXDINV + \sum_i PQ_i \cdot STK_i$	(total investment)
42	$DK_i = \frac{zz_i \cdot FXDINV}{\sum_j b_{j,i} \cdot PQ_j}$	(investment by sector of destination)
43	$ID_i = \sum_j b_{j,i} \cdot DK_j$	(investment final demand by sector or origin)
44	$GDPVA = \sum_i PV_i \cdot V_i + IND TAX + TARIFF$	(value-added in market prices)
45	$RGDP = \sum_i [CD_i + GD_i + ID_i + STK + E_i - (1 - tmreal_i) \cdot M_i]$	(real GDP)



## Market clearing and equilibrium module

No.	Equation	
46	$X_i = INT_i + CD_i + GD_i + ID_i + STK_i$	(product market equilibrium)
47	$FS_f = \sum_i FDSC_{i,f}$	(factor market equilibrium)
48	$CURACT = \sum_i pwe_i \cdot E_i + FACTIN - \sum_i pwm_i \cdot M_i - REPAT - \sum_{br} INTER_{br}$	(foreign exchange market)
49	$GOVSAV = GR - \sum_i PQ_i \cdot GD_i - EXR \cdot INTER_{gov}$	(government equilibrium)
50	$SAVING = INVEST$	(saving-investment equilibrium)

## Variables in the model

AMORT <sub>br</sub>	=	amortisation (\$)	M <sub>i</sub>	=	imports
BORROW <sub>br</sub>	=	foreign borrowing (\$)	MPS <sub>hh</sub>	=	marginal propensity to save
CD <sub>i</sub>	=	private consumption final demand	N <sub>i</sub>	=	composite intermediate input
CORSAV	=	corporate savings	OILREV	=	government oil revenues
CORTAX	=	corporate tax revenue	PD <sub>i</sub>	=	domestic price of domestic sales
CURACT	=	current account balance (\$)	PE <sub>i</sub>	=	domestic price of exports
D <sub>i</sub>	=	domestic demand for domestic production	PK <sub>i</sub>	=	composite capital goods price (net of rebates)
DFR	=	foreign reserve increase (\$)	PINDEX	=	price level (of CPI)
DK <sub>i</sub>	=	investment by sector of destination	PINDOM	=	domestic price level
E <sub>i</sub>	=	exports	PM <sub>i</sub>	=	domestic price of imports
EXPTAX	=	export tax revenue	PN <sub>i</sub>	=	composite intermediate inputs price (net of rebates)
EXR	=	exchange rate (rupiah/\$)	PQ <sub>i</sub>	=	composite goods price
FACTIN	=	interest and remittance income from abroad (\$)	PV <sub>i</sub>	=	value added (or net) price
FDSC <sub>if</sub>	=	factor demand	PX <sub>i</sub>	=	average sales price received by producers
FS <sub>f</sub>	=	factor supply	Q <sub>i</sub>	=	supply of composite good
FORINV	=	direct foreign investment	REPAT	=	repatriated profits and other non-factor services (\$)
FXDINV	=	total fixed investment	RGDP	=	real GDP (expenditure side)
GDPVA	=	value added in market prices (nominal GDP)	SAVING	=	total savings
GOVCON	=	real government consumption	STK <sub>i</sub>	=	inventory investment by sector
GD <sub>i</sub>	=	government consumption demand	TARIFF	=	import tariff revenue
GOVSAV	=	government savings	V <sub>i</sub>	=	value-added input
GR	=	government revenue	VATREV	=	value-added tax revenue
HHPOP <sub>hh</sub>	=	employment	WF <sub>f</sub>	=	nominal factor return
HNSAV	=	household savings	WFDIST <sub>if</sub>	=	factor price sectoral proportionality ratio
HHTAX	=	household income tax revenue	X <sub>i</sub>	=	gross domestic output
ID <sub>i</sub>	=	investment final demand (by sector or origin)	YH <sub>hh</sub>	=	household income
INDTAX	=	indirect (excise) tax revenue	YCORP	=	corporate income
INT <sub>i</sub>	=	intermediate demand	YF <sub>f</sub>	=	factor income
INTER <sub>br</sub>	=	foreign interest payments (\$)	YNS <sub>ins</sub>	=	non-agricultural institution income
INVEST	=	total investment			

## Parameters in the model

$a_{ji}$	=	input-output coefficients	$te_i$	=	export tax rates
$b_{ji}$	=	capital coefficients matrix	$th_{hh}$	=	household tax rates
$c_{hh}$	=	household expenditure shares	$tm_i$	=	import tariff rates
$csav$	=	corporate savings rate	$tm_{real_i}$	=	real (base-year) tariff rates
$ctax$	=	corporate tax rate	$tv_i$	=	value-added taxes
$gg_i$	=	government expenditure shares	$tx_i$	=	indirect tax rates
$inv_i$	=	inventory coefficients	$wfdist_{ij}$	=	factor price sectoral proportionality constants
$mps_{hh}$	=	household savings rate	$wtd_i$	=	weights in domestic (PD) price index
$oiltax$	=	tax rate on oil sector earnings	$wtq_i$	=	weights in composite (PQ) price index
$pwe_i$	=	world price of exports	$zz_i$	=	fixed investment allocation shares
$pwm_i$	=	world price of imports			



## Appendix 7.2 (continued)

	OthMines	Other Mining
	Foodproc	Food Bev & Tobacco
	Textiles	Textiles & Leather
	WoodFurn	Wood & Furniture
	PapPrint	Paper & Printing
	ChemFert	Chemicals & Fertilizers
	OilRefin	Oil Refining
	LNG	LNG
	Nometmin	Nonmetallic Mineral
	BasicMet	Basic Metals
	Machines	Metal Prod & Machines
	OthIndus	Other Industry
	ElectGas	Electricity & Gas
	Water	Water Supply
	Construc	Construction
	TradStor	Trade & Storage
	RestHot	Restaurants & Hotels
	LandTran	Rail & Road Transpor
	OthTrans	Sea Air Trans & Comm
	FinServ	Financial Serv & Insur
	BusServ	Real Estate
	PubAdmin	Public Admin
	OthServ	Social & Other Serv /
F	FACTORS OF PRODUCTION	/ Land Agricultural land
	Capital	Capital stock
	Agri-Pd	Agricultural paid labor
	Agri-Un	Agricultural unpaid labor
	Prod-Rur	Prod & trans & man rural
	Prod-Urb	Prod & trans & man urban
	Cler-Rur	Cler & sales & serv rural
	Cler-Urb	Cler & sales & serv urban
	Prof-Rur	Prof & tech & super rural
	Prof-Urb	Prof & tech & super urban /
INS	NON-LABOR INSTITUTIONS	/ Land Agricultural rents
	Ag-cap	Agricultural capital returns
	Corp	Corporate income /
HH	HOUSEHOLDS	/ Ag-worker Agricultural employees
	Farmer-sml	Small farmers
	Farmer-med	Medium farmers
	Farmer-lrg	Large farmers
	Rural-low	Rural low-level non-ag
	Rural-high	Rural high-level non-ag
	Urban-low	Urban low-level non-ag
	Urban-high	Urban high-level non-ag /
BR	BORROWING INSTITUTIONS	/ gov Government
	pub	Public enterprises
	priv	Private sector /
VARHH	HOUSEHOLD VARIABLES	/ YH, MPS, TH, POP /
VARSEC	SECTORAL VARIABLES	/ PD, PM, PE, PQ, PX, PV, PN, PK, Q, X, D, V, N, E, M, INT, CD, GD, ID, STK, DK, GG, INV, ZZ, AV, PWE, PWM, TE, TM, TV, TX, KDEP /
VARSCAL	SCALAR VARIABLES	/ EXR, PINDEX, PINDOM, GOVCON, GOVSAV, GOVINV, GR, TARIFF, EXPTAX, INDTAX, VATREV, HHTAX, CORTAX, INVEST, FXDINV, SAVING, HNSAV,

## Appendix 7.2 (continued)

CORSAV, DFR, REPAT, FACTIN, CURACT, FORINV,  
 RGDP, GDPVA, OILREV, GOVBUD, DEVBUD, ROUTIN,  
 DEVSHR, CTAX, CSAV, OILTAX , YCORP /  
 VARFAC FACTOR VARIABLES / WF, FS, YF /  
 VARBOP BOP VARIABLES / BORROW, AMORT, INTER /

- \* The household and factor names are referred to explicitly below.
- \* If changed, they must also be changed where referenced.
- \* The household names are explicitly referenced only in the calibration section; the factor names appear in the equations as well.

\*## SUBSETS DEFINED BELOW: "DEFINE INDEXES"

IAG(I) AG SECTORS / FarmFood, Nonfood, Livestck, Forestry, Fishery /  
 IAGN(I) NON AG SECTORS  
  
 IOIL(I) OIL TAX SECTORS / OilGas, OilRefin, LNG /  
  
 IINT(I) SECTORS USING INTERMEDIATE INPUTS  
 IINTN(I) SECTORS WITHOUT INTERMEDIATE INPUTS / PubAdmin /  
  
 IE(I) EXPORT SECTORS  
 \* IENC(I) NON-CET EXPORT SECTORS /LNG/  
 IEN(I) NON EXPORT SECTORS  
  
 IM(I) IMPORT SECTORS  
 IMN(I) NON IMPORT SECTORS  
  
 IVAT(I) VALUE ADDED TAX SECTORS  
  
 HHL(hh) Last household (used for calibration) / Urban-high /  
  
 IKAP(F) CAPITAL AND LAND / land, capital /  
 ILAB(F) LABOR CATEGORIES ;  
 ILAB(F) = NOT IKAP(F) ;

ALIAS (I,J)  
 ALIAS (IVAT,JVAT);  
 ALIAS (IINT,JINT);

\*## for SAM

SET ISAM categories /COMMDTY,ACTIVITY,LABOR,CAP+LAND,CORP,HHOLDS,  
 GOVT,KACCOUNT,WORLD,TOTAL/  
 ISAM1(isam) /TOTAL/  
 ISAM2(isam) ;  
 ALIAS(isam2,isam3);  
 PARAMETER SAM(isam,isam) SOCIAL ACCOUNTING MATRIX ;  
 isam2(isam) = NOT isam1(isam) ;

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\* 2. PARAMETERS AND INPUT DATA  
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\* ----- PARAMETER DECLARATION -----

## Appendix 7.2 (continued)

## PARAMETERS

\*### READ IN PARAMETERS

\*## READ IN FOR INITIALIZATION OF VARIABLES

AMORT0(br) AMORTIZATION PAYMENTS ON FOREIGN DEBT  
 BORROW0(br) FOREIGN BORROWING  
 CORSAV0 CORPORATE SAVINGS  
 CORTAX0 CORPORATE TAXES  
 E0(i) EXPORTS  
 EXR0 EXCHANGE RATE  
 FACTIN0 INTEREST AND REMITTANCE INCOME FROM ABROAD  
 FORINV0 NET DIRECT FOREIGN INVESTMENT  
 GOVCON0 TOTAL VOLUME OF GOVERNMENT CONSUMPTION  
 HNSAV0 HOUSEHOLD SAVINGS  
 HHTAX0 HOUSEHOLD TAX REVENUE  
 INTER0(br) INTEREST PAYMENTS ON FOREIGN DEBT  
 INVEST0 TOTAL INVESTMENT  
 M0(i) IMPORTS  
 MPS0(hh) HOUSEHOLD MARGINAL PROPENSITY TO SAVE  
 OILREV0 OIL TAX REVENUE  
 PD0(i) DOMESTIC GOODS PRICE  
 PE0(i) DOMESTIC PRICE OF EXPORTS  
 PM0(i) DOMESTIC PRICE OF IMPORTS  
 PQ0(i) PRICE OF COMPOSITE GOOD  
 PV0(i) VALUE ADDED PRICE BY SECTOR  
 PX0(i) AVERAGE OUTPUT PRICE  
 PINDEX0 CPI DEFLATOR  
 PINDOM0 DOMESTIC PRICE DEFLATOR  
 REPAT0 REPATRIATED PROFITS  
 X0(i) DOMESTIC OUTPUT, VOLUME

\*# READ IN TABLE FOR INITIALIZATION OF VARIABLES (NEED NOT BE DECLARED)

\* TABLE FACDEM(i,f) FACTOR DEMAND BY SECTOR  
 \* TABLE FACINC(i,f) FACTOR INCOME BY SECTOR  
 \* TABLE SECTRES0(vartsec,i) SECTORAL PRICES AND QUANTITIES

\*## READ IN PARAMETERS AS RATES, SHARES, ELASTICITIES

CSAV SAVINGS RATE FOR CORPORATIONS  
 CTAX TAX RATE FOR CORPORATE INCOME  
 DEVBUD DEVELOPMENT BUDGET AS REPORTED BY GOVERNMENT  
 INV(i) RATIO OF INVENTORY INVESTMENT TO GROSS OUTPUT  
 GG(i) GOVERNMENT CONSUMPTION SHARES  
 OILTAX TAX RATE ON CAPITAL INCOME OF OIL SECTOR  
 RHOC(i) ARMINGTON FUNCTION EXPONENT  
 RHOT(i) CET FUNCTION EXPONENT  
 RHOV(i) VALUE ADDED FUNCTION EXPONENT  
 RHOX(i) PRODUCTION FUNCTION EXPONENT  
 ROUTIN GOVERNMENT ROUTINE EXPENDITURES  
 TE(i) EXPORT TAX RATES  
 TM(i) TARIFF RATES ON IMPORTS  
 TV(i) VALUE ADDED TAX RATES  
 TX(i) INDIRECT TAX RATES  
 TH(hh) HOUSEHOLD TAX RATE  
 ZZ(i) SHARES OF INVESTMENT BY SECTOR OF DESTINATION

\*# READ IN TABLE OF PARAMETERS (NEED NOT BE DECLARED)

\* TABLE AA(i,j) INPUT-OUTPUT COEFFICIENTS  
 \* TABLE BB(i,j) CAPITAL COMPOSITION MATRIX

## Appendix 7.2 (continued)

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* TABLE CC(i, hh)           HOUSEHOLD CONSUMPTION SHARES
* TABLE LFACTOHH(hh, f)     HOUSEHOLD SHARES IN LABOR FACTOR INCOME
* TABLE EMPTOHH(hh, f)     HOUSEHOLD SHARES IN LABOR EMPLOYMENT
* TABLE KFACTOHH(hh, ins)  HOUSEHOLD SHARES IN NON-LABOR FACTOR INCOME

*### COMPUTED PARAMETERS FROM READ IN DATA (CALIBRATION)

*## COMPUTED PARAMETERS FOR INITIALIZATION OF VARIABLES
CURACT0           CURRENT ACCOUNT
D0(i)             DOMESTIC SALES, VOLUME
DFR0             CHANGE IN FOREIGN RESERVES
DK0(i)           VOLUME OF INVESTMENT BY SECTOR OF DESTINATION
FXDINVO          FIXED CAPITAL INVESTMENT
FD0(f)           FACTOR DEMAND, AGGREGATE
FS0(f)           FACTOR SUPPLY, AGGREGATE
GRO              GOVERNMENT REVENUE
INT0(i)          INTERMEDIATE INPUT DEMAND
N0(i)            COMPOSITE INTERMEDIATE INPUT
PK0(i)           CAPITAL GOODS PRICE BY SECTOR OF DESTINATION
PN0(i)           INTERMEDIATE INPUT PRICE BY SECTOR
PWM(i)           WORLD MARKET PRICE OF IMPORTS (IN DOLLARS)
PWE(i)           WORLD PRICE OF EXPORTS
Q0(i)            COMPOSITE GOOD SUPPLY, VOLUME
V0(i)            VALUE ADDED
VAR0(i)          VALUE ADDED RATE BY SECTOR
WFDIST0(i, f)    FACTOR PRICE SECTORAL PROPORTIONALITY CONSTANTS
WF0(f)           FACTOR PRICE, AGGREGATE AVERAGE
YF0(f)           FACTOR INCOME SUMMED OVER SECTOR
YFSECT0(i)       FACTOR INCOME BY SECTOR
YINST0(ins)      NON-LABOR INSTITUTIONAL INCOME
YH0(hh)          HOUSEHOLD INCOME
YCORP0           CORPORATE INCOME

*## COMPUTED PARAMETERS AS RATES, SHARES
AC(i)            ARMINGTON FUNCTION SHIFT PARAMETER
AT(i)            CET FUNCTION SHIFT PARAMETER
AV(i)            VALUE ADDED FUNCTION SHIFT PARAMETER
AX(i)            PRODUCTION FUNCTION SHIFT PARAMETER
BC(i)            ARMINGTON FUNCTION SHARE PARAMETER
BT(i)            CET FUNCTION SHARE PARAMETER
BV(i, f)         FACTOR SHARE PARAMETER FOR VALUE ADDED FUNCTION
BX(i)            PRODUCTION FUNCTION SHARE PARAMETER
DEVSHR          SHARE OF CONSUMPTION IN DEVELOPMENT BUDGET
QD(i)           DUMMY VARIABLE FOR COMPUTING AV(i) AND BV(i)
RMD(i)           RATIO OF IMPORTS TO DOMESTIC SALES
SUMSH           SUM OF SHARE CORRECTION PARAMETER
SUMHHSH(hh)     SUM OF SHARE FOR HH CC
SUMBBSH(i)      SUM OF SHARE FOR BB AND AA
SUMFSH(f)       SUM OF SHARE FOR LFACTOHH AND EMPTOHH
SUMINSSH(ins)  SUM OF SHARE FOR KFACTOHH
TMREAL(i)       REAL TARIFF RATE
WTD(i)           DOMESTIC PRICE INDEX WEIGHTS
WTQ(i)           COMPOSITE PRICE INDEX WEIGHTS           ;

*## TABLES USED FOR LOADING VARIABLE RESULTS
* TABLE SCALRES(varscal, tp)           AGGREGATE RESULTS
PARAMETER SECTRES(varsec, i, tp)       SECTORAL PRICE AND QUANTITY RESULTS ;
PARAMETER FCTRES1(i, f, tp)            FACTOR DEMAND RESULTS ;
PARAMETER FCTRY(i, f, tp)              FACTOR INCOME RESULTS ;

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Appendix 7.2 (continued)

PARAMETER FCTRES2(varfac,f,tp) FACTOR WAGE, SUPPLY AND INCOME RESULTS ;  
 PARAMETER HHRES(varhh,hh,tp) HOUSEHOLD SAVINGS AND INCOME RESULTS ;  
 PARAMETER BOPRES(varbop,br,tp) SUMMARY FOREIGN DEBT RESULTS ;  
 PARAMETER YINSRES(ins,tp) SUMMARY NON-AG INSTITUTIONAL INCOME RESULTS;

\*----- PARAMETER ASSIGNMENT -----

TABLE AA(i,j) INPUT OUTPUT COEFFICIENTS

	FARMFOOD	NONFOOD	LIVESTCK	FORESTRY	FISHERY
FARMFOOD	0.038387	0.000509	0.009510	0.000000	0.000443
NONFOOD	0.000818	0.176686	0.011228	0.000001	0.000025
LIVESTCK	0.003794	0.001358	0.290323	0.000000	0.000060
FORESTRY	0.000103	0.001261	0.001106	0.005207	0.004447
FISHERY	0.000000	0.000000	0.000087	0.000000	0.061445
COAL	0.000000	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.000003	0.000000	0.001969
FOODPROC	0.000000	0.000000	0.077732	0.000000	0.012262
TEXTILES	0.000647	0.001242	0.000231	0.000563	0.004815
WOODFURN	0.000463	0.001539	0.000845	0.000000	0.003186
PAPPRINT	0.000040	0.000999	0.000175	0.003791	0.000497
CHEMFERT	0.053321	0.048744	0.006484	0.000591	0.005170
OILREFIN	0.000356	0.009621	0.006853	0.022692	0.034626
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.000000	0.000303	0.000103	0.000414	0.001452
BASICMET	0.000000	0.000000	0.000000	0.000189	0.000106
MACHINES	0.001487	0.008175	0.002071	0.025521	0.020133
OTHINDUS	0.000020	0.000196	0.000219	0.001346	0.000200
ELECTGAS	0.000000	0.001714	0.002170	0.001884	0.000614
WATER	0.000000	0.000078	0.000140	0.000000	0.000082
CONSTRUC	0.001034	0.009012	0.003164	0.009941	0.002753
TRADSTOR	0.006890	0.029536	0.057798	0.011233	0.040190
RESTHOT	0.000015	0.000895	0.000478	0.002727	0.001991
LANDTRAN	0.001783	0.009774	0.011610	0.004689	0.008359
OTHTRANS	0.000491	0.002222	0.003704	0.001509	0.002910
FINSERV	0.005553	0.009847	0.005068	0.007686	0.011844
BUSSERV	0.000020	0.002233	0.001160	0.004237	0.000888
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.000747	0.011245	0.002201	0.024601	0.002978

+	COAL	OILGAS	OTHMINES	FOODPROC	TEXTILES
FARMFOOD	0.000000	0.000000	0.000000	0.455713	0.000418
NONFOOD	0.000000	0.000000	0.000000	0.131714	0.073031
LIVESTCK	0.000000	0.000000	0.000000	0.002385	0.007522
FORESTRY	0.004070	0.000000	0.000827	0.000392	0.000395
FISHERY	0.000000	0.000000	0.000000	0.006811	0.000000
COAL	0.093457	0.000060	0.000563	0.000010	0.000039
OILGAS	0.000000	0.040373	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.005727	0.000238	0.000082
FOODPROC	0.000000	0.000000	0.000000	0.068681	0.000995
TEXTILES	0.006926	0.001850	0.000445	0.001612	0.334552
WOODFURN	0.000000	0.000000	0.000834	0.000302	0.003241
PAPPRINT	0.000547	0.000183	0.002062	0.006413	0.002724
CHEMFERT	0.054889	0.004839	0.010541	0.006283	0.118546
OILREFIN	0.063070	0.004851	0.052956	0.005658	0.013395
LNG	0.000000	0.000000	0.000000	0.000000	0.000000

## Appendix 7.2 (continued)

NOMETMIN	0.000000	0.000000	0.000000	0.000751	0.000000
BASICMET	0.000000	0.000120	0.000000	0.000000	0.000060
MACHINES	0.026704	0.006248	0.016211	0.005294	0.007832
OTHINDUS	0.000187	0.000029	0.000006	0.000015	0.002003
ELECTGAS	0.015107	0.000164	0.000941	0.001675	0.006280
WATER	0.000000	0.000000	0.000019	0.000477	0.000065
CONSTRUC	0.005512	0.005639	0.015466	0.001087	0.001773
TRADSTOR	0.029159	0.002804	0.015484	0.053207	0.054926
RESTHOT	0.001081	0.005169	0.010640	0.002394	0.001382
LANDTRAN	0.024996	0.001571	0.020600	0.011089	0.011457
OTHTRANS	0.025810	0.004442	0.004810	0.004543	0.004590
FINSERV	0.000948	0.013575	0.005949	0.009583	0.009683
BUSSERV	0.001895	0.020902	0.008150	0.001718	0.001443
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.005939	0.009452	0.028485	0.002760	0.001714

+	WOODFURN	PAPPRINT	CHEMFERT	OILREFIN	LNG
FARMFOOD	0.000000	0.000525	0.000347	0.000000	0.000000
NONFOOD	0.000125	0.000007	0.032368	0.000000	0.000000
LIVESTCK	0.000000	0.000000	0.000057	0.000000	0.000000
FORESTRY	0.285510	0.001409	0.001328	0.000000	0.000000
FISHERY	0.000000	0.000000	0.000000	0.000000	0.000000
COAL	0.000000	0.000000	0.003386	0.000002	0.000001
OILGAS	0.000000	0.000000	0.040326	0.657571	0.310656
OTHMINES	0.000015	0.002831	0.022194	0.000186	0.000029
FOODPROC	0.008977	0.002157	0.009026	0.000000	0.000000
TEXTILES	0.001920	0.001106	0.015095	0.000093	0.000032
WOODFURN	0.055001	0.002341	0.001023	0.000393	0.000000
PAPPRINT	0.001099	0.328436	0.010149	0.000300	0.000038
CHEMFERT	0.040041	0.048467	0.372496	0.004798	0.003645
OILREFIN	0.026315	0.014622	0.020728	0.002284	0.003255
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.000412	0.000361	0.004036	0.000470	0.000046
BASICMET	0.000364	0.000865	0.000323	0.000216	0.000218
MACHINES	0.010086	0.004427	0.012672	0.004369	0.003861
OTHINDUS	0.000038	0.000810	0.000964	0.000050	0.000015
ELECTGAS	0.004099	0.009781	0.006888	0.005485	0.000737
WATER	0.000126	0.000121	0.000532	0.000163	0.000018
CONSTRUC	0.002572	0.002400	0.001579	0.004898	0.002774
TRADSTOR	0.123793	0.132116	0.073298	0.002132	0.002121
RESTHOT	0.005793	0.002341	0.002645	0.012396	0.003425
LANDTRAN	0.024090	0.028442	0.016859	0.003437	0.000698
OTHTRANS	0.008469	0.010871	0.007808	0.005375	0.002154
FINSERV	0.008390	0.007598	0.008027	0.015282	0.002301
BUSSERV	0.001774	0.002189	0.004570	0.002932	0.001197
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.003871	0.018875	0.008724	0.008071	0.009878

+	NOMETMIN	BASICMET	MACHINES	OTHINDUS	ELECTGAS
FARMFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
NONFOOD	0.000003	0.000000	0.000251	0.007065	0.000000
LIVESTCK	0.000222	0.000000	0.000000	0.028083	0.000000
FORESTRY	0.002566	0.000000	0.000364	0.002646	0.000000
FISHERY	0.000000	0.000000	0.000000	0.000122	0.000000
COAL	0.006532	0.000470	0.000043	0.000000	0.009582
OILGAS	0.000000	0.000000	0.000000	0.000000	0.050754
OTHMINES	0.097448	0.125579	0.000050	0.000134	0.000000

## Appendix 7.2 (continued)

FOODPROC	0.002165	0.000000	0.000088	0.000167	0.000000
TEXTILES	0.001606	0.000158	0.002174	0.056759	0.000227
WOODFURN	0.000560	0.000015	0.004010	0.005927	0.000000
PAPPRINT	0.039074	0.000483	0.001953	0.003244	0.004031
CHEMFERT	0.040994	0.029621	0.026249	0.129336	0.000895
OILREFIN	0.086383	0.039208	0.005690	0.006968	0.401029
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.066239	0.001884	0.002570	0.006740	0.000000
BASICMET	0.000829	0.173476	0.105681	0.075500	0.000000
MACHINES	0.005473	0.032755	0.404628	0.037315	0.033711
OTHINDUS	0.000085	0.002212	0.000142	0.103912	0.000093
ELECTGAS	0.026193	0.028090	0.005488	0.002951	0.170001
WATER	0.000929	0.000000	0.000050	0.000248	0.000000
CONSTRUC	0.007955	0.001902	0.002110	0.000837	0.024748
TRADSTOR	0.126947	0.044609	0.067985	0.079041	0.065690
RETHOT	0.005073	0.013120	0.002342	0.002699	0.000917
LANDTRAN	0.029378	0.020588	0.015777	0.017042	0.014647
OTHTRANS	0.010325	0.006896	0.006079	0.006923	0.010028
FINSERV	0.008691	0.016842	0.009817	0.006976	0.004841
BUSSERV	0.008788	0.014150	0.002567	0.005187	0.001155
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.004614	0.034136	0.002661	0.023465	0.010077

+	WATER	CONSTRUC	TRADSTOR	RETHOT	LANDTRAN
FARMFOOD	0.000000	0.002530	0.000020	0.037123	0.000000
NONFOOD	0.000000	0.000049	0.000014	0.022231	0.000026
LIVESTCK	0.000000	0.000000	0.000000	0.099152	0.000125
FORESTRY	0.000000	0.021850	0.000004	0.002530	0.000013
FISHERY	0.000000	0.000000	0.000000	0.022799	0.000000
COAL	0.000000	0.000000	0.000000	0.000000	0.000009
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.040719	0.000001	0.000001	0.000000
FOODPROC	0.000000	0.000000	0.000212	0.158502	0.000011
TEXTILES	0.001603	0.000437	0.002136	0.005713	0.001440
WOODFURN	0.000000	0.051900	0.000892	0.000240	0.000003
PAPPRINT	0.002362	0.002169	0.004084	0.004325	0.000428
CHEMFERT	0.154390	0.013798	0.003723	0.005318	0.000784
OILREFIN	0.078433	0.091055	0.013470	0.025480	0.143109
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.000000	0.075732	0.000236	0.001779	0.000031
BASICMET	0.000000	0.054949	0.000000	0.000000	0.000000
MACHINES	0.042300	0.097711	0.003415	0.003954	0.003023
OTHINDUS	0.000547	0.000068	0.000193	0.000707	0.000172
ELECTGAS	0.025689	0.000427	0.007872	0.023260	0.001426
WATER	0.000038	0.000184	0.000494	0.002619	0.000175
CONSTRUC	0.067905	0.001758	0.010131	0.011218	0.003139
TRADSTOR	0.038464	0.132827	0.009207	0.072844	0.041313
RETHOT	0.002848	0.003864	0.012038	0.004551	0.006707
LANDTRAN	0.009928	0.025098	0.007209	0.014757	0.012046
OTHTRANS	0.006601	0.010243	0.015848	0.009787	0.007582
FINSERV	0.018511	0.009351	0.023152	0.002969	0.009934
BUSSERV	0.012685	0.013596	0.022841	0.033926	0.010315
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.038130	0.001161	0.012659	0.010527	0.191075

+	OTHTRANS	FINSERV	BUSSERV	PUBADMIN	OTHSERV
FARMFOOD	0.000193	0.000000	0.000000	0.000000	0.003222

## Appendix 7.2 (continued)

NONFOOD	0.000017	0.000000	0.000000	0.000000	0.000366
LIVESTCK	0.000197	0.000000	0.000000	0.000000	0.004274
FORESTRY	0.000000	0.000000	0.000000	0.000000	0.000200
FISHERY	0.000158	0.000000	0.000000	0.000000	0.000514
COAL	0.000000	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.000000	0.000000	0.000000
FOODPROC	0.003231	0.000278	0.000182	0.000000	0.005806
TEXTILES	0.001086	0.000255	0.000502	0.000000	0.017756
WOODFURN	0.000092	0.000000	0.000016	0.000000	0.001593
PAPPRINT	0.006585	0.010648	0.002155	0.000000	0.017007
CHEMFERT	0.001166	0.000755	0.001530	0.000000	0.061391
OILREFIN	0.125361	0.002700	0.003233	0.000000	0.009505
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.000107	0.000029	0.000168	0.000000	0.001908
BASICMET	0.000053	0.000000	0.000000	0.000000	0.005800
MACHINES	0.043491	0.001914	0.016109	0.000000	0.071575
OTHINDUS	0.000626	0.000600	0.001183	0.000000	0.005715
ELECTGAS	0.005187	0.008216	0.002987	0.000000	0.021427
WATER	0.001881	0.000214	0.000303	0.000000	0.001589
CONSTRUC	0.030694	0.009653	0.081643	0.000000	0.011973
TRADSTOR	0.130211	0.004100	0.003007	0.000000	0.039333
RESTHOT	0.014523	0.019799	0.003371	0.000000	0.005381
LANDTRAN	0.007211	0.008453	0.002819	0.000000	0.009748
OTHTRANS	0.058070	0.023805	0.007473	0.000000	0.009528
FINSERV	0.028095	0.079581	0.021550	0.000000	0.004902
BUSSERV	0.031432	0.039671	0.025849	0.000000	0.028653
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.009879	0.027515	0.016608	0.000000	0.029945

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TABLE BB(i, j) INVESTMENT COEFFICIENT MATRIX

	FARMFOOD	NONFOOD	LIVESTCK	FORESTRY	FISHERY
FARMFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
NONFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
LIVESTCK	0.000000	0.000000	0.000000	0.000000	0.000000
FORESTRY	0.000000	0.000000	0.000000	0.000000	0.000000
FISHERY	0.000000	0.000000	0.000000	0.000000	0.000000
COAL	0.000000	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.000000	0.000000	0.000000
FOODPROC	0.000000	0.000000	0.000000	0.000000	0.000000
TEXTILES	0.000436	0.000437	0.000410	0.000472	0.000574
WOODFURN	0.003101	0.003110	0.002917	0.003355	0.004083
PAPPRINT	0.000000	0.000000	0.000000	0.000000	0.000000
CHEMFERT	0.000000	0.000000	0.000000	0.000000	0.000000
OILREFIN	0.000000	0.000000	0.000000	0.000000	0.000000
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.001946	0.001952	0.001831	0.002106	0.002563
BASICMET	0.000000	0.000000	0.000000	0.000000	0.000000
MACHINES	0.082272	0.085718	0.012600	0.178801	0.455488
OTHINDUS	0.000826	0.000828	0.000777	0.000893	0.001087
ELECTGAS	0.000000	0.000000	0.000000	0.000000	0.000000
WATER	0.000000	0.000000	0.000000	0.000000	0.000000
CONSTRUC	0.871917	0.868336	0.944297	0.771635	0.484191
TRADSTOR	0.027372	0.027452	0.025754	0.029614	0.036041
RESTHOT	0.000000	0.000000	0.000000	0.000000	0.000000
LANDTRAN	0.005139	0.005154	0.004835	0.005560	0.006766

## Appendix 7.2 (continued)

OTHTRANS	0.001726	0.001731	0.001624	0.001867	0.002272
FINSERV	0.000000	0.000000	0.000000	0.000000	0.000000
BUSSERV	0.000000	0.000000	0.000000	0.000000	0.000000
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.005267	0.005282	0.004955	0.005698	0.006935

+	COAL	OILGAS	OTHMINES	FOODPROC	TEXTILES
FARMFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
NONFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
LIVESTCK	0.000000	0.000000	0.000000	0.000000	0.000000
FORESTRY	0.000000	0.000000	0.000000	0.000000	0.000000
FISHERY	0.000000	0.000000	0.000000	0.000000	0.000000
COAL	0.000000	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.000000	0.000000	0.000000
FOODPROC	0.000000	0.000000	0.000000	0.000000	0.000000
TEXTILES	0.000576	0.000576	0.000576	0.000568	0.000601
WOODFURN	0.004097	0.004097	0.004097	0.004035	0.004273
PAPPRINT	0.000000	0.000000	0.000000	0.000000	0.000000
CHEMFERT	0.000000	0.000000	0.000000	0.000000	0.000000
OILREFIN	0.000000	0.000000	0.000000	0.000000	0.000000
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.002572	0.002572	0.002572	0.002533	0.002682
BASICMET	0.000000	0.000000	0.000000	0.000000	0.000000
MACHINES	0.461037	0.461037	0.461037	0.437461	0.527740
OTHINDUS	0.001091	0.001091	0.001091	0.001074	0.001138
ELECTGAS	0.000000	0.000000	0.000000	0.000000	0.000000
WATER	0.000000	0.000000	0.000000	0.000000	0.000000
CONSTRUC	0.478427	0.478427	0.478427	0.502920	0.409131
TRADSTOR	0.036170	0.036170	0.036170	0.035622	0.037719
RESTHOT	0.000000	0.000000	0.000000	0.000000	0.000000
LANDTRAN	0.006790	0.006790	0.006790	0.006688	0.007081
OTHTRANS	0.002280	0.002280	0.002280	0.002246	0.002378
FINSERV	0.000000	0.000000	0.000000	0.000000	0.000000
BUSSERV	0.000000	0.000000	0.000000	0.000000	0.000000
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.006960	0.006960	0.006960	0.006854	0.007258

+	WOODFURN	PAPPRINT	CHEMFERT	OILREFIN	LNG
FARMFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
NONFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
LIVESTCK	0.000000	0.000000	0.000000	0.000000	0.000000
FORESTRY	0.000000	0.000000	0.000000	0.000000	0.000000
FISHERY	0.000000	0.000000	0.000000	0.000000	0.000000
COAL	0.000000	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.000000	0.000000	0.000000
FOODPROC	0.000000	0.000000	0.000000	0.000000	0.000000
TEXTILES	0.000600	0.000580	0.000530	0.000530	0.000530
WOODFURN	0.004267	0.004122	0.003769	0.003769	0.003769
PAPPRINT	0.000000	0.000000	0.000000	0.000000	0.000000
CHEMFERT	0.000000	0.000000	0.000000	0.000000	0.000000
OILREFIN	0.000000	0.000000	0.000000	0.000000	0.000000
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.002678	0.002587	0.002366	0.002366	0.002366
BASICMET	0.000000	0.000000	0.000000	0.000000	0.000000
MACHINES	0.525568	0.470380	0.336195	0.336195	0.336195

Appendix 7.2 (continued)

OTHINDUS	0.001136	0.001097	0.001003	0.001003	0.001003
ELECTGAS	0.000000	0.000000	0.000000	0.000000	0.000000
WATER	0.000000	0.000000	0.000000	0.000000	0.000000
CONSTRUC	0.411387	0.468721	0.608122	0.608122	0.608122
TRADSTOR	0.037669	0.036387	0.033270	0.033270	0.033270
RETHOT	0.000000	0.000000	0.000000	0.000000	0.000000
LANDTRAN	0.007072	0.006831	0.006246	0.006246	0.006246
OTHTRANS	0.002375	0.002294	0.002097	0.002097	0.002097
FINSERV	0.000000	0.000000	0.000000	0.000000	0.000000
BUSSERV	0.000000	0.000000	0.000000	0.000000	0.000000
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.007248	0.007001	0.006402	0.006402	0.006402

+	NOMETMIN	BASICMET	MACHINES	OTHINDUS	ELECTGAS
FARMFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
NONFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
LIVESTCK	0.000000	0.000000	0.000000	0.000000	0.000000
FORESTRY	0.000000	0.000000	0.000000	0.000000	0.000000
FISHERY	0.000000	0.000000	0.000000	0.000000	0.000000
COAL	0.000000	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.000000	0.000000	0.000000
FOODPROC	0.000000	0.000000	0.000000	0.000000	0.000000
TEXTILES	0.000530	0.000530	0.000580	0.000580	0.000484
WOODFURN	0.003769	0.003769	0.004122	0.004122	0.003440
PAPPRINT	0.000000	0.000000	0.000000	0.000000	0.000000
CHEMFERT	0.000000	0.000000	0.000000	0.000000	0.000000
OILREFIN	0.000000	0.000000	0.000000	0.000000	0.000000
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.002366	0.002366	0.002587	0.002587	0.002159
BASICMET	0.000000	0.000000	0.000000	0.000000	0.000000
MACHINES	0.336195	0.336195	0.470380	0.470380	0.211047
OTHINDUS	0.001003	0.001003	0.001097	0.001097	0.000916
ELECTGAS	0.000000	0.000000	0.000000	0.000000	0.000000
WATER	0.000000	0.000000	0.000000	0.000000	0.000000
CONSTRUC	0.608122	0.608122	0.468721	0.468721	0.738135
TRADSTOR	0.033270	0.033270	0.036387	0.036387	0.030363
RETHOT	0.000000	0.000000	0.000000	0.000000	0.000000
LANDTRAN	0.006246	0.006246	0.006831	0.006831	0.005700
OTHTRANS	0.002097	0.002097	0.002294	0.002294	0.001914
FINSERV	0.000000	0.000000	0.000000	0.000000	0.000000
BUSSERV	0.000000	0.000000	0.000000	0.000000	0.000000
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.006402	0.006402	0.007001	0.007001	0.005842

+	WATER	CONSTRUC	TRADSTOR	RETHOT	LANDTRAN
FARMFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
NONFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
LIVESTCK	0.000000	0.000000	0.000000	0.000000	0.000000
FORESTRY	0.000000	0.000000	0.000000	0.000000	0.000000
FISHERY	0.000000	0.000000	0.000000	0.000000	0.000000
COAL	0.000000	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.000000	0.000000	0.000000
FOODPROC	0.000000	0.000000	0.000000	0.000000	0.000000
TEXTILES	0.000484	0.000600	0.000502	0.000468	0.000493
WOODFURN	0.003440	0.004267	0.003569	0.003330	0.003503

## Appendix 7.2 (continued)

PAPPRINT	0.000000	0.000000	0.000000	0.000000	0.000000
CHEMFERT	0.000000	0.000000	0.000000	0.000000	0.000000
OILREFIN	0.000000	0.000000	0.000000	0.000000	0.000000
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.002159	0.002678	0.002241	0.002090	0.002199
BASICMET	0.000000	0.000000	0.000000	0.000000	0.000000
MACHINES	0.211047	0.525568	0.260418	0.169397	0.235138
OTHINDUS	0.000916	0.001136	0.000950	0.000887	0.000933
ELECTGAS	0.000000	0.000000	0.000000	0.000000	0.000000
WATER	0.000000	0.000000	0.000000	0.000000	0.000000
CONSTRUC	0.738135	0.411387	0.686845	0.781405	0.713108
TRADSTOR	0.030363	0.037669	0.031510	0.029396	0.030923
RESTHOT	0.000000	0.000000	0.000000	0.000000	0.000000
LANDTRAN	0.005700	0.007072	0.005916	0.005519	0.005805
OTHTRANS	0.001914	0.002375	0.001986	0.001853	0.001949
FINSERV	0.000000	0.000000	0.000000	0.000000	0.000000
BUSSERV	0.000000	0.000000	0.000000	0.000000	0.000000
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.005842	0.007248	0.006063	0.005656	0.005950

+ OTHTRANS            FINSERV            BUSSERV            PUBADMIN            OTHSERV

FARMFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
NONFOOD	0.000000	0.000000	0.000000	0.000000	0.000000
LIVESTCK	0.000000	0.000000	0.000000	0.000000	0.000000
FORESTRY	0.000000	0.000000	0.000000	0.000000	0.000000
FISHERY	0.000000	0.000000	0.000000	0.000000	0.000000
COAL	0.000000	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000000	0.000000	0.000000	0.000000	0.000000
FOODPROC	0.000000	0.000000	0.000000	0.000000	0.000000
TEXTILES	0.000531	0.000444	0.000408	0.000436	0.000436
WOODFURN	0.003775	0.003159	0.002902	0.003100	0.003100
PAPPRINT	0.000000	0.000000	0.000000	0.000000	0.000000
CHEMFERT	0.000000	0.000000	0.000000	0.000000	0.000000
OILREFIN	0.000000	0.000000	0.000000	0.000000	0.000000
LNG	0.000000	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.002370	0.001983	0.001821	0.001946	0.001946
BASICMET	0.000000	0.000000	0.000000	0.000000	0.000000
MACHINES	0.338687	0.104408	0.006582	0.082019	0.082019
OTHINDUS	0.001005	0.000841	0.000773	0.000825	0.000825
ELECTGAS	0.000000	0.000000	0.000000	0.000000	0.000000
WATER	0.000000	0.000000	0.000000	0.000000	0.000000
CONSTRUC	0.605533	0.848920	0.950549	0.872179	0.872179
TRADSTOR	0.033328	0.027886	0.025614	0.027366	0.027366
RESTHOT	0.000000	0.000000	0.000000	0.000000	0.000000
LANDTRAN	0.006257	0.005235	0.004809	0.005138	0.005138
OTHTRANS	0.002101	0.001758	0.001615	0.001725	0.001725
FINSERV	0.000000	0.000000	0.000000	0.000000	0.000000
BUSSERV	0.000000	0.000000	0.000000	0.000000	0.000000
PUBADMIN	0.000000	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.006413	0.005366	0.004928	0.005266	0.005266

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TABLE FACDEM(i,f) FACTOR DEMAND BY SECTOR

	CAPITAL	LAND	AGRI-PD	AGRI-UN	PROD-RUR
FARMFOOD	12982.839	11101.000	2952.027	20242.138	21.725

## Appendix 7.2 (continued)

NONFOOD	12883.408	3053.000	1133.989	1986.486	67.863
LIVESTCK	1704.530	54.000	150.857	769.105	3.981
FORESTRY	6373.726	148.000	84.578	214.331	19.959
FISHERY	3816.930	125.000	303.543	733.195	4.245
COAL	86.585	0.000	0.000	0.000	8.300
OILGAS	43683.162	0.000	0.000	0.000	13.898
OTHMINES	2333.739	0.000	0.000	0.000	194.844
FOODPROC	9573.779	0.000	0.000	0.000	1082.132
TEXTILES	7917.949	0.000	0.000	0.000	782.756
WOODFURN	1002.199	0.000	0.000	0.000	1098.631
PAPPRINT	1528.211	0.000	0.000	0.000	37.112
CHEMFERT	1268.837	0.000	0.000	0.000	79.405
OILREFIN	2052.861	0.000	0.000	0.000	55.706
LNG	4015.057	0.000	0.000	0.000	18.723
NOMETMIN	638.408	0.000	0.000	0.000	380.038
BASICMET	991.883	0.000	0.000	0.000	36.075
MACHINES	11535.402	0.000	0.000	0.000	224.409
OTHINDUS	343.329	0.000	0.000	0.000	16.087
ELECTGAS	20231.547	0.000	0.000	0.000	17.848
WATER	3069.789	0.000	0.000	0.000	6.349
CONSTRUC	6302.931	0.000	0.000	0.000	1940.775
TRADSTOR	4975.605	0.000	0.000	0.000	197.995
RESTHOT	7593.277	0.000	0.000	0.000	9.974
LANDTRAN	26422.249	0.000	0.000	0.000	1105.305
OTHTRANS	21982.354	0.000	0.000	0.000	112.064
FINSERV	4691.517	0.000	0.000	0.000	2.764
BUSSERV	70202.299	0.000	0.000	0.000	61.569
PUBADMIN	9147.905	0.000	0.000	0.000	79.332
OTHSERV	24719.489	0.000	0.000	0.000	1551.968
+	PROD-URB	CLER-RUR	CLER-URB	PROF-RUR	PROF-URB
FARMFOOD	1.506	20.763	1.016	5.489	0.119
NONFOOD	32.845	26.478	15.726	5.535	5.329
LIVESTCK	2.415	1.770	2.018	0.623	0.628
FORESTRY	2.956	8.169	2.647	0.427	1.132
FISHERY	5.691	3.760	4.046	0.977	0.708
COAL	7.683	0.422	5.776	0.000	0.000
OILGAS	31.105	10.900	23.271	3.619	7.672
OTHMINES	58.768	5.529	12.943	14.316	4.624
FOODPROC	461.543	36.133	44.267	10.640	5.358
TEXTILES	653.918	18.525	57.712	7.795	7.732
WOODFURN	283.190	9.827	18.697	6.599	4.045
PAPPRINT	106.156	3.965	17.215	0.718	3.402
CHEMFERT	106.690	12.761	48.937	3.116	12.535
OILREFIN	74.847	8.952	34.331	2.186	8.794
LNG	25.156	3.009	11.539	0.735	2.956
NOMETMIN	102.217	7.694	4.798	15.432	1.752
BASICMET	37.630	2.517	5.820	1.959	9.285
MACHINES	319.843	13.926	80.901	7.208	25.001
OTHINDUS	14.141	1.318	4.374	1.117	1.745
ELECTGAS	22.300	4.598	9.474	2.665	2.344
WATER	8.637	3.155	4.317	1.544	2.078
CONSTRUC	1052.824	18.944	77.536	31.277	49.188
TRADSTOR	116.231	5420.841	4524.553	18.138	26.174
RESTHOT	16.936	370.164	727.364	6.935	5.593
LANDTRAN	982.962	75.020	105.555	8.272	8.389
OTHTRANS	161.050	23.417	148.874	22.651	38.577
FINSERV	7.239	30.423	111.988	2.272	11.711



## Appendix 7.2 (continued)

BUSSERV	69.073	69.957	149.164	10.984	31.764
PUBADMIN	99.707	810.411	1152.486	898.077	739.319
OTHSERV	1837.468	1376.437	2460.235	521.122	549.113

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TABLE FACINC(i,f) FACTOR INCOME BY SECTOR

	CAPITAL	LAND	AGRI-PD	AGRI-UN	PROD-RUR
FARMFOOD	2646.845	1323.224	1502.700	7360.311	9.175
NONFOOD	1522.881	761.326	730.171	1108.704	31.461
LIVESTCK	1828.943	13.466	105.966	475.788	2.523
FORESTRY	1215.776	36.907	50.467	117.115	11.357
FISHERY	1161.138	31.171	176.147	286.537	1.432
COAL	23.786	0.000	0.000	0.000	6.024
OILGAS	12000.175	0.000	0.000	0.000	34.122
OTHMINES	641.100	0.000	0.000	0.000	165.930
FOODPROC	1851.204	0.000	0.000	0.000	535.005
TEXTILES	546.345	0.000	0.000	0.000	299.048
WOODFURN	488.652	0.000	0.000	0.000	337.988
PAPPRINT	180.296	0.000	0.000	0.000	21.054
CHEMFERT	789.022	0.000	0.000	0.000	60.504
OILREFIN	1276.565	0.000	0.000	0.000	42.446
LNG	2496.750	0.000	0.000	0.000	14.266
NOMETMIN	396.992	0.000	0.000	0.000	139.622
BASICMET	616.799	0.000	0.000	0.000	25.618
MACHINES	1360.927	0.000	0.000	0.000	115.135
OTHINDUS	40.505	0.000	0.000	0.000	12.438
ELECTGAS	208.828	0.000	0.000	0.000	26.123
WATER	31.686	0.000	0.000	0.000	4.792
CONSTRUC	3073.178	0.000	0.000	0.000	1547.512
TRADSTOR	5295.343	0.000	0.000	0.000	79.785
RESTHOT	1539.338	0.000	0.000	0.000	3.519
LANDTRAN	1659.929	0.000	0.000	0.000	611.788
OTHTRANS	817.533	0.000	0.000	0.000	72.068
FINSERV	1256.972	0.000	0.000	0.000	6.118
BUSSERV	3354.253	0.000	0.000	0.000	49.354
PUBADMIN	326.770	0.000	0.000	0.000	77.628
OTHSERV	883.000	0.000	0.000	0.000	474.960
+	PROD-URB	CLER-RUR	CLER-URB	PROF-RUR	PROF-URB
FARMFOOD	0.710	10.577	0.712	3.881	0.125
NONFOOD	31.756	15.635	27.602	4.742	16.610
LIVESTCK	1.749	2.087	3.951	1.105	1.521
FORESTRY	2.243	5.720	2.733	0.402	1.317
FISHERY	3.203	1.916	2.181	0.592	0.620
COAL	8.684	0.644	9.066	0.000	0.000
OILGAS	89.886	61.088	163.272	39.024	118.744
OTHMINES	76.029	11.442	29.302	53.035	21.152
FOODPROC	418.429	38.065	67.201	11.878	8.256
TEXTILES	280.059	9.047	38.777	5.785	6.984
WOODFURN	124.319	7.257	20.001	4.984	5.151
PAPPRINT	79.006	2.629	18.256	1.226	9.832
CHEMFERT	115.104	16.581	101.944	5.234	50.300
OILREFIN	80.749	11.632	71.518	3.671	35.287
LNG	27.140	3.910	24.037	1.234	11.860
NOMETMIN	51.374	7.180	6.243	19.577	3.606
BASICMET	35.018	3.282	9.931	4.229	28.994

## Appendix 7.2 (continued)

MACHINES	224.276	13.362	85.534	13.403	76.933
OTHINDUS	19.685	1.486	7.049	3.608	8.718
ELECTGAS	35.299	8.509	22.920	13.767	14.376
WATER	8.337	3.965	8.156	2.686	5.587
CONSTRUC	1162.405	20.735	147.790	63.335	184.794
TRADSTOR	102.292	3149.055	3779.208	24.123	72.938
RESTHOT	11.570	177.556	500.231	9.418	16.826
LANDTRAN	782.308	46.787	86.928	7.353	10.549
OTHTRANS	145.619	29.428	230.802	43.408	106.477
FINSERV	24.113	136.503	584.016	18.597	134.660
BUSSERV	59.058	63.924	172.255	14.026	68.694
PUBADMIN	127.674	1064.132	1980.290	1334.995	1486.711
OTHSERV	747.707	600.270	1468.305	482.250	938.671

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TABLE LFACTOHH(hh, f) HOUSEHOLD SHARES IN LABOR FACTOR INCOME

	CAPITAL	LAND	AGRI-PD	AGRI-UN	PROD-RUR
AG-WORKER	0.000000	0.000000	0.727001	0.006371	0.049331
FARMER-SML	0.000000	0.000000	0.103550	0.511580	0.137334
FARMER-MED	0.000000	0.000000	0.020262	0.185377	0.040611
FARMER-LRG	0.000000	0.000000	0.020292	0.243532	0.026291
RURAL-LOW	0.000000	0.000000	0.094622	0.037209	0.551518
RURAL-HIGH	0.000000	0.000000	0.011856	0.011579	0.194915
URBAN-LOW	0.000000	0.000000	0.019540	0.003116	0.000000
URBAN-HIGH	0.000000	0.000000	0.002877	0.001236	0.000000
+	PROD-URB	CLER-RUR	CLER-URB	PROF-RUR	PROF-URB
AG-WORKER	0.011690	0.034267	0.005357	0.011140	0.004059
FARMER-SML	0.011927	0.108286	0.008595	0.032993	0.003957
FARMER-MED	0.002413	0.035691	0.001124	0.016303	0.001265
FARMER-LRG	0.001372	0.026720	0.001327	0.016904	0.001967
RURAL-LOW	0.000000	0.378559	0.000000	0.169303	0.000000
RURAL-HIGH	0.000000	0.416477	0.000000	0.753358	0.000000
URBAN-LOW	0.770821	0.000000	0.480092	0.000000	0.187053
URBAN-HIGH	0.201778	0.000000	0.503505	0.000000	0.801698

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TABLE KFACTOHH(hh, ins) HOUSEHOLD SHARES IN NON-LABOR FACTOR INCOME

	LAND	AG-CAP	CORP
AG-WORKER	0.028091	0.028091	0.000000
FARMER-SML	0.217480	0.217480	0.000000
FARMER-MED	0.203972	0.203972	0.000000
FARMER-LRG	0.550456	0.550456	0.000000
RURAL-LOW	0.000000	0.000000	0.210628
RURAL-HIGH	0.000000	0.000000	0.151912
URBAN-LOW	0.000000	0.000000	0.362635
URBAN-HIGH	0.000000	0.000000	0.274825

TABLE EMPTOHH(hh, f) HOUSEHOLD SHARES IN LABOR USE

	CAPITAL	LAND	AGRI-PD	AGRI-UN	PROD-RUR
AG-WORKER	0.000000	0.000000	0.736587	0.010516	0.048656

## Appendix 7.2 (continued)

FARMER-SML	0.000000	0.000000	0.092577	0.502179	0.131345
FARMER-MED	0.000000	0.000000	0.017759	0.184524	0.035702
FARMER-LRG	0.000000	0.000000	0.017421	0.227607	0.024556
RURAL-LOW	0.000000	0.000000	0.105324	0.057571	0.586547
RURAL-HIGH	0.000000	0.000000	0.012731	0.014238	0.173194
URBAN-LOW	0.000000	0.000000	0.015323	0.002476	0.000000
URBAN-HIGH	0.000000	0.000000	0.002279	0.000888	0.000000
+	PROD-URB	CLER-RUR	CLER-URB	PROF-RUR	PROF-URB
AG-WORKER	0.011846	0.044161	0.007776	0.017148	0.004722
FARMER-SML	0.015845	0.128675	0.012858	0.056845	0.007668
FARMER-MED	0.002447	0.035242	0.001208	0.023775	0.001853
FARMER-LRG	0.002304	0.029875	0.001554	0.025625	0.002460
RURAL-LOW	0.000000	0.456440	0.000000	0.223412	0.000000
RURAL-HIGH	0.000000	0.305607	0.000000	0.653195	0.000000
URBAN-LOW	0.788685	0.000000	0.565144	0.000000	0.254976
URBAN-HIGH	0.178873	0.000000	0.411460	0.000000	0.728321

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TABLE CC (i,hh) CONSUMPTION SHARES BY HH AND SECTOR

	AG-WORKER	FARMER-SML	FARMER-MED	FARMER-LRG
FARMFOOD	0.132740	0.200638	0.159972	0.138355
NONFOOD	0.021057	0.037278	0.021369	0.013819
LIVESTCK	0.027244	0.042298	0.047267	0.048313
FORESTRY	0.009653	0.011846	0.006866	0.004488
FISHERY	0.031161	0.041040	0.036662	0.033831
COAL	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000005	0.000007	0.000006	0.000005
FOODPROC	0.321718	0.326709	0.293065	0.271472
TEXTILES	0.021469	0.019577	0.023740	0.025195
WOODFURN	0.004618	0.005705	0.006428	0.006616
PAPPRINT	0.000261	0.000178	0.000521	0.000310
CHEMFERT	0.019519	0.012473	0.020160	0.023994
OILREFIN	0.023303	0.014891	0.024069	0.028646
LNG	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.001840	0.000837	0.001466	0.001555
BASICMET	0.000000	0.000000	0.000000	0.000000
MACHINES	0.010954	0.012013	0.019877	0.026342
OTHINDUS	0.001511	0.001273	0.002563	0.002097
ELECTGAS	0.001146	0.000655	0.001386	0.001904
WATER	0.003552	0.001050	0.001513	0.001469
CONSTRUC	0.000000	0.000000	0.000000	0.000000
TRADSTOR	0.045243	0.024853	0.051741	0.054318
RESTHOT	0.088753	0.038904	0.061401	0.071417
LANDTRAN	0.028822	0.019920	0.026712	0.029280
OTHTRANS	0.012392	0.005979	0.012181	0.016535
FINSERV	0.007288	0.007678	0.015289	0.019349
BUSSERV	0.054625	0.030173	0.045518	0.051305
PUBADMIN	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.131127	0.144025	0.120227	0.129385

+	RURAL-LOW	RURAL-HIGH	URBAN-LOW	URBAN-HIGH
FARMFOOD	0.099101	0.073943	0.061355	0.051156

## Appendix 7.2 (continued)

NONFOOD	0.016929	0.013369	0.009411	0.007494
LIVESTCK	0.036184	0.047582	0.039986	0.051344
FORESTRY	0.005074	0.002110	0.000949	0.000316
FISHERY	0.027950	0.021267	0.017227	0.013494
COAL	0.000000	0.000000	0.000000	0.000000
OILGAS	0.000000	0.000000	0.000000	0.000000
OTHMINES	0.000003	0.000002	0.000002	0.000001
FOODPROC	0.254829	0.193061	0.175117	0.135333
TEXTILES	0.022372	0.031531	0.020022	0.019889
WOODFURN	0.005748	0.008445	0.003380	0.004467
PAPPRINT	0.000889	0.002279	0.005524	0.005778
CHEMFERT	0.019780	0.020782	0.019628	0.017808
OILREFIN	0.023616	0.024811	0.023433	0.021261
LNG	0.000000	0.000000	0.000000	0.000000
NOMETMIN	0.000883	0.001141	0.000558	0.000537
BASICMET	0.000000	0.000000	0.000000	0.000000
MACHINES	0.024116	0.047416	0.012799	0.031744
OTHINDUS	0.001641	0.004071	0.000905	0.002183
ELECTGAS	0.004751	0.006237	0.013905	0.015958
WATER	0.000666	0.000503	0.000959	0.000854
CONSTRUC	0.000000	0.000000	0.000000	0.000000
TRADSTOR	0.091891	0.100409	0.147902	0.139854
RESTHOT	0.087097	0.076719	0.088379	0.080405
LANDTRAN	0.056780	0.061275	0.093056	0.086839
OTHTRANS	0.022247	0.026069	0.038362	0.047288
FINSERV	0.013693	0.024444	0.008605	0.019431
BUSSERV	0.045795	0.039630	0.070073	0.072698
PUBADMIN	0.000000	0.000000	0.000000	0.000000
OTHSERV	0.137965	0.172903	0.148462	0.173867

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TABLE HHPAR(\*,hh) HOUSEHOLD PARAMETERS

	AG-WORKER	FARMER-SML	FARMER-MED	FARMER-LRG
TH	0.016134	0.010007	0.016412	0.015975
MPS	0.010935	0.019387	0.049342	0.067288
+	RURAL-LOW	RURAL-HIGH	URBAN-LOW	URBAN-HIGH
TH	0.015298	0.007008	0.015057	0.016714
MPS	0.048761	0.068349	0.056460	0.081996

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TABLE SECTRES0(varsec,j) SECTORAL QUANTITIES AND PRICES

	FARMFOOD	NONFOOD	LIVESTCK	FORESTRY	FISHERY
E	117.700	1792.793	29.852	76.389	194.471
M	427.494	376.674	15.161	3.563	1.305
X	14624.544	6345.475	4863.660	1667.117	2153.674
PE	1.000	1.000	1.000	1.000	1.000
PM	1.000	1.000	1.000	1.000	1.000
PD	1.000	1.000	1.000	1.000	1.000
PQ	1.000	1.000	1.000	1.000	1.000
PV	1.000	1.000	1.000	1.000	1.000
+	COAL	OILGAS	OTHMINES	FOODPROC	TEXTILES

## Appendix 7.2 (continued)

E	30.539	8481.546	183.935	152.125	705.424
M	5.801	957.862	201.444	235.717	167.782
X	75.830	14255.788	1259.003	16522.989	3632.132
PE	1.000	1.000	1.000	1.000	1.000
PM	1.000	1.000	1.000	1.000	1.000
PD	1.000	1.000	1.000	1.000	1.000
PQ	1.000	1.000	1.000	1.000	1.000
PV	1.000	1.000	1.000	1.000	1.000
+					
	WOODFURN	PAPPRINT	CHEMFERT	OILREFIN	LNG
E	1009.503	20.386	288.774	729.812	3944.038
M	4.154	310.078	2500.553	504.851	0.000
X	2711.204	893.083	3800.344	6666.638	3954.119
PE	1.000	1.000	1.000	1.000	1.000
PM	1.000	1.000	1.000	1.000	1.000
PD	1.000	1.000	1.000	1.000	1.000
PQ	1.000	1.000	1.000	1.000	1.000
PV	1.000	1.000	1.000	1.000	1.000
+					
	NOMETMIN	BASICMET	MACHINES	OTHINDUS	ELECTGAS
E	23.636	587.021	161.532	19.765	0.000
M	236.877	888.696	6745.720	39.418	0.000
X	1616.303	1833.653	6086.115	254.766	1670.867
PE	1.000	1.000	1.000	1.000	1.000
PM	1.000	1.000	1.000	1.000	1.000
PD	1.000	1.000	1.000	1.000	1.000
PQ	1.000	1.000	1.000	1.000	1.000
PV	1.000	1.000	1.000	1.000	1.000
+					
	WATER	CONSTRUC	TRADSTOR	RETHOT	LANDTRAN
E	0.000	0.000	1336.294	169.834	234.309
M	0.000	0.000	156.974	575.643	72.544
X	130.948	19399.614	15447.161	5619.607	5737.528
PE	1.000	1.000	1.000	1.000	1.000
PM	1.000	1.000	1.000	1.000	1.000
PD	1.000	1.000	1.000	1.000	1.000
PQ	1.000	1.000	1.000	1.000	1.000
PV	1.000	1.000	1.000	1.000	1.000
+					
	OTHTRANS	FINSERV	BUSSERV	PUBADMIN	OTHSERV
E	386.093	408.187	9.103	0.000	9.340
M	636.041	588.144	619.748	0.000	4963.880
X	2904.775	2853.136	4803.581	6398.200	8996.087
PE	1.000	1.000	1.000	1.000	1.000
PM	1.000	1.000	1.000	1.000	1.000
PD	1.000	1.000	1.000	1.000	1.000
PQ	1.000	1.000	1.000	1.000	1.000
PV	1.000	1.000	1.000	1.000	1.000

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## TABLE TAXR(\*,i) SECTORAL TAXES

	FARMFOOD	NONFOOD	LIVESTCK	FORESTRY	FISHERY
TM	0.013086	0.012310	0.027710	0.048388	0.113765

## Appendix 7.2 (continued)

TE	0.000000	0.027397	0.000000	0.000000	0.000000
TV	0.000000	0.000000	0.000000	0.000000	0.000000
TX	0.004848	0.004046	0.004481	0.005228	0.003830
+	COAL	OILGAS	OTHMINES	FOODPROC	TEXTILES
TM	0.041425	0.006799	0.004547	0.064400	0.077069
TE	0.000000	0.000000	0.000000	0.000000	0.000000
TV	0.000000	0.000000	0.000000	0.046747	0.046747
TX	0.006735	0.001111	0.007729	0.000000	0.000000
+	WOODFURN	PAPPRINT	CHEMFERT	OILREFIN	LNG
TM	0.123992	0.065887	0.044637	0.011895	0.000000
TE	0.000000	0.000000	0.000000	0.000000	0.000000
TV	0.046747	0.046747	0.046747	0.046747	0.000000
TX	0.000000	0.000000	0.000000	0.000000	0.242759
+	NOMETMIN	BASICMET	MACHINES	OTHINDUS	ELECTGAS
TM	0.031911	0.042418	0.059488	0.159949	0.000000
TE	0.000000	0.000000	0.000000	0.000000	0.000000
TV	0.046747	0.046747	0.046747	0.046747	0.000000
TX	0.000000	0.000000	0.000000	0.000000	0.000179
+	WATER	CONSTRUC	TRADSTOR	RESTHOT	LANDTRAN
TM	0.000000	0.000000	0.000000	0.000000	0.000000
TE	0.000000	0.000000	0.000000	0.000000	0.000000
TV	0.000000	0.046747	0.000000	0.000000	0.000000
TX	0.001589	0.000000	0.044621	0.022481	0.008755
+	OTHTRANS	FINSERV	BUSSERV	PUBADMIN	OTHSERV
TM	0.000000	0.000000	0.000138	0.000000	0.000492
TE	0.000000	0.000000	0.000000	0.000000	0.000000
TV	0.000000	0.000000	0.000000	0.000000	0.000000
TX	0.003326	0.005140	0.022114	0.000000	0.008944

## TABLE PARM(\*,i) MISCELLANEOUS SECTORAL PARAMETERS

	FARMFOOD	NONFOOD	LIVESTCK	FORESTRY	FISHERY
ZZ	0.028531	0.021478	0.005394	0.005915	0.006633
GG	0.000000	0.000329	0.000000	0.000000	0.000000
INV	0.006659	0.007532	0.007372	0.038815	0.004444
+	COAL	OILGAS	OTHMINES	FOODPROC	TEXTILES
ZZ	0.000107	0.053847	0.002877	0.017939	0.033968
GG	0.000000	0.000000	0.000000	0.000000	0.004013
INV	0.019969	0.021489	-0.004559	0.006522	0.006916
+	WOODFURN	PAPPRINT	CHEMFERT	OILREFIN	LNG
ZZ	0.004603	0.004302	0.003870	0.006261	0.012245
GG	0.000578	0.010055	0.008863	0.013407	0.000000

## Appendix 7.2 (continued)

INV	0.007549	0.004481	0.031925	-0.018787	0.002550
+	NOMETMIN	BASICMET	MACHINES	OTHINDUS	ELECTGAS
ZZ	0.001947	0.003025	0.032471	0.000966	0.122278
GG	0.000909	0.000000	0.023670	0.001379	0.010195
INV	0.026171	0.014940	0.015699	0.003344	0.000000
+	WATER	CONSTRUC	TRADSTOR	RESTHOT	LANDTRAN
ZZ	0.018554	0.028952	0.011714	0.034426	0.087660
GG	0.000080	0.032825	0.016780	0.057171	0.011647
INV	0.000000	0.000000	0.005028	0.000000	0.002542
+	OTHTRANS	FINSERV	BUSSERV	PUBADMIN	OTHSERV
ZZ	0.078754	0.014258	0.208534	0.040110	0.108385
GG	0.016626	0.016594	0.016478	0.559207	0.199193
INV	0.001686	0.000000	0.000000	0.000000	0.000000
	;				

## TABLE DEBT(varbop,br) MATRIX WITH FOREIGN DEBT VARIABLES

	GOV	PUB	PRIV
INTER	1.327	0.582	0.621
BORROW	3.190	0.378	0.310
AMORT	1.644	0.471	0.000
	;		

## TABLE SCALRES(varscal,tp) SCALAR RESULTS

	T0
GOVCON	11441.556853
INVEST	24872.566241
EXPTAX	50.500000
INDTAX	1151.900000
TARIFF	607.300000
VATREV	2327.000000
HHTAX	926.000000
CORTAX	3045.300000
OILREV	11144.000000
FACTIN	0.677000
REPAT	2.228000
CORSAV	11411.080361
CURACT	-3.172563
FORINV	0.299000
DFR	1.110963
FXDINV	23888.383741
HHSAV	3584.030905
GOVSAV	6324.203147
EXR	1120.000000
PINDEX	1.000000
PINDOM	1.000000
GOVINV	0.000000
GR	19252.000000
SAVING	24872.584413

## Appendix 7.2 (continued)

RGDP 0.000000  
 GDPVA 0.000000  
 GOVBUD 0.000000  
 DEVBUD 0.000000  
 ROUTIN 0.000000  
 DEVSHR 0.000000  
 CTAX 0.112495  
 CSAV 0.474964  
 OILTAX 0.706502  
 YCORP 0.000000

;

SECTRES(varsec,i,"T0") = SECTRES0(varsec,i) ;  
 FCTRES1(i,f,"T0") = FACDEM(i,f) ;  
 FCTRY(i,f,"T0") = FACINC(i,f) ;  
 BOPRES(varbop,br,"T0") = DEBT(varbop,br) ;

SCALRES("DEVBUD","T0") = 10873.0 ;  
 SCALRES("ROUTIN","T0") = 11952.0 ;

## TABLE ELASTICITY(\*,i) SECTORAL ELASTICITIES

	FARMFOOD	NONFOOD	LIVESTCK	FORESTRY	FISHERY	COAL
RHOC	.800	.800	.800	.800	.800	.500
RHOT	1.300	1.300	1.300	1.300	1.300	1.300
RHOX	.600	.600	.600	.600	.600	.600
RHOV	.600	.700	.500	.800	.800	.900
+	OILGAS	OTHMINES	FOODPROC	TEXTILES	WOODFURN	PAPPRINT
RHOC	.500	.500	1.500	1.500	1.500	1.500
RHOT	1.500	1.500	2.000	2.000	2.000	2.000
RHOX	.600	.600	.800	.800	.800	.800
RHOV	.900	.900	.900	.900	.800	.900
+	CHEMFERT	OILREFIN	LNG	NOMETMIN	BASICMET	MACHINES
RHOC	.500	.500	.500	.500	.500	.500
RHOT	2.000	1.500	1.500	2.000	2.000	2.000
RHOX	.800	.800	.600	.800	.800	.800
RHOV	.900	.900	.900	.900	.900	.900
+	OTHINDUS	ELECTGAS	WATER	CONSTRUC	TRADSTOR	RESTHOT
RHOC	.500	.500	.500	1.500	2.000	1.200
RHOT	2.000	2.000	2.000	2.000	0.500	0.500
RHOX	.800	.600	.600	.600	.600	.600
RHOV	.900	.900	.900	.900	.900	.600
+	LANDTRAN	OTHTRANS	FINSERV	BUSSERV	PUBADMIN	OTHSERV
RHOC	.500	.500	1.200	1.200	1.200	1.200
RHOT	.500	.500	.500	.500	.500	.500
RHOX	.600	.600	.600	.600	.600	.600
RHOV	.900	.900	.900	.900	.900	.900

;



## Appendix 7.2 (continued)

\*----- SPECIFY PARAMETERS FROM TABLE VALUES -----\*

```
*## PARAMETERS FROM SCALRES(varscal,tp)
CORSAV0 = SCALRES("CORSAV","t0") ;
CORTAX0 = SCALRES("CORTAX","t0") ;
DEVBU0  = SCALRES("DEVBU0","t0") ;
DFR0    = SCALRES("DFR","t0") ;
EXR0    = SCALRES("EXR","t0") ;
FACTIN0 = SCALRES("FACTIN","t0") ;
FORINV0 = SCALRES("FORINV","t0") ;
GOVCON0 = SCALRES("GOVCON","t0") ;
HHSAV0  = SCALRES("HHSAV","t0") ;
HHTAX0  = SCALRES("HHTAX","t0") ;
INVEST0 = SCALRES("INVEST","t0") ;
OILREV0 = SCALRES("OILREV","t0") ;
PINDEX0 = SCALRES("PINDEX","t0") ;
PINDOM0 = SCALRES("PINDOM","t0") ;
REPAT0  = SCALRES("REPAT","t0") ;
ROUTIN  = SCALRES("ROUTIN","t0") ;
```

\*## OTHER TABLE VALUES OF PARAMETERS

```
BORROW0(br) = BOPRES("BORROW",br,"t0") ;
INTER0(br)  = BOPRES("INTER",br,"t0") ;
AMORT0(br)  = BOPRES("AMORT",br,"t0") ;

E0(i)       = SECTRES("E",i,"t0") ;
M0(i)       = SECTRES("M",i,"t0") ;
PE0(i)      = SECTRES("PE",i,"t0") ;
PM0(i)      = SECTRES("PM",i,"t0") ;
PQ0(i)      = SECTRES("PQ",i,"t0") ;
PD0(i)      = SECTRES("PD",i,"t0") ;
PV0(i)      = SECTRES("PV",i,"t0") ;
X0(i)       = SECTRES("X",i,"t0") ;
D0(i)       = X0(i) - E0(i) ;

th(hh)      = HHPAR("th",hh) ;
MPS0(hh)    = HHPAR("MPS",hh) ;

tv(i)       = TAXR("tv",i) ;
tx(i)       = TAXR("tx",i) ;

rhoc(i)     = (1/ELASTICITY("rhoc",i)) - 1 ;
rhot(i)     = (1/ELASTICITY("rhot",i)) + 1 ;
rhox(i)     = (1/ELASTICITY("rhox",i)) - 1 ;
rhov(i)     = (1/ELASTICITY("rhov",i)) - 1 ;

inv(i)      = PARM("INV",i) ;
gg(i)       = PARM("GG",i) ;
zz(i)       = PARM("ZZ",i) ;
```

\*## NORMALIZE SHARE PARAMETERS TO CORRECT FOR ROUND OFF ERROR

\* These parameters (bb, cc, gg, zz) can be read in as values  
\* and converted to shares here.

```
SUMHSH(hh) = SUM(i, cc(i,hh)) ;
cc(i,hh)   = cc(i,hh)/SUMHSH(hh) ;
SUMBBSH(j) = SUM(i, bb(i,j)) ;
bb(i,j)    = bb(i,j)/SUMBBSH(j) ;
SUMSH      = SUM(i, zz(i)) ;
```

## Appendix 7.2 (continued)

```

zz(i)          = zz(i)/SUMSH ;
SUMSH          = SUM(i, gg(i)) ;
gg(i)         = gg(i)/SUMSH ;
SUMFSSH(ilab) = SUM(hh, lfactohh(hh,ilab));
lfactohh(hh,ilab) = lfactohh(hh,ilab) / SUMFSSH(ilab) ;
SUMFSSH(ilab) = SUM(hh, emptohh(hh,ilab));
emptohh(hh,ilab) = emptohh(hh,ilab) / SUMFSSH(ilab) ;
SUMINSSH(ins) = SUM(hh, kfactohh(hh,ins));
kfactohh(hh,ins) = kfactohh(hh,ins) / SUMINSSH(ins) ;

*#### DEFINE INDEXES BASED ON READ IN DATA
IAGN(i)       = not IAG(i);
IINT(i)       = not IINTN(i);
IEN(i)        = yes$(E0(i) eq 0);
IE(i)         = not IEN(i) ;
* IE(i)       = (not IENC(i)) * (not IEN(i)) ;
IM(i)         = yes$M0(i);
IMN(i)        = not IM(i);
IVAT(I)       = YES$tv(I) ;

DISPLAY IE, IEN ;

*## SPECIFY PARAMETERS WHICH DEPEND ON DEFINED INDEX IE
te(ien)       = 0.0 ;
te(ie)        = TAXR("TE",ie) ;

*## SPECIFY PARAMETERS WHICH DEPEND ON DEFINED INDEX IM
tm(imn)       = 0.0 ;
tm(im)        = TAXR("TM",im) ;
* tm(im)      = TAXR("TM",im)/((PM0(im)*M0(im) - TAXR("TM",im))/(1-tv(im))) ;

*## COMPUTE FROM INITIAL DATA
pwe(i)        = PEO(i)/((1-te(i))*EXR0);
pwm(i)        = PM0(i)/((1+tm(i))*(1+tv(i))*EXR0);
tmreal(i)     = tm(i)*pwm(i)*EXR0 ;

INT0(i)       = SUM(j, aa(i,j)*X0(j));
FXDINV0      = INVEST0 - SUM(i, inv(i)*X0(i)*PQ0(i)) ;
PX0(i)       = ( PD0(i)*D0(i)*(1-tx(i)-tv(i))+(PEO(i)*E0(i)) )/X0(i) ;
Q0(i)        = (PD0(i)*D0(i) + (PM0(i)*M0(i))$im(i))/PQ0(i) ;
PQ0(i)       = SUM(j, bb(j,i)*(PQ0(j)-
(PD0(j)*D0(j)+pwm(j)*M0(j)*EXR0)*tv(j)/Q0(j))$IVAT(i)) ;
DK0(i)       = (zz(i)*FXDINV0)/ SUM(j, bb(j,i)*PQ0(j)) ;

*## CALCULATE INTERMEDIATE INPUT, THEN NORMALIZE aa MATRIX
N0(i)        = SUM(j, aa(j,i)*X0(i));
SUMBBSH(j)   = SUM(i, aa(i,j)) ;
aa(j,iint)   = aa(j,iint)/SUMBBSH(iint) ;
PNO(i)       = SUM(j, aa(j,i)*(PQ0(j)-
((PD0(j)*D0(j)+pwm(j)*M0(j)*EXR0)*tv(j)/Q0(j))$IVAT(i)));

CURACT0      = SUM(ie, pwe(ie)*E0(ie)) + FACTINO - REPAT0
              - SUM(im, pwm(im)*M0(im)) - SUM(br, INTER0(br)) ;

DFR0         = SUM(br, (AMORT0(br)-BORROW0(br))) - FORINV0 - CURACT0 ;

V0(i)        = (PX0(i)*X0(i) - PNO(i)*N0(i))/PVO(i) ;

VAR0(i)      = PVO(i) + tx(i) ;

```

## Appendix 7.2 (continued)

```

*****
*                               3. CALIBRATION OF PARAMETERS FROM DATA
*****

*## FACTOR MARKET PARAMETERS
FS0(f)          = SUM(i,FCTRES1(i,f,"t0")) ;
* special fix to get correct capital income after value added tax
YFSECT0(i)      = PVO(i)*V0(i) - (SUM(f, FCTRY(i,f,"t0")) -
FCTRY(i,"capital","t0"));
FCTRY(i,"capital","t0") = YFSECT0(i) ;
* end special fix
YFSECT0(i)      = SUM(f, FCTRY(i,f,"t0")) ;
YF0(f)          = SUM(i, FCTRY(i,f,"t0")) ;
WF0(f)          = YF0(f)/FS0(f) ;
WFDIST0(i,f)$FCTRES1(i,f,"t0") = (FCTRY(i,f,"t0")/FCTRES1(i,f,"t0"))/WF0(f) ;
WFDIST0(i,f)$FCTRES1(i,f,"t0") EQ 0) = 0.0 ;

*## HOUSEHOLD INCOME, TAX RATE, AND SAVING RATE
*## INCOME FLOWS USE THE FOLLOWING FOUR COMPONENTS OF INCOME
*## INDTAX0 = SUM(i, tx(i)*PDO(i)*DO(i))
*## EXPTAX0 = SUM(ie, pwe(ie)*E0(ie)*te(ie))*EXR0
*## TARIFF0 = SUM(im, pwm(im)*M0(im)*tm(im))*EXR0
*## VATREVO

YCORPO          = SUM(iagn, FCTRY(iagn,"capital","t0")) - OILREVO
                + SUM(ivat, (SUM(j, bb(j,ivat)*PQ0(j)) - PK0(ivat))*DK0(ivat) )
                + EXR0*FACTINO - EXR0*(REPATO + INTERO("pub") + INTERO("priv")) ;
YINST0("Land")  = SUM(iag, FCTRY(iag,"land","t0")) ;
YINST0("Ag-cap") = SUM(iag, FCTRY(iag,"capital","t0")) ;
YINST0("Corp")  = YCORPO - CORTAX0 - CORSAVO ;

oiltax = OILREVO / SUM(ioil, FCTRY(ioil,"capital","t0")) ;
ctax   = CORTAX0 / YCORPO ;
csav   = CORSAVO / (YCORPO*(1-ctax)) ;

YH0(hh) = SUM(ilab, LFACTOHH(hh,ilab)*YF0(ilab) ) +
          SUM(ins, KFACTOHH(hh,ins)*YINST0(ins) ) ;

*## COMPUTE HHTAX0

HHTAX0 = SUM(hh, th(hh)*YH0(hh)) ;

*## COMPUTE HNSAV0

HNSAV0 = SUM(hh, MPS0(hh)*YH0(hh)*(1.0 - th(hh)))

DISPLAY WFDIST0, WF0, FS0, YFSECT0, YF0;
DISPLAY YCORPO,YH0,MPS0,th ;

*----- CALIBRATION OF SHIFT AND SHARE PARAMETERS -----

*## FOR IMPORTS-DOMESTIC COMPOSITE
*## get BC from costmin, xo from absorption, ac from armington

bc(i)          = (PM0(i)/PDO(i))* (M0(i)/DO(i))** (1+rhoc(i)) ;
bc(i)          = bc(i)/(1.0+bc(i)) ;
RMD(i)         = M0(i)/DO(i) ;
ac(i)$im(i)    = Q0(i)/(bc(i)*M0(i)** (-rhoc(i))
                + (1-bc(i))*DO(i)** (-rhoc(i)))* (-1/rhoc(i)) ;

```

## Appendix 7.2 (continued)

```

ac(i)$imn(i) = 1.0 ;
display bc,ac,RMD ;

*** FOR EXPORTS
*** GET BT FROM ESUPPLY
bt(ie)      = 1/(1 + PDO(ie)*(1-tv(ie)-
tx(ie))/PE0(ie)*(E0(ie)/D0(ie)**(rhot(ie)-1)));
*** GET AT FROM CET
at(ie)      = X0(ie)/(bt(ie)*E0(ie)**rhot(ie) + (1-bt(ie))*
              D0(ie)**rhot(ie)**(1/rhot(ie)) ;
display bt,at ;

*** FOR PRODUCTION FUNCTION (FROM VALUE ADDED AND INTERMEDIATES)

BX(iint)    = (PV0(iint)/PN0(iint))*(V0(iint)/N0(iint)**(1+rhox(iint))) ;
BX(iint)    = BX(iint)/(1.0+BX(iint)) ;
AX(iint)    = X0(iint)/(BX(iint)*V0(iint)**(-rhox(iint))
              +(1-BX(iint))*N0(iint)**(-rhox(iint))**(-1/rhox(iint))) ;

*** FOR VALUE ADDED FUNCTION AND FACTOR DEMAND (STILL COBB-DOUGLAS FOR NOW)

bv(i,f)     = 0.0 ;

bv(i,f)     = (wfdist0(i,f)*wf0(f)*fctresl(i,f,"T0"))/yfsect0(i) ;
QD(i)       = SUM (f, bv(i,f) ) ;
bv(i,f)     = bv(i,f) / QD(i) ;

*** get AV from output and FDO from profitmax

QD(i)       = PROD(f, FCTRES1(i,f,"t0")**bv(i,f)) ;
av(i)       = V0(i)/QD(i);
FDO(f)      = SUM(i, (V0(i)*PV0(i)*bv(i,f)/(WFDIST0(i,f)*WF0(f))$WFDIST0(i,f)) ;
DISPLAY av,QD,FDO ;
DISPLAY bv ;

*** SPECIFY WEIGHTS FOR PRODUCER PRICE INDEX
wtq(i)      = Q0(i)/SUM(j, Q0(j)) ;
wtd(i)      = X0(i)/SUM(j, X0(j)) ;

##### END OF CALIBRATION #####
DISPLAY X0, Q0, D0, N0, V0 ;
DISPLAY PX0, PQ0, PV0, PDO, PE0, pwe, PM0, pwm, PK0, PN0, tm, wtq, wtd;

*****
*
*                               4. VARIABLES
*
*****

*----- VARIABLE DECLARATION -----

*** PRICE BLOCK
EXR          EXCHANGE RATE                               (Rp PER US $)
PD(i)        DOMESTIC PRICES
PE(i)        DOMESTIC PRICE OF EXPORTS
PINDEX       COMPOSITE PRICE INDEX
PINDOM       DOMESTIC PRICE INDEX
PK(i)        PRICE OF CAPITAL GOODS BY SECTOR OF DESTINATION
PM(i)        DOMESTIC PRICE OF IMPORTS
PN(i)        INTERMEDIATE INPUT PRICE BY SECTOR
PQ(i)        PRICE OF COMPOSITE GOODS

```

## Appendix 7.2 (continued)

PV(i) VALUE ADDED PRICE  
 PX(i) AVERAGE OUTPUT PRICE

## \* ## PRODUCTION BLOCK

D(i) DOMESTIC SALES OF DOMESTIC OUTPUT  
 E(i) EXPORTS  
 M(i) IMPORTS  
 N(i) COMPOSITE INTERMEDIATE INPUT  
 Q(i) COMPOSITE GOODS SUPPLY  
 V(i) VALUE ADDED  
 X(i) DOMESTIC OUTPUT

## \* ## FACTOR BLOCK

FS(f) FACTOR SUPPLY  
 FDSC(i, f) FACTOR DEMAND BY SECTOR  
 WF(f) AVERAGE FACTOR PRICE  
 WFDIST(i, f) FACTOR PRICE SECTORAL PROPORTIONALITY RATIOS  
 YF(f) FACTOR INCOME

## \* ## INCOME AND EXPENDITURE BLOCK

CD(i) FINAL DEMAND FOR PRIVATE CONSUMPTION  
 CORSAV CORPORATE SAVINGS  
 CORTAX CORPORATE TAXES  
 DK(i) VOLUME OF INVESTMENT BY SECTOR OF DESTINATION  
 EXPTAX EXPORT TAX REVENUE  
 FXDINV FIXED CAPITAL INVESTMENT  
 GD(i) FINAL DEMAND FOR GOVERNMENT CONSUMPTION  
 GDPVA VALUE ADDED IN MARKET PRICES GDP  
 GOVCON TOTAL VOLUME OF GOVERNMENT CONSUMPTION  
 GOVSAV GOVERNMENT SAVINGS  
 GR GOVERNMENT REVENUE  
 HHPOP(hh) EMPLOYMENT BY HOUSEHOLD TYPE  
 HNSAV TOTAL HOUSEHOLD SAVINGS  
 ID(i) FINAL DEMAND FOR PRODUCTIVE INVESTMENT  
 INDTAX INDIRECT TAX REVENUE  
 INT(i) INTERMEDIATES USES  
 INVEST TOTAL INVESTMENT  
 MPS(hh) MARGINAL PROPENSITY TO SAVE BY HOUSEHOLD TYPE  
 OILREV OIL TAX REVENUE  
 RGDP REAL GDP  
 SAVING TOTAL SAVINGS  
 STK(i) INVENTORY INVESTMENT BY SECTOR  
 TARIFF TARIFF REVENUE  
 HHTAX HOUSEHOLD TAX REVENUE  
 VATREV VALUE ADDED TAX REVENUE  
 YH(hh) HOUSEHOLD INCOME  
 YINST(ins) NON-AG INSTITUTIONAL INCOME  
 YCORP CORPORATE INCOME

## \* BALANCE OF PAYMENT BLOCK

REPAT REPATRIATED PROFITS  
 FORINV NET DIRECT FOREIGN INVESTMENT  
 FACTIN INTEREST AND REMITTANCE INCOME FROM ABROAD  
 DFR CHANGE IN FOREIGN RESERVES  
 CURACT CURRENT ACCOUNT  
 BORROW(br) FOREIGN BORROWING  
 AMORT(br) AMORTIZATION PAYMENTS ON FOREIGN DEBT  
 INTER(br) INTEREST PAYMENTS ON FOREIGN DEBT

;

## Appendix 7.2 (continued)

```

*----- VARIABLE INITIALIZATION -----
*## USE INITIAL VALUES OF VARIABLES (FROM PARAMETER SPECIFICATION)

CURACT.L   = CURACT0 ;
DFR.L      = DFRO   ;
EXR.L      = EXRO   ;
FACTIN.L   = FACTIN0 ;
FORINV.L   = FORINV0 ;
GOVCON.L   = GOVCON0 ;
INVEST.L   = INVEST0 ;
OILREV.L   = OILREVO ;
PINDEX.L   = PINDEX0 ;
PINDOM.L   = PINDOM0 ;
REPAT.L    = REPAT0 ;

MPS.L(hh)  = MPS0(hh) ;

BORROW.L(br) = BORROW0(br) ;
INTER.L(br)  = INTER0(br) ;
AMORT.L(br)  = AMORT0(br) ;

PD.L(i)     = PD0(i) ;
PQ.L(i)     = PQ0(i) ;
PX.L(i)     = PX0(i) ;
PM.L(i)     = PM0(i) ;
PE.L(i)     = PE0(i) ;
PK.L(i)     = PK0(i) ;
PN.L(i)     = PNO(i) ;
PV.L(i)     = PV0(i) ;
X.L(i)      = X0(i) ;
E.L(i)      = E0(i) ;
M.L(i)      = M0(i) ;
N.L(i)      = NO(i) ;
V.L(i)      = V0(i) ;
DK.L(i)     = DK0(i) ;

FDSC.L(i,f) = FCTRES1(i,f,"t0") ;
YF.L(f)     = SUM(i, FCTRY(i,f,"t0")) ;

*## COMPUTE INITIAL VALUES FOR OTHER VARIABLES
*## OUTPUT AND PRICE
D.L(i)      = X.L(i) - E.L(i) ;
Q.L(i)      = (PD.L(i)*D.L(i) + (PM.L(i)*M.L(i))$IM(i))/PQ.L(i) ;

*## VALUE ADDED AND THE FLOW OF FACTOR INCOME
FS.L(f)     = SUM(i, FDSC.L(i,f)) ;
WF.L(f)     = YF.L(f)/FS.L(f) ;
WFDIST.L(i,f) = WFDIST0(i,f) ;
EXPTAX.L    = SUM(ie, pwe(ie)*E.L(ie)*te(ie))*EXR.L ;
TARIFF.L    = SUM(im, pwm(im)*M.L(im)*tm(im)*(1.0+tv(IM)))*EXR.L ;
INDTAX.L    = SUM(i, tx(i)*PD.L(i)*D.L(i)) ;
VATREV.L    = SUM(ivat, PD.L(ivat)*D.L(ivat)*tv(ivat)
                + pwm(ivat)*M.L(ivat)*EXR.L*tv(ivat)
                - (SUM(j, aa(j,ivat)*PQ.L(j)) - PN.L(ivat)) * N.L(ivat)
                - (SUM(j, bb(j,ivat)*PQ.L(j)) - PK.L(ivat)) * DK.L(ivat) ) ;

YCORP.L     = YCORP0 ;

```

## Appendix 7.2 (continued)

```

CORTAX.L          = CORTAX0 ;
* CORSAV.L        = CORSAV0 ;
CORSVAV.L         = YCORP.L * (1-ctax) * csav ;

YINST.L(ins)     = YINST0(ins) ;

YH.L(hh)         = YH0(hh) ;
HHPOP.L(hh)      = SUM(ilab, EMPTOHH(hh,ilab)*FS.L(ilab) ) ;

HHTAX.L          = SUM(hh, th(hh)*YH.L(hh)) ;
HHSVAV.L         = SUM(hh, MPS.L(hh)*YH.L(hh)*(1.0 - th(hh))) ;

*## FINAL DEMAND
INT.L(i)         = SUM(j, aa(i,j)*N.L(j)) ;
CD.L(i)          = SUM(hh, cc(i,hh)*(1.0 - MPS.L(hh))*YH.L(hh)*(1.0-th(hh)))/PQ.L(i) ;
GD.L(i)          = gg(i)*GOVCON.L ;
*
GD.L("pubadmin") = X.L("pubadmin") ;
STK.L(i)         = inv(i)*X.L(i) ;
FXDINV.L        = INVEST.L - SUM(i, STK.L(i)*PQ.L(i)) ;
ID.L(i)         = SUM(j, bb(i,j)*DK.L(j)) ;
GR.L            = TARIFF.L + EXPTAX.L + IND TAX.L + HHTAX.L + VATREV.L + OILREV.L
                + CORTAX.L;

GOVSAV.L        = GR.L - SUM(i, PQ.L(i)*GD.L(i)) - EXR.L*INTER.L("gov") ;
SAVING.L        = HHSVAV.L + GOVSAV.L - CURACT.L*EXR.L + CORSAV.L ;

*## OBTAIN CONSUMPTION AS RESIDUAL, AND RECALCULATE CLES
CD.L(i)*(SUM(hh, cc(i,hh))) = Q.L(i) - INT.L(i) - GD.L(i) - ID.L(i)
                          - STK.L(i) ;

cc(i,hhl) = (CD.L(i)*PQ.L(i)
            - SUM(hh, cc(i,hh)*(1.0-MPS.L(hh))*YH.L(hh)*(1.0-th(hh)))
            + (cc(i,hhl)*(1.0-MPS.L(hhl))*YH.L(hhl)*(1.0-th(hhl))) ) ) /
            ((1.0-MPS.L(hhl))*YH.L(hhl)*(1.0-th(hhl))) ;
SUMHSH(hh) = SUM(i, cc(i,hh)) ;
cc(i,hh)   = cc(i,hh)/SUMHSH(hh) ;

*## GDP
GDPVA.L      = SUM(i, PV.L(i)*V.L(i)) + IND TAX.L + TARIFF.L ;
RGDP.L       = SUM(i, CD.L(i) + STK.L(i) + ID.L(i) + GD.L(i))
              + SUM(ie, E.L(ie)) - SUM(im, (1.0 - tmreal(im))*M.L(im)) ;
*PINDEX.L    = GDPVA.L/RGDP.L ;

*## ALTERNATIVELY, SET PINDEX TO THE PRODUCER PRICE INDEX
PINDEX.L     = SUM(i, wtq(i)*PQ.L(i)) ;
PINDOM.L     = SUM(i, wtd(i)*PD.L(i)) ;

DISPLAY YF.L, YCORP.L, YH.L, GDPVA.L, RGDP.L, PINDEX.L, PINDOM.L ;
DISPLAY INT.L, CD.L, GD.L, ID.L, STK.L, DK.L ;
DISPLAY cc ;
DISPLAY CURACT.L, DFR.L ;
DISPLAY ctax, csav, oiltax;
DISPLAY GR.L, VATREV.L, HHTAX.L, EXPTAX.L, TARIFF.L, OILREV.L, IND TAX.L, CORTAX.L ;
DISPLAY HHSVAV.L, GOVSAV.L, CORSAV.L, SAVING.L, INVEST.L ;

*----- END VARIABLE SPECIFICATION -----

```

## Appendix 7.2 (continued)

```

*****
*                               5. DISPLAY INITIAL SAM FOR DATA CONSISTENCY
*****

*----- Social Accounting Matrix -----

SAM(isam, isam2)                = 0.0 ;

SAM("commdty", "activity")     = SUM(i, (PQ.L(i)*INT.L(i))) ;
SAM("commdty", "hholds")       = SUM(i, (PQ.L(i)*CD.L(i))) ;
SAM("commdty", "kaccount")     = SUM(i, (PQ.L(i)*(STK.L(i)+ID.L(i)))) ;
SAM("commdty", "govt")         = SUM(i, (PQ.L(i)*GD.L(i))) ;
SAM("activity", "world")       = SUM(i, ((EXR.L*pwe(i))*E.L(i))) ;
SAM("activity", "commdty")     = SUM(i, (PD.L(i)*D.L(i))) ;
SAM("labor", "activity")       = SUM(ilab, YF.L(ilab)) ;
SAM("cap+land", "activity")    = SUM(ikap, YF.L(ikap)) ;
SAM("corp", "cap+land")        = SUM(iagn, sum(ikap, WF.L(ikap)*
WFDIST.L(iagn, ikap)*FDSC.L(iagn, ikap)) ) -

OILREV.L ;
SAM("corp", "world")           = EXR.L * FACTIN.L ;
SAM("hholds", "labor")        = SUM(ilab, YF.L(ilab)) ;
SAM("hholds", "cap+land")     = SUM(iag, sum(ikap, WF.L(ikap)*
WFDIST.L(iag, ikap)*FDSC.L(iag, ikap)) ) ;
SAM("hholds", "corp")         = YINST.L("corp") ;
SAM("govt", "commdty")        = TARIFF.L +
SUM(ivat, tv(ivat)*pwm(ivat)*M.L(ivat))*EXR.L ;
SAM("govt", "activity")       = IND TAX.L + VATREV.L + EXPTAX.L +
(SUM(ivat, (SUM(j, bb(j, ivat)*PQ.L(j)) -
PK.L(ivat)) * DK.L(ivat)))
- SUM(ivat, tv(ivat)*pwm(ivat)*M.L(ivat))*EXR.L
;
SAM("govt", "cap+land")       = OILREV.L ;
SAM("govt", "corp")           = CORTAX.L - (SUM(ivat, (SUM(j,
bb(j, ivat)*PQ.L(j))
- PK.L(ivat)) * DK.L(ivat))) ;
SAM("govt", "hholds")         = HHTAX.L ;
SAM("kaccount", "hholds")     = HHS AV.L ;
SAM("kaccount", "govt")       = GOV SAV.L ;
SAM("kaccount", "corp")       = COR SAV.L ;
SAM("kaccount", "world")      = -CURACT.L*EXR.L ;
SAM("world", "commdty")       = SUM(i, ((pwm(i)*EXR.L)*M.L(i))) ;
SAM("world", "corp")          = EXR.L * (REPAT.L + INTER.L("pub") +
INTER.L("priv")) ;
SAM("world", "govt")          = EXR.L * INTER.L("gov") ;
SAM("total", "commdty")       = SUM(isam2, SAM(isam2, "commdty")) ;
SAM("total", "activity")      = SUM(isam2, SAM(isam2, "activity")) ;
SAM("total", "labor")         = SUM(isam2, SAM(isam2, "labor")) ;
SAM("total", "cap+land")      = SUM(isam2, SAM(isam2, "cap+land")) ;
SAM("total", "corp")          = SUM(isam2, SAM(isam2, "corp")) ;
SAM("total", "hholds")        = SUM(isam2, SAM(isam2, "hholds")) ;
SAM("total", "kaccount")      = SUM(isam2, SAM(isam2, "kaccount")) ;
SAM("total", "govt")          = SUM(isam2, SAM(isam2, "govt")) ;
SAM("total", "world")         = SUM(isam2, SAM(isam2, "world")) ;
SAM(isam3, "total")           = SUM(isam2, SAM(isam3, isam2)) ;

option decimals=3 ;
DISPLAY SAM ;

```



## Appendix 7.2 (continued)

\*\*\*\*\*  
 \* 6. EQUATIONS  
 \*\*\*\*\*

\*----- EQUATION DECLARATION -----\*

## \*PRICE EQUATIONS

PMDEF(I)	DEFINITION OF DOMESTIC IMPORT PRICES
PEDEF(I)	DEFINITION OF DOMESTIC EXPORT PRICES
ABSORPTION(I)	VALUE OF DOMESTIC SALES
SALES(I)	VALUE OF DOMESTIC OUTPUT
PVDEF(I)	DEFINITION OF ACTIVITY PRICES
PNDEF(I)	DEFINITION OF INTERMEDIATE INPUT PRICE
PKDEF(I)	DEFINITION OF CAPITAL GOODS PRICE
PINDEXDEF	DEFINITION OF GENERAL PRICE LEVEL
PINDOMDEF	DEFINITION OF DOMESTIC PRICE LEVEL

## \*OUTPUT EQUATIONS

ACTIVITY(i)	PRODUCTION FUNCTION
ACTIVITY2(i)	PRODUCTION FUNC. FOR SECTORS WITHOUT INTER. INPUTS
INTERMED(i)	F.O.C. FOR INTERMEDIATE INPUT USE
VALUEADD(i)	VALUE ADDED FUNCTION
PROFITMAX(i,f)	FIRST ORDER CONDITIONS FOR PROFIT MAXIMUM
CET(i)	CET EXPORT AGGREGATION FUNCTION
CET2(i)	DOMESTIC SALES FOR NONTRADED SECTORS
ESUPPLY(i)	EXPORT SUPPLY
ARMINGTON(i)	COMPOSITE GOOD (ARMINGTON) AGGREGATION FUNCTION
ARMINGTON2(i)	COMPOSITE GOOD AGG. FOR NONTRADED SECTORS
COSTMIN(i)	F.O.C. FOR COST MINIMIZATION OF COMPOSITE GOOD

## \*INCOME EQUATIONS

YFEQ(f)	FACTOR INCOME
YCORPEQ	CORPORATE INCOME
YINST1	LAND INCOME DISTRIBUTED TO HOUSEHOLDS
YINST2	AG CAPITAL INCOME DISTRIBUTED TO HOUSEHOLDS
YINST3	FIRM INCOME DISTRIBUTED TO HOUSEHOLDS
HHINCEQ(hh)	HOUSEHOLD INCOME
HHPOPEQ(hh)	HOUSEHOLD WORKERS
TARIFFDEF	TARIFF REVENUE
INDTAXDEF	INDIRECT TAXES ON DOMESTIC PRODUCTION
VATREVDEF	VALUE ADDED TAX REVENUE
EXPTAXDEF	EXPORT DUTIES
OILREVDEF	OIL TAX REVENUE
CORTAXDEF	CORPORATE INCOME TAX REVENUE
HHTAXDEF	TOTAL HOUSEHOLD TAXES COLLECTED BY GOVT.
GREQ	GOVERNMENT REVENUE
HHSAVEQ	TOTAL HOUSEHOLD SAVINGS
CORSAVEQ	CORPORATE SAVINGS
TOTSAV	TOTAL SAVINGS
FOREXEQ	CHANGE IN FOREIGN EXCHANGE RESERVES

## \*## EXPENDITURE BLOCK

INTEQ(i)	TOTAL INTERMEDIATE USES
CDEQ(i)	PRIVATE CONSUMPTION BEHAVIOR
GDEQ(i)	GOVT CONSUMPTION OF COMMODITIES
STKEQ(i)	INVENTORY INVESTMENT
FIXEDINV	FIXED INVESTMENT NET OF INVENTORY
PRODINV(i)	INVESTMENT BY SECTOR OF DESTINATION
IEQ(i)	INVESTMENT BY SECTOR OF ORIGIN
GDPY	TOTAL VALUE ADDED INCLUDING INDTAX
GDPR	REAL GDP

## Appendix 7.2 (continued)

## \* ## MARKET CLEARING

EQUIL(i)                   GOODS MARKET EQUILIBRIUM  
 FMEQUIL(f)               FACTOR MARKET EQUILIBRIUM  
 CURRACTEQ               CURRENT ACCOUNT BALANCE (FOR. CURR.)  
 GOVSAVEQ                 GOVERNMENT SAVINGS  
 \* WALRAS                 WALRAS LAW EQUATION

;

\*The WALRAS equation is redundant, given that the model satisfies Walras' Law.  
 \*In this case, we drop the Savings-Investment balance equation.

## \* ----- EQUATION ASSIGNMENT -----

## \* ## PRICE BLOCK

PMDEF(im)..       PM(im) =E= pwm(im)\*EXR \* (1 + tm(im)) \* (1+tv(im)) ;

PEDEF(ie)..       PE(ie) =E= pwe(ie)\*EXR \* (1 - te(ie)) ;

ABSORPTION(i)..   PQ(i)\*Q(i) =E= PD(i)\*D(i)+(PM(i)\*M(i))\$im(i);

SALES(i)..         PX(i)\*X(i) =E= PD(i)\*D(i)\*(1-tx(i)-tv(i))+(PE(i)\*E(i))\$ie(i);

PVDEF(i)..         PX(i)\*X(i) =E= PV(i)\*V(i) + PN(i)\*N(i) ;

PNDEF(iint)..     PN(iint)         =E= SUM(j, aa(j,iint)\*(PQ(j)-  
 ( (PD(j)\*D(j)+pwm(j)\*M(j)\*EXR)\*tv(j)/Q(j) )\$IVAT(iint) ));

PKDEF(i)..         PK(i)         =E= SUM(j, bb(j,i)\*(PQ(j) -  
 ( (PD(j)\*D(j)+pwm(j)\*M(j)\*EXR)\*tv(j)/Q(j) )\$IVAT(i) ));

PINDEXDEF..       PINDEX         =E= SUM(i, wtq(i)\*PQ(i) ) ;

PINDOMDEF..       PINDOM         =E= SUM(i, wtd(i)\*PD(i) ) ;

## \* ## QUANTITY EQUATIONS

ACTIVITY(iint)..   X(iint) =E= AX(iint)\*(BX(iint)\*V(iint)\*\*(-rhox(iint)) +  
 (1-BX(iint))\*N(iint)\*\*(-rhox(iint))\*\*(-1/rhox(iint)) ) ;

ACTIVITY2(iintn).. X(iintn) =E= V(iintn) ;

INTERMED(iint)..   V(iint) =E= N(iint)\*( PN(iint)/PV(iint)\*BX(iint)/(1-BX(iint))  
 )\*\* (1/(1 + rhox(iint))) ;

VALUEADD(i)..     V(i)         =E= av(i)\*PROD(f\$bv(i,f), FDSC(i,f)\*\*bv(i,f));

\* PROFITMAX(i,f)\$WFDIST0(i,f).. FDSC(i,f)/V(i) =E= ((bv(i,f)\*PV(i)) /  
 \* ((av(i)\*\*rhov(i))\*WF(f)\*WFDIST(i,f)) \*\* (1/(1+rhov(i)))) ;

PROFITMAX(i,f)\$WFDIST0(i,f).. WF(f)\*WFDIST(i,f)\*FDSC(i,f) =E=  
 V(i)\*PV(i)\*bv(i,f) ;

CET(ie)..         X(ie) =E= at(ie)\*( bt(ie)\*E(ie)\*\*rhot(ie) +  
 (1-bt(ie))\*D(ie)\*\*rhot(ie) )\*\* (1/rhot(ie)) ;

CET2(ien)..       X(ien) =E= D(ien) ;

## Appendix 7.2 (continued)

ESUPPLY(ie)..  $E(ie) = E = D(ie) * ( PE(ie) / ( PD(ie) * (1 - tv(ie) - tx(ie)) * (1 - bt(ie)) / bt(ie) ) ** (1 / (rhot(ie) - 1)) ) ;$

ARMINGTON(im)..  $Q(im) = E = ac(im) * ( bc(im) * M(im) ** (-rhoc(im)) + (1 - bc(im)) * D(im) ** (-rhoc(im)) ) ** (-1 / rhoc(im)) ;$

ARMINGTON2(imn)..  $Q(imn) = E = D(imn) ;$

COSTMIN(im)..  $M(im) = E = D(im) * ( PD(im) / PM(im) * bc(im) / (1 - bc(im)) ) ** (1 / (1 + rhoc(im))) ;$

## \*## INCOME EQUATIONS

YFEQ(f)..  $YF(f) = E = SUM(i, WF(f) * WFDIST(i, f) * FDSC(i, f)) ;$

YCORPEQ..  $YCORP = E = SUM(ivat, (SUM(j, bb(j, ivat) * PQ(j)) - PK(ivat)) * DK(ivat) + (YF("capital") - YINST("ag-cap"))) - OILREV + EXR * FACTIN - EXR * (REPAT + INTER("pub") + INTER("priv"))) ;$

YINST1..  $YINST("land") = E = YF("land") ;$

YINST2..  $YINST("ag-cap") = E = SUM(iag, WF("capital") * WFDIST(iag, "capital") * FDSC(iag, "capital")) ;$

YINST3..  $YINST("corp") = E = YCORP * (1 - ctax) * (1 - csav) ;$

HHINCEQ(hh)..  $YH(hh) = E = SUM(ilab, LFACTOHH(hh, ilab) * YF(ilab)) + SUM(ins, KFACTOHH(hh, ins) * YINST(ins)) ;$

HHPOPEQ(hh)..  $HHPOP(hh) = E = SUM(ilab, EMPTOHH(hh, ilab) * FS(ilab)) ;$

TARIFFDEF..  $TARIFF = E = SUM(im, tm(im) * M(im) * pwm(im) * (1 + tv(im))) * EXR ;$

INDTAXDEF..  $INDTAX = E = SUM(I, tx(i) * PD(i) * D(i)) ;$

VATREVDEF..  $VATREV = E = SUM(ivat, PD(ivat) * D(ivat) * tv(ivat) + pwm(ivat) * M(ivat) * EXR * tv(ivat) - (SUM(j, aa(j, ivat) * PQ(j)) - PN(ivat)) * N(ivat) - (SUM(j, bb(j, ivat) * PQ(j)) - PK(ivat)) * DK(ivat)) ;$

EXPTAXDEF..  $EXPTAX = E = SUM(ie, te(ie) * pwe(ie) * E(ie)) * EXR ;$

OILREVDEF..  $OILREV = E = oiltax * SUM(ioil, (WF("capital") * WFDIST(ioil, "capital") * FDSC(ioil, "capital"))) ;$

CORTAXDEF..  $CORTAX = E = YCORP * ctax ;$

HHTAXDEF..  $HHTAX = E = SUM(hh, th(hh) * YH(hh)) ;$

GREQ..  $GR = E = TARIFF + EXPTAX + INDTAX + HHTAX + VATREV + CORTAX + OILREV ;$

HHSAVEQ..  $HHSAV = E = SUM(hh, MPS(hh) * YH(hh) * (1 - th(hh))) ;$

CORSAVEQ..  $CORSAV = E = YCORP * (1 - ctax) * csav ;$

FOREXEQ..  $DFR = E = SUM(br, AMORT(br) - BORROW(br)) - FORINV - CURACT ;$

TOTSAV..  $SAVING = E = HHSAV + GOVSAV + CORSAV - CURACT * EXR ;$

## Appendix 7.2 (continued)

## \*## EXPENDITURE EQUATIONS

```

INTEQ(i)..  INT(i)  =E= SUM(j, aa(i,j)*N(j));
CDEQ(i)..  PQ(i)*CD(i) =E= SUM(hh, cc(i,hh)*(1-MPS(hh))*YH(hh)*(1-th(hh))) ;
GDEQ(i)..  GD(i)  =E= gg(i)*GOVCON ;
STKEQ(i)..  STK(i) =E= inv(i)*X(i) ;
FIXEDINV..  FXDINV =E= INVEST - SUM(i, STK(i)*PQ(i)) ;
PRODINV(i).. SUM(j, bb(j,i)*PQ(j))*DK(i) =E= zz(i)*FXDINV ;
IEQ(i)..  ID(i)  =E= SUM(J, bb(i,j)*DK(j));
GDPY..  GDPVA =E= SUM(i, PV(i)*V(i)) + IND TAX + TARIFF ;
GDPR..  RGDP =E= SUM(i, CD(i) + STK(i) + ID(i) + GD(i))
        + SUM(ie, E(ie)) - SUM(im, (1.0 - tmreal(im))*M(im)) ;

```

## \*## MARKET CLEARING

```

EQUIL(i)..  Q(i)  =E= INT(i) + CD(i) + GD(i) + ID(i) + STK(i) ;
FMEQUIL(f).. SUM(i, FDSC(i,f)) =E= FS(f) ;
CURRACTEQ.. CURACT =E= SUM(ie, pwe(ie)*E(ie)) + FACTIN
            - SUM(im, pwm(im)*M(im)) - REPAT - SUM(br, INTER(br)) ;
GOVSAVEQ..  GR    =E= SUM(i, PQ(i)*GD(i)) + GOVSAV + EXR*INTER("gov") ;
*WALRAS..  SAVING =E= INVEST ;

```

## \*#### ADDITIONAL RESTRICTIONS CORRESPONDING TO EQUATIONS

```

*# PMDEF, PEDEF, ESUPPLY, COSTMIN, AND PROFITMAX
*# FOR NON-TRADED SECTORS AND SECTORS WITH FIXED WORLD EXPORT PRICES

```

```

PM.FX(imn)  = PM0(imn) ;
PE.FX(ien)  = PE0(ien) ;
E.FX(ien)   = 0;
M.FX(imn)   = 0;
PN.FX(iintn) = PDO(iintn) ;
N.FX(iintn) = 0 ;
FDSC.FX(i,f)$(WFDIST0(i,f) EQ 0) = 0 ;

```

## \*#### VARIABLE BOUNDS

```

*These are included to improve algorithm performance. They are not
*necessary for model specification.

```

```

PQ.LO(i)   = 0.0 ; PD.LO(i)   = 0.0 ; PM.LO(im) = 0.0 ;
PK.LO(i)   = 0.0 ; PX.LO(i)   = 0.0 ; Q.LO(i)   = 0.0 ;
X.LO(i)    = 0.0 ; M.LO(im)   = 0.0 ; D.LO(i)   = 0.0 ;
WF.LO(f)   = 0.0 ; INT.LO(i)  = 0.0 ; E.LO(ie)  = 0.0 ;
FDSC.LO(i,f)$(FDSC.L(i,f) NE 0) = 0.0 ;
PV.LO(i)   = 0.0 ; PN.LO(i)   = 0.0 ;
V.LO(i)    = 0.0 ; N.LO(i)    = 0.0 ;

```

## Appendix 7.2 (continued)

```

*****
*                                     7. MODEL CLOSURE
*****

*## FOREIGN EXCHANGE MARKET CLOSURE
* In this version, the balance of trade (current account balance) is
* fixed exogenously and the exchange rate is the equilibrating variable.

*   EXR.FX           = EXR.L ;
*   DFR.FX           = DFR.L ;
*   REPAT.FX         = REPAT.L ;
*   FACTIN.FX        = FACTIN.L ;
*   FORINV.FX        = FORINV.L ;
*   BORROW.FX(br)    = BORROW.L(br) ;
*   AMORT.FX(br)     = AMORT.L(br) ;
*   INTER.FX(br)     = INTER.L(br) ;

*## INVESTMENT-SAVINGS CLOSURE
* This version specifies neoclassical closure. Aggregate investment is
* determined by aggregate savings; the model is savings driven.

*   MPS.FX(hh)       = MPS.L(hh) ;
*   INVEST.FX        = INVEST.L ;

*## EXOGENOUS GOVT EXPENDITURE
*## AND GOVT CLOSURE RULE
* Real government spending (GOVCON) is fixed exogenously. The government
* deficit (GOVSAV) is determined residually.

*   GOVCON.FX        = GOVCON.L ;
*   GOVSAV.FX        = GOVSAV.L ;

*## FACTOR MARKET CLOSURE
* Capital stocks in this version are fixed. Commented equations in capital
* stock section allow mobile capital version to be chosen.
* Commented equations in the labor blocks allow a version with fixed wage
* for each labor type, with total employment endogenous.

*   FS.FX(ilab)       = FS.L(ilab) ;
*   WFDIST.FX(i,ilab) = WFDIST.L(i,ilab) ;
*   WF.FX(ilab)       = WF.L(ilab) ;
*   FS.LO(ilab)       = -inf ;
*   FS.UP(ilab)       = +inf ;

*   FS.FX("capital") = FS.L("capital") ;
*   WFDIST.FX(i,"capital") = WFDIST.L(i,"capital") ;
*   WFDIST.FX("OthServ","capital") = WFDIST.L("OthServ","capital") ;
*   FDSC.FX(i,"capital") = FDSC.L(i,"capital") ;
*   FS.LO("capital") = -inf ;
*   FS.UP("capital") = +inf ;

*   FS.FX("land")     = FS.L("land") ;
*   WFDIST.FX(i,"land") = WFDIST.L(i,"land") ;
*   WFDIST.FX("FarmFood","land") = WFDIST.L("FarmFood","land") ;
*   FDSC.FX(i,"land") = FDSC.L(i,"land") ;
*   FS.LO("land")     = -inf ;
*   FS.UP("land")     = +inf ;

```

## Appendix 7.2 (continued)

\*## NUMERAIRE PRICE INDEX

\*In this case, one of the price deflators

PINDEX.FX = PINDEX.L ;

\* PINDOM.FX = PINDOM.L ;

\*----- END OF MODEL -----  
 OPTIONS ITERLIM=1000,LIMROW=0,LIMCOL=0,SOLPRINT=OFF;

MODEL GEMINA /ALL/ ;

\$STITLE BASE CASE

DISPLAY 'BASE CASE FOR 1985' ;

\* gemina.optfile = 1;

T(TP)= NO;

T("BASE") = YES;

SOLVE GEMINA MAXIMIZING RGDP USING NLP;

\*\*\*\*\*  
 \* 8. SOLUTION REPORTS AND OUTPUT  
 \*\*\*\*\*

\* PARAMETER FCTRES2(varfac,f,tp) MISCELLANEOUS FACTOR VARIABLE RESULTS ;

\* PARAMETER HHRES(varhh,hh,tp) MISCELLANEOUS HOUSEHOLD RESULTS ;

\*#### TABLES OF RESULTS FOR VARIABLES IN THE MODEL

\*## MACRO AGGREGATE RESULTS

SCALRES ("EXR",t) = EXR.L ;  
 SCALRES ("PINDEX",t) = PINDEX.L ;  
 SCALRES ("PINDOM",t) = PINDOM.L ;  
 SCALRES ("RGDP",t) = RGDP.L ;  
 SCALRES ("GDPVA",t) = GDPVA.L ;

SCALRES ("INVEST",t) = INVEST.L ;  
 SCALRES ("FXDINV",t) = FXDINV.L ;  
 SCALRES ("GOVCON",t) = GOVCON.L ;  
 SCALRES ("GR",t) = GR.L ;

SCALRES ("TARIFF",t) = TARIFF.L ;  
 SCALRES ("INDTAX",t) = INDTAX.L ;  
 SCALRES ("HHTAX",t) = HHTAX.L ;  
 SCALRES ("EXPTAX",t) = EXPTAX.L ;  
 SCALRES ("VATREV",t) = VATREV.L ;  
 SCALRES ("CORTAX",t) = CORTAX.L ;  
 SCALRES ("OILREV",t) = OILREV.L ;

SCALRES ("SAVING",t) = SAVING.L ;  
 SCALRES ("HNSAV",t) = HNSAV.L ;  
 SCALRES ("CORSAV",t) = CORSAV.L ;  
 SCALRES ("GOVSAV",t) = GOVSAV.L ;

SCALRES ("DFR",t) = DFR.L ;  
 SCALRES ("REPAT",t) = REPAT.L ;  
 SCALRES ("FACTIN",t) = FACTIN.L ;  
 SCALRES ("CURACT",t) = CURACT.L ;  
 SCALRES ("FORINV",t) = FORINV.L ;

## Appendix 7.2 (continued)

```

SCALRES ("GOVBUD",t) = GR.L + BORROW.L("GOV")*EXR.L ;
SCALRES ("GOVINV",t) = GOVSAV.L + EXR.L*( BORROW.L("gov") - AMORT.L("gov") ) ;
SCALRES ("DEVBUD",t) = DEVBUD ;
SCALRES ("ROUTIN",t) = ROUTIN ;
SCALRES ("DEVSHR",t) = (SUM(I, GG(I)*PQ.L(I))*GOVCON.L - ROUTIN
+ (AMORT.L("GOV") + INTER.L("GOV"))*EXR.L) / DEVBUD ;
SCALRES ("CTAX",t) = CTAX ;
SCALRES ("CSAV",t) = CSAV ;
SCALRES ("OILTAX",t) = OILTAX ;
SCALRES ("YCORP",t) = YCORP.L ;

*## FOREIGN DEBT RESULTS
BOPRES ("BORROW",br,t) = BORROW.L(br) ;
BOPRES ("AMORT",br,t) = AMORT.L(br) ;
BOPRES ("INTER",br,t) = INTER.L(br) ;

*## FACTOR OF PRODUCTION RESULTS
FCTRES1(i,f,t) = FDSC.L(i,f) ;
FCTRY(i,f,t) = FDSC.L(i,f)*WF.L(f)*WFDIST.L(i,f) ;

*## TABLE FCTRES2(*,f) MISCELLANEOUS FACTOR VARIABLE RESULTS ;
FCTRES2 ("WF",f,t) = WF.L(f) ;
FCTRES2 ("FS",f,t) = FS.L(f) ;
FCTRES2 ("YF",f,t) = YF.L(f) ;

*## SECTORAL PRICE AND QUANTITY RESULTS
SECTRES ("PQ",i,t) = PQ.L(i) ;
SECTRES ("PD",i,t) = PD.L(i) ;
SECTRES ("PE",i,t) = PE.L(i) ;
SECTRES ("PK",i,t) = PK.L(i) ;
SECTRES ("PM",i,t) = PM.L(i) ;
SECTRES ("PN",i,t) = PN.L(i) ;
SECTRES ("PV",i,t) = PV.L(i) ;
SECTRES ("PX",i,t) = PX.L(i) ;

SECTRES ("Q",i,t) = Q.L(i) ;
SECTRES ("X",i,t) = X.L(i) ;
SECTRES ("D",i,t) = D.L(i) ;
SECTRES ("V",i,t) = V.L(i) ;
SECTRES ("N",i,t) = N.L(i) ;
SECTRES ("E",i,t) = E.L(i) ;
SECTRES ("M",i,t) = M.L(i) ;
SECTRES ("INT",i,t) = INT.L(i) ;
SECTRES ("CD",i,t) = CD.L(i) ;
SECTRES ("GD",i,t) = GD.L(i) ;
SECTRES ("ID",i,t) = ID.L(i) ;
SECTRES ("STK",i,t) = STK.L(i) ;
SECTRES ("DK",i,t) = DK.L(i) ;

SECTRES ("PWM",i,t) = pwm(i) * 1000. ;
SECTRES ("PWE",i,t) = pwe(i) * 1000. ;
SECTRES ("TE",i,t) = te(I) ;
SECTRES ("TM",i,t) = tm(I) ;
SECTRES ("TV",i,t) = tv(I) ;
SECTRES ("TX",i,t) = tx(I) ;
SECTRES ("GG",i,t) = gg(I) ;
SECTRES ("ZZ",i,t) = zz(I) ;
SECTRES ("INV",i,t) = inv(I) ;

```

