





STAGE_t: Model Setup and Configuration

Single Country CGE, 2024

© cgemod



1

1



Outline

- SAM
- Data Loading
 - Excel database
 - Sets
 - Maps
 - Elasticities
 - Controls
- Model configuration
- Diagnostics

Single Country CGE, 2024

© cgemod



2

2

cgemod

SAM

Single Country CGE, 2024

© cgemod

3

3

cgemod

STAGE_t RSA SAM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------

cgemod

Data entry

Single Country CGE, 2024

© cgemod

5

5

cgemod

STAGE_t Code Structure

↓

5. DATA ENTRY

→

stg_t_data_load_*.inc

↓

1. DATA ENTRY SECTION

←

stg_t_data_*.xls

←

sam_***.gdx

↓

2. DATA ADJUSTMENTS SECTION

3. DATA SCALING AND INITIAL CHECKS SECTION

4. FINAL CHECK ON MODEL DATA

5. OTHER SET ASSIGNMENTS

6. OTHER ELASTICITY ASSIGNMENTS

←

6. ADDITIONAL SET ASSIGNMENT

7. DATA DIAGNOSTICS

data include file

Excel sets and data file

Optional GDX data file

Single Country CGE, 2024

© cgemod

6

6



cgemod

Data Conversion

*---- 1a. Excel workbook sets and data converted to.gdx here

```
$CALL "GDXXRW i=%mod_data%.xlsx o=data_in.gdx index=Layout!A4 trace=3 "
```

\$if errorLevel 1 \$abort problems with GDXXRW

*---- 1b. All data, elasticities and sets from excel are assigned here

```
%mod_data% - $SETGLOBAL VARNAME
```

data_in.gdx - FIXED name for.gdx data file

trace=3 - option that provides information about GDXXRW

\$if errorLevel 1 - text that GDXXRW fails

Single Country CGE, 2024

© cgemod


7

7

cgemod

'LAYOUT' Worksheet

	A	B	C	D	E	F	G	H
1	LAYOUT							
2								
3	Data Type	Name	Location	Row dimension rdim	Column dimension cdim	Total dimension dim		
4								
6	dset	acc	SetA/A4	1				
7	dset	ss	SetA/D4	1				
8	dset	c	SetA/Q4	1				
9	dset	cagr	SetA/S4	1				
10	dset	cost	SetA/S4	1				
11	dset	ofd	SetA/S4	1				
12	dset	cond	SetA/S4	1				
13	dset	cuti	SetA/L4	1				
14	dset	com	SetA/S4	1				
15	dset	cser	SetA/S4	1				
16	dset	cagg	SetA/Q4	1				
17	dset	m	SetA/P4	1				
18	dset	a	SetA/Q4	1				
19	dset	aagr	SetA/S4	1				
20	dset	anat	SetA/S4	1				
21	dset	af4	SetA/T4	1				
22	dset	amd	SetA/T4	1				
23	dset	auti	SetA/T4	1				
24	dset	acon	SetA/W4	1				
25	dset	aver	SetA/S4	1				
26	dset	aagg	SetA/T4	1				
27	dset	anch	SetA/Z4	1				
28	dset	anchN	SetA/A4	1				
29	dset	alvss	SetA/B4	1				
30	dset	ff	SetA/C4	1				
31	dset	f	SetA/D4	1				
32	dset	flag	SetA/B4	1				
33	dset	f2	SetA/F4	1				
34	dset	l	SetA/G4	1				
35	dset	la	SetA/S4	1				
36	dset	lm	SetA/B4	1				
37	dset	k	SetA/J4	1				
38	dset	lfs	SetA/K4	1				
39	dset	n	SetA/L4	1				
40	dset	nsa	SetA/M4	1				
41	dset	nsrw	SetA/N4	1				
42	dset	nsig	SetA/O4	1				
43	dset	ns	SetA/P4	1				
44	dset	h	SetA/Q4	1				
45	dset	g	SetA/R4	1				

Single Country CGE, 2024

© cgemod


8

8

cgemod

**‘dc’ – only ensures
elements in a subset are in
the parent set**



9

9

cgemod

[illegible]

10

10

5

cgemod

cgemod

Maps Worksheets

A1											
	A	B	C	D	E	F	G	H	I	J	K
1	Sets for Production Nests										
2											
3	map_va_ff(ff,a)										
4											
5			aagric	amins	afood	atext	apetchem	amprod	amach	aveh	aomanu
6	Land	fland	1	1	1	1	1	1	1	1	1
7	Fixed capital	fcap_fix	1	1	1	1	1	1	1	1	1
8	Flexible capital	fcap_flex	1	1	1	1	1	1	1	1	1
9	Aggregate labour	flab	1	1	1	1	1	1	1	1	1
10											

Map for second level nest
map_va_ff(ff,a)

Map for third level nest
map_fag_ff(ff,ff,a)

A1													
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Sets for Production Nests												
2													
3	map_fagg_BUL(ff,a)												
4													
5			a	afood	atext	apetchem	amprod	amach	aveh	aomanu	autd	acns	atrac
6	flab	fafunsk	1	1	1	1	1	1	1	1	1	1	1
7	flab	fafaski	1	1	1	1	1	1	1	1	1	1	1
8	flab	fcfaunsk	1	1	1	1	1	1	1	1	1	1	1
9	flab	fcfaaski	1	1	1	1	1	1	1	1	1	1	1
10	flab	fafunsk	1	1	1	1	1	1	1	1	1	1	1
11	flab	fafaski	1	1	1	1	1	1	1	1	1	1	1
12													

Single Country CGE, 2024

© cgemod

11

11

cgemod

Data load: Parameters

- * lbi. Loading other data from Excel via GDX
\$GDXIN **data_in.gdx**
- * Transactions data
\$LOADdc sam
- * Elasticities data
\$LOADdc **elastc elastx elastf elasty elastmu**
- * Factor quantities
\$LOADdc **factuse**
\$LOADdc **factins**
- * Population
\$LOADdc **popn**
- * Control data
\$LOADdc mod_cont

\$GDXIN

12

cgemod

Elasticities

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Model Specific Household Elasticities													
2	Elasticities													
3														
4	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY	ELASTY
5		half	half	half	half	half	half	half	half	half	half	half	half	half
6	Agriculture	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
7	Minerals	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
8	Food products	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
9	Textiles	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
10	Petroleum and chemical products	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
11	Metal and mineral products	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
12	Machinery	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
13	Vehicles	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
14	Other manufacturing	2	2	2	2	2	2	2	2	2	2	2	2	2
15	Utilities	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
16	Construction	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
17	Trade transport and communications	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
18	Services	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
32														
33														
34														
35														
36														
37														
38														
39														
40														
41														
42														
43														
44														
45														

Elasticity Worksheets

elastc

elastx

elastf

elasty

elastmu

example

Single Country CGE, 2024

© cgemod

13

cgemod

Model Controls

	A	B	C	D	E	F	G	H	I
1	Control Parameters								
2	These values are used to initialize various parameters that condition the model and control the operation of the model programme								
3									
4									
5	mod_control								
6									
7	mcons								
8	numechk	1			IF 1 then default, if NOT 1 then check on numeraire				
9	minaqsh	0.1			Minimum share of intermediates in cost for aq				
10	samical	0.001			SAM scaling factor and initial value for autoscaling				
11	scalang	100			target level for auto scaling				
12	scalprop	0.95			proportion of NON zero elements that must be below the target level				
13	setpop	2			if 1 then POP data used, if 2 then adult equivalent data used				
14	toloffsam	0.000001			Tolerance on differences in base and solution SAM entries				
15	micrsam1	1			if 1 checks micro SAM at calibration, if 0 does not check micro SAM at calibration				
16	micrsam2	1			if 1 checks micro SAM at solution, if 0 does not check micro SAM at solution				
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									

Single Country CGE, 2024

© cgemod

14

cgemod

Satellite Data: FACTUSE

	A	B	C	D	E	F	G	H	I	J	K	L	M
Model Specific Factor Use													
1													
2													
3													
4		agric	amns	afod	atad	apetcham	amprod	amach	ash	asmanu	autd	acms	atrad
5	Frug_Sn	15,004.21	32,480.47	18,614.90	1,972.34	17,389.94	18,278.47	1,714.21	5,674.47	11,416.88	18,177.28	7,377.83	72,087.1
6	Frug_Sm	2,644.26	2,024.39	3,751.91	286.23	1,789.87	1,906.87	34.96	256.44	1,411.87	882.47	444.35	79,087.1
7	Food	3,456.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
8	Refuork	5,778.48	10,195.68	3,520.48	2,880.71	2,052.53	4,609.82	687.87	934.43	2,853.73	1,161.29	8,483.01	21,620.1
9	Refuol	886.32	6,988.07	1,184.63	443.84	936.21	1,079.60	289.86	386.89	1,322.26	1,214.82	1,057.68	14,679.1
10	Refuork	2,561.87	892.67	1,225.88	2,524.57	794.58	1,240.01	372.32	644.87	2,286.13	242.29	2,709.73	5,864.4
11	Refuol	66.67	130.65	903.02	1,444.72	969.99	619.74	214.42	603.26	1,348.91	280.83	891.89	7,830.1
12	Refuork	4,573.36	3,298.01	392.91	482.63	736.29	1,644.94	289.81	707.49	930.82	645.80	3,432.03	6,382.1
13	Refuol	2,187.88	4,965.61	3,927.09	1,236.00	5,161.21	4,918.39	1,941.21	1,907.86	3,379.91	2,109.95	2,279.62	26,527.1
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													
31													
32													
33													
34													
35													
36													
37													
38													
39													
40													
41													
42													
43													
44													
45													

Single Country CGE, 2024

© cgemod

15

cgemod

Model configuration

Single Country CGE, 2024

© cgemod

16

cgemod

‘Standard’ Configurations

```

*---- 1b. Data-specific SAM adjustments

*$INCLUDE stg_t_adjust.inc

*---- 1c. Defining SETS by exclusions from previously defined SETS
*---- 1d. Defining MAPPING SETS by using subset information

*---- 1e. Initial SAM check

ABORT$(TOTALSCHK GT 0.000005) "Totals Check failed for BASE SAM" ;

##### 2. DATA ADJUSTMENTS SECTION #####

*---- 2a. Standard SAM adjustments
* Adjusting the SAM to avoid common problems that do not affect model
* Eliminating transactions between accounts and themselves
* Net transactions between domestic institutions and ROW
* Net transfers between domestic non-govt institutions and govt

*---- 2c Adjusting satellite accounts to ensure consistency
* Forcing FSI0 and FD0 to be consistent
    
```

Single Country CGE, 2024
© cgemod



17

17

cgemod

Automatic Scaling

```

*---- 3a. Automatic Scaling of SAM
* Assigning values to initialise scaling parameter

samscale = mod_cont("samscale") ;

WHILE {
  [ (SUM((sacn,sacnp)$SAM(sacn,sacnp)
    AND (ABS(SAM(sacn,sacnp)/samscale) < mod_cont("scaltarg"))},1))
    /SUM((sacn,sacnp)$SAM(sacn,sacnp), 1)] < mod_cont("scalprop") ,

  • samscale is increased in multiples of 10 until condition is satisfied

    samscale = samscale * 10 ;

  } ;

* Scale the SAM data for algorithm performance
SAM(sac,sacp)$samscale = SAM(sac,sacp)/samscale ;
    
```

Single Country CGE, 2024
© cgemod



18

18

cgemod

Factor Data

*---- 3b. Entering and Scaling of FACTUSE

*** Remove factuse where there is no corresponding SAM payment**
factuse(f,a)\$ (not sam(f,a)) = 0 ;

* Declare factuse from SAM if neccessary
factuse(f,a)\$ ((NOT factuse(f,a)) AND sam(f,a)) = sam(f,a) ;

* By default set factor use scaling factor equal to SAM scaling factor
factscal = samsscal ;

FACTUSE(f,a)\$factscal = FACTUSE(f,a)/factscal ;

*---- 3c. Entering and Scaling of FACTINS

*** Remove factins where there is no corresponding SAM payment**
factins(insw,f)\$ (not SAM(insw,f)) = 0 ;

* Declare factins from SAM if neccessary
factins(insw,f)\$ ((NOT factins(insw,f)) AND SAM(insw,f)) = SAM(insw,f) ;

* By default set factor use scaling factor equal to SAM scaling factor
factins(insw,f)\$factscal = factins(insw,f)/factscal ;

Single Country CGE, 2024

© cgemod

19

19

cgemod

Population Data Entry

* By default set population scaling factor equal to SAM scaling factor

popn(h,ppn)\$samsscal = popn(h,ppn)/samsscal ;

Population data are used in the analyses files for providing extra information about the results from simulations

Single Country CGE, 2024

© cgemod

20

20



cgemod

Other Set Assignments

**#### 5. OTHER SET ASSIGNMENTS #####*

**---- 5a. Assign set members for unskilled labour by exclusion*

$lu(l) = (NOT\ ls(l))\ AND\ (NOT\ lm(l));$

Single Country CGE, 2024

© cgemod

21

21

cgemod

Production Set Assignments

**---- 5b. Defining sets to control production nesting structure*

\$ontext

The set $aqxn(a)$ - activities with Leontief at the top level is set as the complement to $aqx(a,r)$

Selecting aqx

a) All activities WITH intermediate inputs where intermediates account for more than the value share set in Excel worksheet 'controls' are assigned to aqx .

b) Selected members of a in aqx are cancelled - use the set $aleon$.

c) Other members of a in aqx are cancelled manually.

Setting $aqxn$ - Defined as the complement to aqx .

\$offtext

** Top level CES chosen by reference to intermediate input shares*

$aqx(a)((SUM(c,SAM(c,a))/SAM("total",a))\ GT\ mod_cont("minaqxsh")) = YES ;$

** Top level CES cancelled for selected activities*

$aqx(aleon) = NO ;$

** Top level CES cancelled for selected activities manually*

$aqx("amines") = NO ;$

** Top level Leontief set for all activities without top level CES*

$aqxn(a) = not\ aqx(a) ;$

Single Country CGE, 2024

© cgemod

22

22



cgemod

Other Elasticities

6. OTHER ELASTICITY ASSIGNMENTS

\$ontext
NB: If the values for elasticities of substitution and/or transformation are set here they OVERRIDE the values set in the Excel database.

\$offtext

**---- 6a. Defining other elasticities*

**Syntax example*
** elastABC("cmines","exdem") = 0.5 ;*

Single Country CGE, 2024

© cgemod

23

23

cgemod

Other Set Assignments

**---- 5c. Defining sets to control aggregation commodities*

** Linear aggregation of homogenous commodities*

cxac(c) = YES ;
cxac(cagr) = NO ;

cxacn(c) = not cxac(c) ;

Single Country CGE, 2024

© cgemod

24

24



cgemod

Other Set Assignments

```
* Define mapping between CONSISTENTLY ORDERED sets
$ontext
    This method of declaration and assignment requires the two
    set arguments are ordered so that the matching is correct.
    Check carefully
$offtext

Sets
map_f_tff(f,tff) Factor taxes to factors /
    #f:#tff
    /

map_tff_f(tff,f) Factor taxes to factors reverse /
    #tff:#f
    /

map_i_k(in,k) Mapping from investment type to capital type /
    #in:#k
    / ;
```

Single Country CGE, 2024

© cgemod



25

25

cgemod

Other Set Assignments

```
* Define sets on the basis of read in data
ce(c)$ (SAM(c,"row")) = YES ;
cen(c) = NOT ce(c) ;

ELASTC(c,"exdem")$ (NOT ELASTC(c,"exdem")) = 0.0 ;
ced(c)$ (ELASTC(c,"exdem")) = YES ;
cedn(c) = NOT ced(c) ;
..
..
cxac(c)$ELASTC(c,"sigmaxc") = YES ;
cxacn(c) = not cxac(c) ;

* CET vs. non-CET activities
$ontext
    CET if elasticity for CET non-zero; Fixed proportions if CET zero
$offtext

ELASTX(a,"omegaout")$ (NOT ELASTX(a,"omegaout")) = 0.0 ;
acet(a)$ (ELASTX(a,"omegaout")) = YES ;
aceten(a) = NOT acet(a) ;
```

Single Country CGE, 2024

© cgemod



26

26

cgemod

cgemod

Diagnostics

Single Country CGE, 2024

© cgemod

27

27

cgemod

Diagnostics: Illegal Sub Matrix Entries

PARAMETERS

* Macro SAM for checking calibration and initial solve

ASAM0(ss,ss) Aggregate SAM for data entry check ;

* Macro SAM to check data entry

ASAM0("COMMDTY","COMMDTY") = SUM((c,cp),SAM(c,cp)) ;

..

..

..

..

..

..

ABORT \$(ASAM0("COMMDTY","COMMDTY") NE 0.0)

"ASAM0(COMMDTY,COMMDTY) non zero" ;

Single Country CGE, 2024

© cgemod

28

28



cgemod

Diagnostics: Illegal SAM Entries

Parameter
INTDnegCNT Count of negative intermediate input demand
CDnegCNT Count of negative household demand
;
..
..
..
INTDnegCNT = SUM((c,a)\$ (SAM(c,a) LT 0.0), 1) ;
CDnegCNT = SUM((c,h)\$ (SAM(c,h) LT 0.0), 1) ;
..
..
..
IF(INTDnegCNT NE 0.0,
 Display "negative intermediate input demand" ;) ;

IF(CDnegCNT NE 0.0,
 Display "negative household demand" ;) ;

Single Country CGE, 2024

© cgemod

29

29

cgemod

STAGE

STAGE_t: Model Setup and Configuration

The End

Single Country CGE, 2024

© cgemod

30

30

