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WDST	USA	EUUN	JPN	CHN	CAN	KOR	BRA	IND
pxFOODA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxBEVTB	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxCRUDM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxFUELS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxOILFT	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxCHEMR	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxMANUG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxMACHT	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxMISCM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pxCTNEC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
pmFOODA	1.03	1.06	1.09	1.14	1.03	1.29	1.10	1.39
pmBEVTB	1.31	1.04	1.03	1.19	1.03	1.20	1.17	1.91
pmCRUDM	1.01	1.01	1.01	1.06	1.01	1.14	1.05	1.17
pmFUELS	1.01	1.00	1.01	1.06	1.01	1.05	1.01	1.15
pmOILFT	1.02	1.03	1.01	1.13	1.04	1.20	1.08	1.44
pmCHEMR	1.02	1.03	1.02	1.07	1.02	1.09	1.07	1.16
pmMANUG	1.03	1.02	1.03	1.09	1.04	1.07	1.13	1.16
pmMACHT	1.01	1.01	1.00	1.08	1.01	1.06	1.13	1.14
pmMISCM	1.06	1.03	1.06	1.14	1.07	1.08	1.15	1.14
pmCTNEC	1.00	1.00	1.00	1.00	1.01	1.03	1.09	1.15
txFOODA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
txBEVTB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
txCRUDM	0.000						000	0.000
txFUELS	0.000						000	0.000
txOILFT	0.000						000	0.000
txCHEMR	0.000						000	0.000
txMANUG	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
txMACHT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
txMISCM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
txCTNEC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
tmFOODA	0.033	0.061	0.095	0.138	0.029	0.290	0.102	0.389
tmBEVTB	0.310	0.039				0.198	0.166	0.907
tmCRUDM	0.005	0.006				0.137	0.049	0.174
tmFUELS	0.015	0.004				0.055	0.011	0.147
tmOILFT	0.016	0.033				0.198	0.075	0.445
tmCHEMR	0.024	0.032				0.092	0.070	0.156
tmMANUG	0.031	0.025				0.070	0.129	0.155
tmMACHT	0.008	0.011				0.058	0.129	0.135
tmMISCM	0.055	0.034	0.059	0.135	0.067	0.078	0.149	0.138
tmCTNEC	0.004	0.000	0.000	0.000	0.012	0.029	0.091	0.150
xsFOODA	52600273	59915123	2507396	23294317	21775911	2509245	21718418	7842776
xsBEVTB	7269448	21979812	596169	1305896	1054042	520850	1658392	307181
xsCRUDM	43795703	30093868	7199382	9638556	27048308	2889200	25440386	9452617
xsFUELS	30582679	71868392	4531681	19112784	72700823	15719039	6100478	6918259
xsOILFT	2003900	3967172	115386	275619	907426	21745	1572372	451756
xsCHEMR	140499682	268729629	58438558	35318948	27257682	28384911	7096488	11461607
xsMANUG	94568688	221652731	71118063	132196402	52931184	41448643	22100917	32811961
xsMACHT	449647866	683482155	435647620	435120773	118266044	196153157	29177055	10426479
xsMISCM	107992550	199067644	63318736	294198217	21520628	24535671	4914470	17834986
xsCTNEC	35616036	93331930	27578628	6334813	19753719	2757772	2067404	863504
mdFOODA	51466553	73329364	44766383	9395689	14509123	9968082	2813496	1689902
mdBEVTB	13949634	7525479	5522523	868175	2281546	540376	179913	71891
mdCRUDM	28770013	58498016	32914064	70180103	8379998	15385573	2437169	5519266
mdFUELS	286377178	295363135	133069219	63966514	28859143	67566427	12307403	34164872
mdOILFT	2407158	5173871	971882	3372282	503962	620625	218065	2563583
mdCHEMR	128310116	122431057	37856686	76406698	31837379	24511233	14450253	9778595
mdMANUG	190649367	161398767	46939202	75353972	40929422	35859191	6488015	17722579
mdMACHT	650127806	475051522	132390723	250445258	140833433	82537942	22752636	21576650
mdMISCM	259736516	222040951	72294952	52997936	36740911	23434557	3748243	4035394
mdCTNEC	59304437	68782262	9242646	2645318	6693810	982583	653819	11178218
ntFOODA	1133720	-13414240	-42258988	13898628	7266788	-7458837	18904922	6152874
ntBEVTB	-6680186	14454333	-4926354	437721	-1227504	-19527	1478479	235291

In this partial view of the WDST model, yellow cells contain model equations while white cells contain exogenous variables. The values shown are the base values at the initial equilibrium.

These are the applied tariff rates. They are changed manually for tariff liberalization scenarios. For world free trade, they are all set equal to zero

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ntCRUDM	15025691	-28404148	-25714682	-60541547	18668310	-12496373	23003217	3933350
ntFUELS	-255794500	-223494743	-128537538	-44853730	43841680	-51847388	-6206925	-27246613
ntOILFT	-403259	-1206699	-856496	-3096663	403463	-598880	1354307	-2111828
ntCHEMR	12189566	146298572	20581872	-41087750	-4579697	3873678	-7353765	1683012
ntMANUG	-96080680	60253964	24178862	56842431	12001762	5589452	15612902	15089383
ntMACHT	-200479941	208430633	303256897	184675515	-22567389	113615215	6424419	-11150170
ntMISCM	-151743966	-22973307	-8976217	241200281	-15220283	1101113	1166227	13799593
ntCTNEC	-23688401	24549668	18335981	3689496	13059909	1775190	1413585	-10314714
fxFOODA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fxBEVTB	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fxCRUDM	1.00	1.00				1.00	1.00	1.00
fxFUELS	1.00	1.00				1.00	1.00	1.00
fxOILFT	1.00	1.00				1.00	1.00	1.00
fxCHEMR	1.00	1.00				1.00	1.00	1.00
fxMANUG	1.00	1.00				1.00	1.00	1.00
fxMACHT	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fxMISCM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fxCTNEC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmFOODA	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmBEVTB	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmCRUDM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmFUELS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmOILFT	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmCHEMR	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmMANUG	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmMACHT	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmMISCM	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
fmCTNEC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
cpFOODA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
cpBEVTB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
cpCRUDM	0.000	0.000						0.000
cpFUELS	0.000	0.000						0.000
cpOILFT	0.000	0.000						0.000
cpCHEMR	0.000	0.000						0.000
cpMANUG	0.000	0.000						0.000
cpMACHT	0.000	0.000						0.000
cpMISCM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
cpCTNEC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
tcFOODA								
tcBEVTB								
tcCRUDM								
tcFUELS								
tcOILFT								
tcCHEMR								
tcMANUG								
tcMACHT								
tcMISCM								
tcCTNEC								
tfFOODA								
tfBEVTB								
tfCRUDM								
tfFUELS								
tfOILFT								
tfCHEMR								
tfMANUG								
tfMACHT								
tfMISCM								
tfCTNEC								
thFOODA								
thBEVTB								
thCRUDM								
thFUELS								
thOILFT								

These are the shift terms for export supply. They are yellow because they are generated by equations which include a possible productivity response.

A cp variable pegs the degree of non-competitiveness assumed. 0=competitive (the case here) with number up to 1 representing the degree of non-competitiveness for each product group in each country/region.

These variables are used only for calculations in the common market (CMK) and free trade agreement (FTA) sheets. They are not used in the country sheets (they could be if needed provided data for the variables was entered into the data workbook).

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thCHEMR								
thMANUG								
thMACHT								
thMISCM								
thCTNEC								
taFOODA								
taBEVTB								
taCRUDM								
taFUELS								
taOILFT								
taCHEMR								
taMANUG								
taMACHT								
taMISCM								
taCTNEC								
tlFOODA								
tlBEVTB								
tlCRUDM								
tlFUELS								
tlOILFT								
tlCHEMR								
tlMANUG								
tlMACHT								
tlMISCM								
tlCTNEC								
bxFOODA	52600273	59915123	2507396	23294317	21775911	2509245	21718418	7842776
bxBEVTB	7269448	21979812	596169	1305896	1054042	520850	1658392	307181
bxCRUDM	43795703	30093868	7199382	9638556	27048308	2889200	25440386	9452617
bxFUELS	30582679	71868392	4531681	19112784	72700823	15719039	6100478	6918259
bxOILFT	2003900	3967172	115386	275619	907426	21745	1572372	451756
bxCHEMR	140499682	268729629	58438558	35318948	27257682	28384911	7096488	11461607
bxMANUG	94568688	221652731	71118063	132196402	52931184	41448643	22100917	32811961
bxMACHT	449647866	683482155	435647620	435120773	118266044	196153157	29177055	10426479
bxMISCM	107992550	199067644	63318736	294198217	21520628	24535671	4914470	17834986
bxCTNEC	35616036	93331930	27578628	6334813	19753719	2757772	2067404	863504
bmFOODA	51466553	73329364	44766383	9395689	14509123	9968082	2813496	1689902
bmBEVTB	13949634	7525479	5522523	868175	2281546	540376	179913	71891
bmCRUDM	28770013	58498016	32914064	70180103	8379998	15385573	2437169	5519266
bmFUELS	286377178	295363135	133069219	63966514	28859143	67566427	12307403	34164872
bmOILFT	2407158	5173871	971882	3372282	503962	620625	218065	2563583
bmCHEMR	128310116	122431057	37856686	76406698	31837379	24511233	14450253	9778595
bmMANUG	190649367	161398767	46939202	75353972	40929422	35859191	6488015	17722579
bmMACHT	650127806	475051522	1323907			37942	22752636	21576650
bmMISCM	259736516	222040951	722949			34557	3748243	4035394
bmCTNEC	59304437	68782262	92426			32583	653819	11178218
biFOODA	1.03	1.06	1			1.29	1.10	1.39
biBEVTB	1.31	1.04	1			1.20	1.17	1.91
biCRUDM	1.01	1.01	1.01	1.06	1.01	1.14	1.05	1.17
biFUELS	1.01	1.00	1.01	1.06	1.01	1.05	1.01	1.15
biOILFT	1.02	1.03	1.01	1.13	1.04	1.20	1.08	1.44
biCHEMR	1.02	1.03	1.02	1.07	1.02	1.09	1.07	1.16
biMANUG	1.03	1.02	1.03	1.09	1.04	1.07	1.13	1.16
biMACHT	1.01	1.01	1.00	1.08	1.01	1.06	1.13	1.14
biMISCM	1.06	1.03	1.06	1.14	1.07	1.08	1.15	1.14
biCTNEC	1.00	1.00	1.00	1.00	1.01	1.03	1.09	1.15
btFOODA	0.033	0.061	0.095	0.138	0.029	0.290	0.102	0.389
btBEVTB	0.310	0.039	0.030	0.187	0.029	0.198	0.166	0.907
btCRUDM	0.005	0.006	0.008	0.055	0.005	0.137	0.049	0.174
btFUELS	0.015	0.004	0.013	0.060	0.014	0.055	0.011	0.147
btOILFT	0.016	0.033	0.013	0.134	0.035	0.198	0.075	0.445
btCHEMR	0.024	0.032	0.019	0.071	0.022	0.092	0.070	0.156
btMANUG	0.031	0.025	0.032	0.091	0.042	0.070	0.129	0.155
btMACHT	0.008	0.011	0.001	0.084	0.013	0.058	0.129	0.135

These are base equilibrium values of model variables. They are included for use in indicator calculations.

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	2005							
btMISCM	0.055	0.034	0.059	0.135	0.067	0.078	0.149	0.138
btCTNEC	0.004	0.000	0.000	0.000	0.012	0.029	0.091	0.150
xxFOODA	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxBEVTB	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxCRUDM	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxFUELS	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxOILFT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxCHEMR	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxMANUG	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxMACHT	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxMISCM	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
xxCTNEC	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
yyFOODA	104066826	133244487	47273779	32690006	36285034	12477327	24531915	9532677
yyBEVTB	21219082	29505291	6118691	2174071	3335587	1061226	1838304	379072
yyCRUDM	72565716	88591884	40113445	79818659	35428305	18274773	27877555	14971883
yyFUELS	316959857	367231526	137600900	83079298	101559966	83285465	18407881	41083132
yyOILFT	4411058	9141043	1087268	3647900	1411388	642371	1790437	3015339
yyCHEMR	268809798	391160686	96295243	111725646	59095061	52896144	21546741	21240202
yyMANUG	285218055	383051498	118057265	207550374	93860607	77307834	28588931	50534540
yyMACHT	1099775672	1158533676	568038343	685566030	259099477	278691098	51929691	32003129
yyMISCM	367729067	421108595	135613688	347196154	58261539	47970228	8662714	21870380
yyCTNEC	94920474	162114192	36821274	8980131	26447530	3740355	2721223	12041721
zzFOODA	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
zzBEVTB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
zzCRUDM	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
zzFUELS	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
zzOILFT	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
zzCHEMR	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
zzMANUG	9.00	9.00	9				9.00	9.00
zzMACHT	9.00	9.00	9				9.00	9.00
zzMISCM	9.00	9.00	9				9.00	9.00
zzCTNEC	9.00	9.00	9				9.00	9.00
cmm	0	0	0	0	0	0	0	0
ftm	0	0	0	0	0	0	0	0
xrt	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
cfl	706521955	-164494033	-155083337	-351164382	-51647041	-53533644	-55797368	9929823
bop	0	0	0	0	0	0	0	0
x	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
y	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
z								

Common market or free trade agreement scenarios are set by entering 1's in the cmm or ftm variable cells for potential members.

Green Cells - variables changed by the Solver to solve model (drive values in red cells to zero)
$C$225:$AW$225,$AX$3:$AX$12

Red cells - equation values driven to zero
57
$C$227 2005
$D$227
$E$227
$F$227
$G$227
$H$227
$I$227
$J$227
$K$227
$L$227
$M$227
$N$227
$O$227
$P$227
$Q$227
$R$227

Here you see an important solution innovation in the WDST model. xrt is the change variable which targets the bop variable (red cells). x is the lower bound and y is the upper bound on xrt which has been set in the configuration of WDST. The "bounds" variables are shown in different shades of orange. The practical impact of bounds is to limit the range the solver has to explore. This speeds up solutions and prevents "out of bounds solutions". The only caveat is that when you have a solution, you should visually check to make sure that the xrt solution value does not equal a bounds value. If it does, simply change the bounds value and re-solve the model.