

APPENDICES TO

FROM BOUND DUTIES TO ACTUAL PROTECTION: INDUSTRIAL LIBERALISATION IN THE DOHA ROUND

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Revised version – May 27, 2005

Appendix 1: Sector aggregation

Sectors (type of competition)	GTAP sector (code)
Progcrops (Perfect)	Paddy rice (pdr), Wheat (wht), Cereal grains nec (gro)
OtherAg (Perfect)	Vegetables, fruit, nuts (v_f)
Progcrops (Perfect)	Oil seeds (osd), Sugar cane, sugar beet (c_b), Plant-based fibers (pfb), Crops nec (ocr)
Livestock (Perfect)	Cattle, sheep, goats, horses (ctl), Animal products nec (oap), Raw milk (rmk)
OtherAg (Perfect)	Wool, silk-worm cocoons (wol), Forestry (for), Fishing (fsh)
Primary (Perfect)	Coal (col), Oil (oil), Gas (gas), Minerals nec (omn)
Livestock (Imperfect)	Meat: cattle, sheep, goats, horse (cmt), Meat products nec (omt)
OtherAg (Imperfect)	Vegetable oils and fats (vol)
Livestock (Imperfect)	Dairy products (mil)
Progcrops (Imperfect)	Processed rice (pcr), Sugar (sgr)
OtherAg (Imperfect)	Food products nec (ofd), Beverages and tobacco products (b_t)
Textiles (Imperfect)	Textiles (tex)
Wearing (Imperfect)	Wearing apparel (wap)
Leather (Imperfect)	Leather products (lea)
WoodPap (Imperfect)	Wood products (lum), Paper products, publishing (ppp)
Primary (Imperfect)	Petroleum, coal products (p_c)
Chem (Imperfect)	Chemical, rubber, plastic prods (crp)
Primary (Imperfect)	Mineral products nec (nmm)
FerMetals (Imperfect)	Ferrous metals (i_s)
MetalsNec (Imperfect)	Metals nec (nfm)
MetalProd (Imperfect)	Metal products (fmp)
MotorVeh (Imperfect)	Motor vehicles and parts (mvh)
TrspEqNec (Imperfect)	Transport equipment nec (otn)
Electronic (Imperfect)	Electronic equipment (ele)
Machinery (Imperfect)	Machinery and equipment nec (ome)
OtherManuf (Imperfect)	Manufactures nec (omf)
ServOth (Imperfect)	Electricity (ely), Gas manufacture, distribution (gdt), Water (wtr), Construction (cns), Trade (trd)
Transp (Imperfect)	Transport nec (otp), Sea transport (wtp), Air transport (atp)
BusServ (Imperfect)	Communication (cmn), Financial services nec (ofi), Insurance (isr), Business services nec (obs)
ServOth (Imperfect)	Recreation and other services (ros), PubAdmin/Defence/Health/Educat (osg), Dwellings (dwe)

Appendix 2: Geographical aggregation

Region in the model	GTAP country (code)
ANZCERTA	Australia (aus), New Zealand (nzl)
China	China (chn)
HKTaSgp	Hong Kong (hkg)
Japan	Japan (jpn)
Korea	Korea (kor)
HKTaSgp	Taiwan (tw)
Tigers	Indonesia (idn), Malaysia (mys), Philippines (phl)
HKTaSgp	Singapore (sgp)
Tigers	Thailand (tha)
SouthAsia	Vietnam (vnm), Bangladesh (bgd)
INDIA	India (ind)
SouthAsia	Sri Lanka (lka), Rest of South Asia (xsa)
Canada	Canada (can)
US	United States (usa)
Mexico	Mexico (mex)
RSAm	Central America, Caribbean (xcm), Colombia (col), Peru (per), Venezuela (ven), Rest of Andean Pact (xap)
Argentina	Argentina (arg)
Brazil	Brazil (bra)
RSAm	Chile (chl), Uruguay (ury), Rest of South America (xsm)
EU25	Austria (aut), Belgium (bel), Denmark (dnk), Finland (fin), France (fra), Germany (deu), United Kingdom (gbr), Greece (grc), Ireland (irl), Italy (ita), Luxembourg (lux), Netherlands (nld), Portugal (prt), Spain (esp), Sweden (swe)
EFTA	Switzerland (che), Rest of Eur Free Trade Area (xef)
RoW	Albania (alb), Bulgaria (bgr), Croatia (hrv)
EU25	Czech Republic (cze), Hungary (hun), Malta (mlt), Poland (pol)
RoW	Romania (rom)
EU25	Slovakia (svk), Slovenia (svn), Estonia (est), Latvia (lva), Lithuania (ltu)
Russia	Russian Federation (rus)
RoW	Rest of Former Soviet Union (xsu)
EU25	Cyprus (cyp)
Turkey	Turkey (tur)
RoW	Rest of Middle East (xme)
Maghreb	Morocco (mar), Rest of North Africa (xnf)
AFR	Botswana (bwa)
SACU	Rest of South Afr C Union (xsc)
AFR	Malawi (mwi), Mozambique (moz), Tanzania (tza), Zambia (zmb), Zimbabwe (zwe), Other Southern Africa (xsf), Uganda (uga), Rest of Sub-Saharan Africa (xss)
RoW	Rest of World (xrw)

Appendix 3: Resulting average protection level for each liberalisation scenario, by market (AVE tariff duty, %)

		Textiles		Wearing		Leather		Chem		WoodPap		FerMetals		MetalsNec	
		Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1
Indus C		6.6	2.7	8.3	3.1	8.1	3.2	2.4	1.4	0.7	0.5	0.6	0.4	1.6	1.0
of which:	EU25	5.9	2.8	7.2	3.2	7.4	3.6	2.6	1.6	0.5	0.4	0.4	0.3	1.8	1.0
	Japan	6.2	2.6	9.1	3.2	16.1	4.2	1.6	1.0	0.6	0.4	0.1	0.1	1.4	0.8
	US	8.7	2.2	10.8	2.6	10.0	2.6	2.3	1.1	0.3	0.2	0.2	0.1	1.6	0.9
	ANZCERTA	11.9	6.1	20.5	8.8	8.5	6.0	2.9	2.5	3.8	3.4	3.9	3.3	1.5	1.1
	Canada	10.1	3.5	15.3	4.2	9.8	3.6	3.0	2.0	1.3	0.8	0.3	0.2	0.6	0.5
	EFTA	2.5	1.1	2.7	1.4	0.8	0.4	0.3	0.2	0.8	0.4	0.3	0.2	0.4	0.3
	HKTaSgp	2.5	1.2	3.4	1.4	1.8	1.1	1.4	0.9	1.1	0.8	1.8	1.0	0.6	0.4
	Korea	10.1	6.8	12.4	7.6	10.0	6.0	5.6	3.8	2.1	1.7	0.7	0.5	4.6	3.7
DC		13.5	10.0	22.9	12.8	13.4	9.8	9.0	7.2	8.9	7.4	9.1	7.6	8.5	6.8
of which:	Argentina	18.4	16.0	21.2	16.6	17.3	14.3	12.8	11.3	13.0	12.3	13.1	13.0	8.1	8.0
	Brazil	18.2	15.8	21.4	16.4	15.1	12.8	11.3	10.0	11.7	11.1	12.8	12.5	8.5	8.3
	China	9.7	4.8	15.5	6.2	10.7	6.0	6.9	4.4	3.8	2.5	4.9	3.4	3.9	2.7
	INDIA	29.5	20.1	34.6	22.6	31.2	23.6	33.6	23.0	28.0	20.2	34.7	22.8	33.3	22.2
	Maghreb	32.4	26.8	154.8	56.3	29.6	27.8	16.4	15.3	23.0	21.6	14.4	13.8	13.8	13.4
	Mexico	15.0	11.7	25.6	13.8	24.9	14.9	10.2	9.2	9.4	8.6	12.8	11.8	7.1	7.0
	Row	10.0	8.9	14.1	10.1	8.4	7.7	5.0	4.8	6.5	6.1	5.5	5.3	4.6	4.5
	RSAm	12.0	9.8	17.0	14.6	12.3	10.9	7.6	7.0	9.3	8.5	8.0	6.9	7.0	6.7
	Russia	12.3	10.2	19.5	13.8	17.8	11.7	9.6	8.7	13.0	10.6	6.6	6.1	11.7	9.2
	SACU	21.5	9.7	37.1	12.5	21.3	9.7	5.8	3.7	8.1	5.3	5.1	4.7	2.3	1.9
	Tigers	13.2	9.7	21.3	11.8	8.7	5.8	8.0	6.0	9.3	6.5	8.8	7.3	5.5	4.1
	Turkey	6.2	4.7	6.4	5.1	5.4	4.7	2.5	2.5	1.6	1.6	7.3	5.7	2.1	2.1
Poorest		19.8	19.6	31.5	30.4	22.0	21.7	9.7	9.7	15.7	15.7	10.5	10.5	4.7	4.7
of which:	AFR	18.7	17.8	40.9	37.4	28.6	27.2	9.5	9.3	16.7	16.4	11.3	11.2	7.7	7.6
	SouthAsia	20.1	20.1	27.2	27.2	19.9	19.9	9.8	9.8	15.4	15.4	10.3	10.3	4.2	4.2
World		8.5	4.8	9.8	4.2	8.9	4.2	4.0	2.9	2.2	1.7	3.0	2.4	2.8	1.9

		MetalProd		MotorVeh		TrspEqNec		Electronic		Machinery		OtherManuf	
		Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1	Initial applied duties	Girard 1
Indus C		2.3	1.4	5.7	2.3	0.9	0.6	0.6	0.4	1.4	1.0	1.8	0.9
of which:	EU25	2.1	1.4	7.1	3.3	1.6	1.1	0.8	0.5	1.2	0.9	1.3	0.9
	Japan	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	1.4	0.8
	US	2.2	1.0	3.1	1.2	0.3	0.1	0.4	0.2	1.4	0.8	1.8	0.7
	ANZCERTA	5.8	4.5	9.2	6.7	0.5	0.5	0.7	0.6	3.4	2.8	2.5	2.5
	Canada	3.3	2.0	4.6	2.4	2.0	0.5	0.2	0.1	1.5	1.1	2.3	1.3
	EFTA	0.4	0.3	0.4	0.3	0.1	0.1	0.1	0.1	0.2	0.2	12.5	0.3
	HKTaSgp	2.2	1.2	12.0	1.6	0.3	0.1	0.4	0.2	1.2	0.8	0.9	0.6
	Korea	7.1	5.4	8.2	6.9	2.0	1.6	1.3	1.0	6.2	4.7	5.8	4.2
DC		11.7	9.3	19.0	10.9	5.5	4.4	4.5	4.1	8.1	6.6	13.6	9.8
of which:	Argentina	17.4	15.9	18.1	15.4	5.8	5.5	9.1	8.8	14.6	14.0	18.7	15.6
	Brazil	16.8	15.4	25.4	14.8	4.7	4.5	11.3	10.7	13.5	12.7	18.4	15.4
	China	9.3	4.6	17.6	6.0	4.7	3.0	1.8	0.8	7.0	3.9	15.5	5.5
	INDIA	33.7	24.6	54.3	25.6	21.0	12.0	3.0	2.2	25.4	17.8	33.5	25.2
	Maghreb	23.4	21.0	34.0	27.3	7.4	5.9	9.8	8.7	12.7	11.5	23.9	19.8
	Mexico	11.3	10.0	12.8	11.7	7.4	6.9	5.5	5.2	9.8	9.3	16.5	12.4
	Row	8.0	7.5	8.2	7.7	5.2	5.0	5.4	5.3	5.9	5.7	7.9	6.8
	RSAm	10.4	9.2	15.0	12.2	5.2	4.7	6.0	5.8	7.3	6.8	14.1	12.5
	Russia	13.6	11.1	12.0	9.5	14.1	10.7	8.6	8.3	8.5	7.8	16.2	12.0
	SACU	7.6	5.4	21.2	10.6	0.4	0.2	1.9	1.4	3.7	2.9	9.4	4.6
	Tigers	12.9	9.4	39.4	14.4	2.6	2.1	1.4	1.1	5.4	4.3	10.4	7.7
	Turkey	1.3	1.3	2.8	2.2	0.5	0.5	0.7	0.7	0.8	0.8	2.3	1.9
Poorest		15.6	15.6	29.0	27.9	8.0	8.0	8.2	8.2	9.2	9.1	24.5	24.4
of which:	AFR	15.5	15.3	19.5	18.3	7.8	7.8	8.0	7.9	9.6	9.5	26.7	26.3
	SouthAsia	15.7	15.7	33.9	32.9	8.2	8.2	8.3	8.3	9.0	8.9	23.4	23.4
World		4.4	3.3	8.0	3.8	2.0	1.5	1.4	1.1	3.1	2.4	3.0	1.9

Source: MAcMap database, authors' calculations.

Appendix 4: Detailed simulation results

Table A.1: Impacts on industrial exports (in volume), per country (% change)

	(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1 + SDT	(g) Girard 1, on applied tariffs	
Industrialised ctries	180.5	0.81	7.31	3.56	2.85	2.04	2.59	3.37
of which: EU25	53.0	0.86	8.65	3.82	2.90	1.93	2.52	3.60
Japan	31.0	1.10	9.55	4.96	4.07	2.94	3.74	4.62
US	45.0	0.36	5.34	3.35	2.92	2.33	2.84	2.92
ANZCERTA	2.2	5.11	19.87	9.34	7.98	6.70	7.78	9.69
Canada	14.3	-0.34	-0.92	-0.99	-0.92	-0.72	-0.98	-0.79
EFTA	7.4	0.61	0.48	0.29	0.34	0.34	0.26	0.41
HKTaSgp	16.1	1.87	7.59	3.43	2.81	2.25	2.36	3.72
Korea	11.6	0.76	14.52	6.20	4.45	2.35	4.10	6.00
DC	79.0	2.51	12.53	5.05	3.95	2.78	2.93	5.18
of which: Argentina	0.7	3.53	27.59	5.40	2.60	0.13	0.22	7.50
Brazil	2.7	2.07	23.12	4.90	2.71	1.23	1.58	6.76
China	27.0	0.59	12.36	7.19	5.97	4.24	4.58	6.34
INDIA	2.9	17.66	45.31	16.27	10.93	4.41	4.59	15.27
Maghreb	1.0	34.79	48.34	13.51	8.92	6.40	5.56	13.83
Mexico	10.0	1.35	7.09	0.78	0.24	-0.02	-0.08	1.42
Row	7.7	0.04	0.06	-0.25	-0.08	0.17	0.07	0.24
RSAm	3.3	1.33	16.57	4.48	3.56	2.93	2.99	6.16
Russia	3.3	1.04	13.09	4.21	2.69	1.35	1.71	4.79
SACU	1.9	6.45	17.54	8.86	7.20	5.00	4.91	8.10
Tigers	16.6	3.03	10.98	4.51	3.89	3.47	3.66	5.22
Turkey	1.8	2.02	4.25	-0.01	-0.21	-0.01	-0.34	0.78
Poorest	2.1	0.17	-1.35	-0.86	-0.57	-0.16	-0.54	-0.39
of which: AFR	1.1	0.36	-1.93	-1.38	-1.04	-0.57	-1.08	-0.94
SouthAsia	1.0	-0.04	-0.71	-0.28	-0.05	0.31	0.07	0.21
World	261.6	1.32	8.82	3.97	3.15	2.25	2.67	3.88

Source: Authors' simulations.

Note: Initial levels are expressed in tens of billions of 1997 US dollars.

Table A.2: Impacts on industrial imports (in volume), per country (% change)

	(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1 + SDT	(g) Girard 1, on applied tariffs	
Initial level								
Industrialised ctries	190.2	0.65	6.68	3.43	2.80	2.07	2.63	3.21
of which: EU25	47.4	0.72	9.70	4.63	3.59	2.48	3.31	4.18
Japan	17.2	1.20	11.18	6.04	5.01	3.70	4.63	5.54
US	73.0	0.36	4.67	2.88	2.51	2.01	2.43	2.60
ANZCERTA	4.7	1.82	10.68	4.69	3.90	3.15	3.83	5.11
Canada	14.0	-0.17	0.32	-0.08	-0.10	-0.06	-0.16	0.02
EFTA	7.9	0.83	1.58	0.99	0.93	0.83	0.84	1.04
HKTaSgp	18.7	1.29	3.70	1.73	1.50	1.37	1.37	2.04
Korea	7.3	0.72	19.31	7.95	5.66	2.69	5.32	7.85
DC	76.9	3.06	14.95	5.67	4.29	2.87	2.98	5.89
of which: Argentina	1.3	2.51	27.60	5.24	2.28	0.19	0.28	7.88
Brazil	3.6	3.09	25.19	6.10	3.34	1.27	1.40	7.80
China	17.3	0.96	18.31	10.55	8.74	6.19	6.58	9.27
INDIA	2.4	24.96	58.37	22.39	15.12	5.77	5.90	20.01
Maghreb	2.9	17.42	32.58	9.50	6.02	4.28	4.19	9.65
Mexico	8.8	1.56	9.17	1.49	0.75	0.32	0.30	2.11
Row	14.9	0.61	3.74	1.17	0.92	0.65	0.63	1.47
RSA	7.5	1.06	12.72	2.65	1.88	1.27	1.30	4.20
Russia	3.1	1.49	14.75	4.31	2.72	1.35	1.47	5.61
SACU	1.6	5.49	18.03	9.24	7.74	5.91	5.91	8.96
Tigers	11.3	4.23	13.88	5.61	4.79	4.10	4.20	6.43
Turkey	2.1	0.82	3.71	0.54	0.32	0.28	0.20	0.99
Poorest	4.0	0.20	0.05	0.12	0.14	0.17	0.10	0.16
of which: AFR	3.1	0.20	0.06	0.14	0.16	0.17	0.12	0.15
SouthAsia	0.9	0.21	0.01	0.01	0.07	0.14	0.02	0.19
World	271.0	1.33	8.92	4.02	3.19	2.27	2.69	3.93

Source: Authors' simulations.

Note: Initial levels are expressed in tens of billions of 2001 US dollars.

Table A.3: Compared impacts on industrial added value of the Girard proposal (B=1) under different model's specifications, per country (% change in volume)

		Mirage	Sigma x 2	Perfect comp'n	No vertical diff'n	K endog	Mirage, after agric lib'n
Indus C		0.04	0.18	-0.00	-0.04	0.10	0.04
of which:	EU25	-0.00	0.03	-0.04	-0.09	0.01	-0.01
	Japan	0.34	0.80	0.22	0.28	0.70	0.34
	US	-0.07	-0.07	-0.13	-0.22	-0.21	-0.08
	ANZCERTA	0.29	3.28	-0.13	-0.44	0.46	-0.39
	Canada	-0.57	-1.22	-0.54	-0.63	-0.84	-0.61
	EFTA	-0.44	-0.90	-0.51	-0.56	-0.51	-0.46
	HKTaSgp	1.18	2.49	1.50	1.79	2.09	1.35
	Korea	0.66	1.57	0.76	0.90	2.09	0.78
DC		-0.01	0.12	-0.03	-0.12	-0.07	-0.00
of which:	Argentina	-0.14	-0.35	-0.37	-0.46	-0.28	-0.21
	Brazil	-0.41	-0.69	-0.54	-0.78	-0.74	-0.56
	China	0.61	1.30	0.74	0.86	1.00	0.65
	INDIA	0.13	-0.05	-0.09	-0.56	-1.75	0.05
	Maghreb	-6.53	-7.59	-6.61	-7.38	-6.64	-6.37
	Mexico	-0.24	-0.38	-0.42	-0.51	-1.71	-0.29
	Row	-0.58	-1.12	-0.49	-0.57	-0.88	-0.61
	RSAm	-0.03	-0.43	0.15	0.02	-0.20	-0.04
	Russia	-0.16	-0.09	-0.57	-0.90	-0.03	-0.01
	SACU	0.02	0.46	-0.66	-1.10	0.72	0.03
	Tigers	1.00	1.55	0.94	0.81	2.60	1.26
	Turkey	-0.18	0.12	-0.04	0.17	-0.27	-0.28
Poorest		-0.38	-0.92	-0.04	0.09	-0.58	-0.41
of which:	AFR	-0.46	-0.93	-0.29	-0.34	-0.74	-0.55
	SouthAsia	-0.27	-0.92	0.29	0.65	-0.37	-0.24
World		0.03	0.16	-0.01	-0.06	0.06	0.03

Source: Authors' simulations.

Table A.4: Impacts on world import prices measured through output prices (% change)

		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1, on applied tariffs	(f) Girard 1 + SDT
Primary								
on wich:	Progcrops	-0.17	-0.84	-0.21	-0.10	-0.00	0.00	-0.24
	OtherAg	-0.11	-0.47	-0.08	-0.02	0.03	0.04	-0.11
	Livestock	0.01	-0.21	-0.04	-0.01	0.02	0.00	-0.05
	Primary	-0.13	-0.77	-0.15	-0.07	-0.01	-0.01	-0.20
Manufacturing								
on wich:	Textiles	-0.27	-0.98	-0.37	-0.26	-0.12	-0.12	-0.34
	Wearing	-0.48	-1.57	-0.59	-0.42	-0.21	-0.17	-0.54
	Leather	-0.19	-0.89	-0.24	-0.13	-0.01	0.03	-0.24
	WoodPap	-0.01	-0.25	-0.10	-0.07	-0.03	-0.04	-0.09
	Chem	-0.02	-0.15	-0.04	-0.02	0.00	-0.00	-0.04
	FerMetals	-0.05	-0.26	0.05	0.08	0.10	0.12	0.00
	MetalsNec	-0.11	-0.77	-0.20	-0.12	-0.03	-0.05	-0.24
	MetalProd	-0.03	-0.09	0.04	0.06	0.08	0.09	0.03
	MotorVeh	-0.08	-0.51	-0.27	-0.24	-0.20	-0.25	-0.27
	TrspEqNec	0.04	-0.10	-0.04	-0.04	-0.03	-0.05	-0.05
	Electronic	-0.02	0.15	0.24	0.25	0.25	0.30	0.19
	Machinery	0.04	0.00	0.05	0.05	0.05	0.06	0.04
	OtherManuf	-0.23	-0.54	-0.13	-0.05	0.04	0.07	-0.11
Services								
on wich:	ServOth	0.07	0.33	0.13	0.09	0.05	0.06	0.13
	Transp	-0.02	-0.01	0.02	0.02	0.01	0.02	0.02
	BusServ	0.04	0.26	0.09	0.07	0.05	0.05	0.11

Source: Authors' simulations.

Table A.5: Impacts on world import prices measured through value added prices (% change)

		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1 + SDT	(g) Girard 1, on applied tariffs
Primary								
on wich:	Progcrops	-0.15	-0.62	-0.13	-0.04	0.04	0.05	-0.15
	OtherAg	-0.02	-0.08	0.07	0.09	0.11	0.13	0.05
	Livestock	0.04	0.01	0.04	0.05	0.06	0.05	0.03
	Primary	-0.01	-0.14	0.06	0.08	0.09	0.10	0.04
Manufacturing								
on wich:	Textiles	-0.01	0.85	0.45	0.38	0.30	0.37	0.45
	Wearing	-0.08	0.51	0.41	0.38	0.33	0.42	0.39
	Leather	-0.05	0.49	0.39	0.36	0.32	0.41	0.37
	WoodPap	0.05	0.29	0.11	0.08	0.06	0.07	0.12
	Chem	0.07	0.60	0.24	0.18	0.12	0.14	0.25
	FerMetals	0.05	0.52	0.27	0.23	0.17	0.21	0.26
	MetalsNec	0.08	0.20	0.15	0.13	0.10	0.11	0.11
	MetalProd	0.05	0.61	0.26	0.21	0.14	0.18	0.27
	MotorVeh	0.13	0.72	0.27	0.19	0.11	0.14	0.27
	TrspEqNec	0.09	0.50	0.18	0.12	0.06	0.07	0.18
	Electronic	0.14	1.18	0.56	0.45	0.34	0.41	0.56
	Machinery	0.10	0.63	0.25	0.19	0.12	0.14	0.26
	OtherManuf	-0.08	0.33	0.22	0.20	0.18	0.23	0.22
Services								
on wich:	ServOth	0.11	0.59	0.23	0.17	0.10	0.11	0.24
	Transp	0.07	0.34	0.16	0.13	0.09	0.10	0.16
	BusServ	0.08	0.42	0.16	0.12	0.08	0.09	0.18

Source: Authors' simulations.

Table A.6: Impacts on real unskilled wages, by region (% change)

		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1 + SDT	(g) Girard 1, on applied tariffs
Indus C		0.04	0.16	0.06	0.04	0.02	0.02	0.06
of which:	EU25	0.06	0.19	0.05	0.03	0.01	0.01	0.07
	Japan	0.07	0.52	0.26	0.21	0.15	0.18	0.24
	US	0.01	-0.03	-0.04	-0.04	-0.03	-0.05	-0.03
	ANZCERTA	0.16	0.01	0.11	0.12	0.12	0.10	0.07
	Canada	-0.03	-0.26	-0.20	-0.18	-0.15	-0.19	-0.18
	EFTA	0.02	0.10	0.02	0.01	-0.00	-0.01	0.03
	HKTaSgp	0.11	1.34	0.58	0.43	0.25	0.30	0.52
	Korea	0.27	1.04	0.71	0.63	0.53	0.51	0.60
DC		0.01	-0.78	-0.10	-0.01	0.07	0.10	-0.11
of which:	Argentina	-0.02	-0.61	-0.05	0.01	0.02	0.03	-0.13
	Brazil	-0.19	-1.11	-0.24	-0.10	0.00	0.03	-0.30
	China	-0.10	-0.92	-0.38	-0.27	-0.14	-0.07	-0.31
	INDIA	-0.33	-0.86	-0.12	-0.02	0.08	0.10	-0.05
	Maghreb	2.43	0.80	1.69	1.82	1.83	1.81	1.82
	Mexico	-0.00	-0.76	-0.12	-0.09	-0.05	-0.06	-0.13
	Row	-0.11	-0.82	-0.19	-0.12	-0.05	-0.04	-0.24
	RSA	-0.09	-1.05	-0.12	-0.05	0.00	0.01	-0.25
	Russia	-0.12	-0.52	0.07	0.11	0.13	0.20	-0.07
	SACU	-0.05	-0.90	-0.26	-0.19	-0.13	-0.12	-0.33
	Tigers	-0.11	-1.05	-0.02	0.10	0.28	0.35	-0.05
	Turkey	0.03	-0.14	-0.02	-0.01	0.02	0.02	-0.04
Poorest		-0.03	-0.17	-0.04	-0.02	0.01	0.01	-0.04
of which:	AFR	-0.03	-0.23	-0.07	-0.04	-0.01	-0.01	-0.07
	SouthAsia	-0.02	-0.04	0.01	0.03	0.06	0.05	0.04
World		0.04	-0.01	0.03	0.03	0.03	0.03	0.03

Source: Authors' simulations.

Table A.7: Impacts on real skilled wages, by region (% change)

		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1, on applied tariffs	(g) Girard 1 + SDT
Indus C		0.05	0.23	0.10	0.08	0.06	0.06	0.10
of which:	EU25	0.06	0.24	0.08	0.05	0.03	0.02	0.09
	Japan	0.10	0.68	0.36	0.29	0.22	0.27	0.33
	US	0.02	0.07	0.03	0.03	0.03	0.02	0.04
	ANZCERTA	0.14	-0.13	0.05	0.07	0.07	0.04	0.00
	Canada	-0.02	-0.13	-0.11	-0.09	-0.06	-0.11	-0.09
	EFTA	0.04	0.25	0.09	0.07	0.04	0.04	0.10
	HKTaSgp	0.01	0.73	0.23	0.13	0.01	0.03	0.19
	Korea	0.26	0.55	0.48	0.44	0.40	0.34	0.37
DC		0.03	-0.95	-0.11	-0.02	0.07	0.09	-0.14
of which:	Argentina	-0.00	-1.08	-0.10	0.01	0.03	0.04	-0.25
	Brazil	-0.18	-1.28	-0.24	-0.09	0.02	0.04	-0.32
	China	-0.19	-1.51	-0.77	-0.64	-0.47	-0.43	-0.68
	INDIA	-0.50	-1.28	-0.26	-0.12	0.03	0.06	-0.16
	Maghreb	2.95	1.32	2.52	2.65	2.65	2.65	2.67
	Mexico	0.10	-0.49	0.06	0.07	0.08	0.08	0.05
	Row	-0.06	-0.75	-0.14	-0.07	-0.02	-0.01	-0.19
	RSAm	-0.08	-1.18	-0.13	-0.07	-0.02	-0.01	-0.29
	Russia	-0.10	-0.47	0.13	0.16	0.15	0.24	-0.03
	SACU	-0.05	-1.10	-0.29	-0.20	-0.12	-0.12	-0.37
	Tigers	-0.11	-1.69	-0.36	-0.18	0.08	0.12	-0.36
	Turkey	0.03	0.10	0.14	0.12	0.11	0.14	0.09
Poorest		0.00	-0.05	-0.02	-0.01	-0.00	-0.01	-0.01
of which:	AFR	-0.01	-0.16	-0.09	-0.07	-0.04	-0.05	-0.08
	SouthAsia	0.03	0.19	0.10	0.09	0.08	0.08	0.12
World		0.04	0.10	0.08	0.07	0.06	0.06	0.08

Source: Authors' simulations.

Table A.8: Impacts on capital return, by region (% change)

		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1, on applied tariffs	(g) Girard 1 + SDT
Indus C		0.05	0.16	0.06	0.05	0.03	0.03	0.07
of which:	EU25	0.04	0.14	0.04	0.02	0.01	0.00	0.05
	Japan	0.07	0.50	0.26	0.21	0.15	0.19	0.24
	US	0.03	0.06	0.02	0.01	0.01	0.00	0.02
	ANZCERTA	0.23	0.20	0.21	0.21	0.21	0.19	0.16
	Canada	-0.00	-0.24	-0.14	-0.12	-0.09	-0.12	-0.13
	EFTA	0.05	-0.08	-0.06	-0.04	-0.01	-0.03	-0.04
	HKTaSgp	0.19	0.46	0.03	-0.04	-0.11	-0.15	0.05
	Korea	0.14	0.44	0.26	0.22	0.18	0.12	0.23
DC		-0.07	-0.88	-0.17	-0.09	-0.01	0.01	-0.19
of which:	Argentina	-0.06	-0.65	-0.10	-0.03	0.00	0.01	-0.15
	Brazil	-0.19	-1.19	-0.24	-0.10	0.01	0.04	-0.31
	China	-0.25	-1.22	-0.67	-0.59	-0.49	-0.45	-0.62
	INDIA	-0.94	-2.24	-0.81	-0.53	-0.19	-0.19	-0.70
	Maghreb	2.69	1.44	1.98	2.07	2.05	2.05	2.13
	Mexico	-0.02	-0.79	-0.12	-0.08	-0.04	-0.05	-0.14
	Row	-0.07	-0.67	-0.13	-0.08	-0.02	-0.01	-0.18
	RSAm	-0.08	-0.92	-0.10	-0.04	0.02	0.02	-0.21
	Russia	-0.04	-0.38	0.08	0.11	0.11	0.16	-0.00
	SACU	0.57	0.54	0.48	0.39	0.21	0.20	0.28
	Tigers	-0.16	-1.12	-0.07	0.03	0.15	0.22	-0.13
	Turkey	0.07	-0.02	0.04	0.04	0.06	0.06	0.04
Poorest		-0.03	-0.29	-0.11	-0.08	-0.04	-0.06	-0.11
of which:	AFR	-0.01	-0.29	-0.11	-0.08	-0.05	-0.06	-0.11
	SouthAsia	-0.05	-0.29	-0.11	-0.08	-0.03	-0.04	-0.09
World		0.02	-0.06	0.01	0.02	0.02	0.02	0.01

Source: Authors' simulations.

Table A.9: Impacts on real exchange rate, by region (% change)

		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1, on applied tariffs	(g) Girard 1 + SDT
Oth_Ind								
	EU25	0.42	1.43	0.34	0.18	0.02	-0.02	0.43
	Japan	0.54	2.67	1.05	0.75	0.43	0.54	1.03
	US	0.30	0.60	-0.07	-0.17	-0.26	-0.32	-0.01
	ANZCERTA	0.54	0.86	0.32	0.22	0.12	0.05	0.26
	Canada	0.27	0.41	-0.22	-0.31	-0.36	-0.47	-0.14
	EFTA	0.30	1.19	0.19	0.05	-0.09	-0.14	0.28
	HKTaSgp	0.45	2.50	0.87	0.58	0.29	0.32	0.87
	Korea	0.58	2.72	1.12	0.84	0.56	0.57	1.08
DC								
	Argentina	-0.14	-2.33	-0.40	-0.10	0.06	0.09	-0.65
	Brazil	-0.27	-1.73	-0.48	-0.23	-0.03	0.01	-0.57
	China	0.28	1.05	0.57	0.50	0.47	0.61	0.65
	INDIA	-2.78	-4.78	-2.02	-1.34	-0.37	-0.32	-1.79
	Maghreb	-1.66	-3.60	-1.28	-0.88	-0.71	-0.74	-1.25
	Mexico	-0.04	-1.08	-0.47	-0.40	-0.30	-0.34	-0.44
	Row	0.01	-0.54	-0.16	-0.14	-0.11	-0.12	-0.19
	RSAm	-0.01	-1.31	-0.14	-0.08	-0.01	-0.02	-0.34
	Russia	0.06	0.10	0.14	0.12	0.08	0.13	0.04
	SACU	0.63	0.88	0.34	0.19	-0.03	-0.04	0.19
	Tigers	0.10	0.71	0.35	0.28	0.27	0.34	0.39
	Turkey	0.32	0.46	0.04	-0.01	-0.03	-0.07	0.10
Poorest								
	AFR	0.13	0.09	-0.04	-0.06	-0.06	-0.09	-0.00
	SouthAsia	0.02	0.08	0.01	0.02	0.07	0.04	0.11

Source: Authors' simulations.

Appendix 5: Decomposition of welfare changes

Table A.10: Decomposition of welfare changes in developed countries (equivalent variation, %)

		Scenarios								Sensitivity analysis					
		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1 + SDT	(g) Girard 1 on applied tariffs		Baseline	Sigma x 2	Mirage after agric lib'n	K endog	Perfect comp'n	No vertical diff'n
EU25	Allocative efficiency gains	0.00	0.03	0.02	0.02	0.02	0.02	0.02		0.03	0.05	0.02	0.04	0.03	0.04
	Terms of trade gains	0.04	0.12	0.03	0.01	0.00	0.00	0.04		0.01	0.01	0.01	0.01	0.01	0.01
	Other gains	0.01	0.00	0.00	0.00	0.00	-0.01	0.00		-0.01	-0.01	0.00	0.09	0.00	0.00
	Welfare	0.05	0.16	0.05	0.03	0.01	0.01	0.06		0.03	0.04	0.03	0.14	0.03	0.04
Japan	Allocative efficiency gains	0.01	0.04	0.03	0.02	0.02	0.02	0.02		0.02	0.05	0.02	0.08	0.03	0.04
	Terms of trade gains	0.03	0.18	0.07	0.05	0.03	0.04	0.07		0.05	0.04	0.06	0.05	0.05	0.05
	Other gains	0.02	0.12	0.07	0.06	0.05	0.05	0.06		0.06	0.05	0.06	0.51	0.01	0.01
	Welfare	0.05	0.33	0.17	0.14	0.10	0.12	0.16		0.14	0.14	0.14	0.65	0.09	0.10
US	Allocative efficiency gains	0.00	0.02	0.02	0.02	0.02	0.02	0.02		0.03	0.05	0.02	0.03	0.03	0.04
	Terms of trade gains	0.01	0.00	-0.03	-0.03	-0.03	-0.04	-0.03		-0.03	-0.04	-0.03	-0.03	-0.04	-0.04
	Other gains	0.01	0.03	0.02	0.02	0.02	0.02	0.02		0.01	0.00	0.02	-0.12	0.01	0.01
	Welfare	0.02	0.05	0.01	0.01	0.00	-0.01	0.02		0.01	0.01	0.01	-0.13	0.00	0.01
ANZCERTA	Allocative efficiency gains	0.04	0.10	0.08	0.07	0.06	0.07	0.08		0.10	0.19	0.06	0.12	0.10	0.12
	Terms of trade gains	0.05	-0.06	0.00	0.01	0.01	0.00	-0.02		0.01	0.05	-0.03	0.02	0.01	0.01
	Other gains	0.07	0.09	0.07	0.07	0.06	0.06	0.06		0.04	0.05	0.05	0.30	0.03	0.02
	Welfare	0.16	0.13	0.15	0.15	0.14	0.13	0.12		0.15	0.29	0.08	0.44	0.13	0.15
Canada	Allocative efficiency gains	0.01	0.04	0.03	0.03	0.03	0.03	0.03		0.05	0.09	0.03	0.02	0.06	0.07
	Terms of trade gains	0.00	-0.10	-0.09	-0.09	-0.08	-0.10	-0.08		-0.09	-0.08	-0.09	-0.09	-0.08	-0.07
	Other gains	0.00	-0.04	-0.02	-0.01	0.00	-0.01	-0.01		-0.03	-0.05	-0.01	-0.26	-0.02	-0.02
	Welfare	0.00	-0.10	-0.07	-0.06	-0.05	-0.07	-0.06		-0.06	-0.05	-0.06	-0.33	-0.04	-0.02
EFTA	Allocative efficiency gains	0.09	0.10	0.10	0.10	0.09	0.09	0.10		0.34	0.58	0.24	0.33	0.53	0.57
	Terms of trade gains	0.00	0.05	-0.01	-0.02	-0.02	-0.03	0.00		-0.02	-0.01	-0.02	-0.02	-0.01	0.01
	Other gains	-0.04	-0.08	-0.06	-0.05	-0.05	-0.05	-0.06		-0.30	-0.50	-0.12	-0.32	-0.40	-0.43
	Welfare	0.05	0.07	0.02	0.02	0.02	0.01	0.03		0.02	0.07	0.09	-0.01	0.12	0.16
HKTaSgp	Allocative efficiency gains	0.03	0.08	0.05	0.05	0.04	0.04	0.05		0.07	0.12	0.04	0.11	0.06	0.07
	Terms of trade gains	0.08	0.75	0.27	0.18	0.07	0.08	0.24		0.18	0.20	0.19	0.18	0.25	0.30
	Other gains	0.01	-0.16	-0.12	-0.11	-0.10	-0.11	-0.11		-0.13	-0.15	-0.12	0.59	-0.03	-0.04
	Welfare	0.11	0.67	0.20	0.11	0.01	0.01	0.18		0.11	0.16	0.12	0.88	0.27	0.33
Korea	Allocative efficiency gains	0.03	0.30	0.19	0.15	0.10	0.15	0.18		0.13	0.21	0.11	0.26	0.13	0.17
	Terms of trade gains	0.11	0.37	0.21	0.19	0.17	0.12	0.18		0.19	0.20	0.22	0.18	0.23	0.26
	Other gains	0.04	-0.05	0.01	0.01	0.03	0.00	-0.01		0.03	0.12	-0.02	1.63	0.10	0.12
	Welfare	0.18	0.63	0.41	0.35	0.29	0.26	0.35		0.35	0.53	0.31	2.07	0.46	0.54

Table A.11: Decomposition of welfare changes in developing countries (equivalent variation, %)

		Scenarios								Sensitivity analysis					
		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1 + SDT	(g) Girard 1 on applied tariffs	(h) Girard 1 on	Baseline	Sigma x 2	Mirage, after agric lib'n	K endog	Perfect comp'n	No vertical diff'n
Argentina	Allocative efficiency gains	0.03	0.17	0.06	0.03	0.00	0.00	0.08		0.03	0.05	0.03	0.02	0.04	0.05
	Terms of trade gains	-0.03	-0.25	-0.04	-0.01	0.01	0.01	-0.06		-0.01	0.00	-0.01	0.00	-0.01	-0.01
	Other gains	-0.02	-0.44	-0.07	-0.02	0.01	0.01	-0.12		-0.02	-0.02	-0.02	-0.16	-0.02	-0.02
	Welfare	-0.02	-0.51	-0.05	0.00	0.01	0.02	-0.10		0.00	0.03	-0.01	-0.14	0.01	0.03
Brazil	Allocative efficiency gains	0.05	0.14	0.08	0.06	0.03	0.03	0.09		0.07	0.12	0.05	0.04	0.08	0.11
	Terms of trade gains	-0.08	-0.42	-0.10	-0.05	0.00	0.01	-0.12		-0.05	-0.04	-0.05	-0.04	-0.04	-0.04
	Other gains	-0.03	-0.26	-0.06	-0.03	-0.01	-0.01	-0.08		-0.04	-0.06	-0.04	-0.29	-0.02	-0.02
	Welfare	-0.05	-0.54	-0.08	-0.02	0.02	0.03	-0.11		-0.02	0.02	-0.04	-0.29	0.03	0.04
China	Allocative efficiency gains	0.02	0.15	0.12	0.11	0.08	0.09	0.12		0.15	0.33	0.10	0.21	0.26	0.35
	Terms of trade gains	-0.01	-0.19	-0.04	0.00	0.06	0.10	-0.01		0.00	0.00	-0.01	0.00	0.02	-0.03
	Other gains	-0.13	-0.82	-0.52	-0.48	-0.42	-0.43	-0.50		-0.52	-0.71	-0.47	0.05	-0.12	-0.16
	Welfare	-0.13	-0.86	-0.44	-0.37	-0.27	-0.25	-0.39		-0.37	-0.38	-0.37	0.27	0.15	0.16
INDIA	Allocative efficiency gains	0.49	0.74	0.44	0.33	0.15	0.15	0.42		0.43	0.76	0.32	0.36	0.58	0.73
	Terms of trade gains	-0.44	-0.93	-0.32	-0.21	-0.06	-0.05	-0.29		-0.21	-0.20	-0.20	-0.21	-0.21	-0.25
	Other gains	-0.44	-0.92	-0.39	-0.27	-0.11	-0.11	-0.33		-0.37	-0.37	-0.26	-1.87	-0.32	-0.37
	Welfare	-0.38	-1.11	-0.27	-0.15	-0.02	-0.01	-0.20		-0.15	0.20	-0.14	-1.71	0.05	0.11
Maghreb	Allocative efficiency gains	2.71	3.02	1.94	1.74	1.61	1.60	2.08		2.63	3.98	1.76	2.61	2.75	3.08
	Terms of trade gains	-0.66	-1.44	-0.40	-0.25	-0.18	-0.18	-0.41		-0.25	-0.19	-0.26	-0.25	-0.26	-0.27
	Other gains	0.12	-0.56	0.37	0.47	0.51	0.51	0.34		-0.41	-0.56	0.49	-0.54	-0.79	-0.80
	Welfare	2.18	1.02	1.91	1.96	1.94	1.94	2.01		1.96	3.23	1.99	1.82	1.70	2.01
Mexico	Allocative efficiency gains	0.15	0.42	0.14	0.07	0.02	0.02	0.18		0.09	0.20	0.07	-0.06	0.09	0.11
	Terms of trade gains	-0.09	-0.54	-0.13	-0.09	-0.04	-0.04	-0.15		-0.09	-0.05	-0.09	-0.08	-0.09	-0.08
	Other gains	-0.03	-0.37	-0.03	0.00	0.01	0.01	-0.07		-0.02	-0.04	0.00	-1.43	-0.04	-0.05
	Welfare	0.03	-0.48	-0.03	-0.02	-0.01	-0.01	-0.04		-0.02	0.11	-0.02	-1.57	-0.04	-0.03
Row	Allocative efficiency gains	0.03	0.09	0.05	0.04	0.03	0.03	0.05		0.04	0.08	0.03	0.02	0.05	0.06
	Terms of trade gains	-0.06	-0.40	-0.10	-0.07	-0.04	-0.03	-0.12		-0.07	-0.05	-0.06	-0.05	-0.05	-0.03
	Other gains	0.03	-0.02	0.01	0.01	0.01	0.01	0.00		0.00	0.03	0.00	-0.22	0.00	-0.01
	Welfare	0.00	-0.32	-0.05	-0.02	0.00	0.00	-0.07		-0.02	0.06	-0.03	-0.25	-0.01	0.03
RSAm	Allocative efficiency gains	0.02	0.10	0.04	0.03	0.02	0.02	0.06		0.03	0.05	0.03	0.02	0.04	0.06
	Terms of trade gains	-0.06	-0.47	-0.06	-0.03	0.01	0.01	-0.12		-0.03	-0.03	-0.03	-0.02	0.00	0.00
	Other gains	0.00	-0.25	-0.04	-0.03	-0.02	-0.03	-0.08		-0.03	-0.04	-0.03	-0.14	-0.01	-0.01
	Welfare	-0.03	-0.62	-0.06	-0.03	0.00	0.00	-0.13		-0.03	-0.01	-0.03	-0.14	0.03	0.05
Russia	Allocative efficiency gains	0.08	0.41	0.07	0.11	0.06	0.06	0.21		0.12	0.20	0.12	0.16	0.15	0.20
	Terms of trade gains	-0.03	-0.13	0.01	0.03	0.04	0.05	-0.02		0.03	0.04	0.03	0.03	0.03	0.04
	Other gains	-0.05	-0.30	0.07	0.00	0.02	0.04	-0.09		-0.01	0.00	0.01	0.20	-0.04	-0.04
	Welfare	0.00	-0.02	0.15	0.14	0.11	0.15	0.10		0.14	0.25	0.15	0.40	0.14	0.20
SACU	Allocative efficiency gains	0.17	0.22	0.21	0.19	0.17	0.17	0.20		0.28	0.52	0.19	0.38	0.31	0.41
	Terms of trade gains	0.02	-0.17	-0.05	-0.04	-0.04	-0.04	-0.09		-0.04	-0.03	-0.06	-0.04	-0.09	-0.11
	Other gains	0.02	-0.26	-0.07	-0.06	-0.07	-0.07	-0.12		-0.14	-0.10	-0.05	0.79	-0.22	-0.25
	Welfare	0.21	-0.21	0.09	0.09	0.06	0.06	-0.01		0.09	0.39	0.09	1.13	0.00	0.05
Tigers	Allocative efficiency gains	0.49	0.81	0.56	0.52	0.48	0.49	0.58		0.76	1.78	0.45	0.95	0.83	1.03
	Terms of trade gains	-0.17	-0.60	-0.03	0.04	0.13	0.19	-0.06		0.04	0.11	0.02	0.01	0.06	0.05
	Other gains	-0.38	-0.98	-0.44	-0.39	-0.32	-0.31	-0.47		-0.64	-1.20	-0.34	1.52	-0.45	-0.53
	Welfare	-0.07	-0.78	0.08	0.17	0.29	0.36	0.05		0.17	0.69	0.13	2.48	0.44	0.55
Turkey	Allocative efficiency gains	0.02	0.12	0.07	0.05	0.04	0.04	0.07		0.05	0.10	0.04	0.05	0.05	0.05
	Terms of trade gains	0.02	-0.11	-0.04	-0.03	-0.01	-0.01	-0.04		-0.03	0.01	-0.03	-0.02	0.01	0.03
	Other gains	0.01	0.02	0.02	0.01	0.01	0.02	0.01		0.01	0.07	0.01	0.00	0.00	0.01
	Welfare	0.05	0.03	0.04	0.04	0.05	0.05	0.04		0.04	0.18	0.02	0.03	0.06	0.09

Table A.12: Decomposition of welfare changes in poor countries (equivalent variation, %)

		Scenarios								Sensitivity analysis					
		(a) Peaks elimination	(b) Complete liberalization	(c) Girard 0.65	(d) Girard 1	(e) Girard 2	(f) Girard 1 + SDT	(g) Girard 1 on applied tariffs		Baseline	Sigma x 2	Mirage, after agric lib'n	K endog	Perfect comp'n	No vertical diff'n
AFR	Allocative efficiency gains	0.02	0.03	0.02	0.01	0.01	0.01	0.02		0.02	0.02	0.01	0.01	0.02	0.04
	Terms of trade gains	-0.02	-0.19	-0.07	-0.05	-0.03	-0.03	-0.07		-0.05	-0.02	-0.04	-0.04	-0.01	0.01
	Other gains	0.02	0.05	0.00	0.00	-0.01	-0.01	0.01		-0.01	-0.23	-0.01	-0.14	0.00	0.00
	Welfare	0.01	-0.11	-0.05	-0.04	-0.02	-0.03	-0.05		-0.04	-0.24	-0.04	-0.17	0.01	0.04
SouthAsia	Allocative efficiency gains	0.01	0.01	0.00	0.00	0.00	0.00	0.01		0.00	0.00	0.00	0.00	0.02	0.04
	Terms of trade gains	-0.01	-0.06	-0.02	-0.01	0.01	0.01	0.00		-0.01	-0.02	-0.01	0.00	0.06	0.10
	Other gains	-0.01	-0.01	0.00	0.00	0.00	0.00	0.00		0.00	0.02	0.00	-0.09	0.00	0.00
	Welfare	-0.02	-0.06	-0.01	0.00	0.02	0.01	0.00		0.00	0.00	0.00	-0.09	0.08	0.14

Appendix 6: The model's equations

Supply

Leontieff relation between value added and intermediate consumption:

Imperfect competition:

$$NB_{i,r} (Y_{i,r} + cf_{i,r}) = a_{VA_{i,r}} VA_{i,r} = a_{CINTER_{i,r}} CINTER_{i,r}$$

$$NB_{i,r} PY_{i,r} (Y_{i,r} + cf_{i,r}) = PVA_{i,r} VA_{i,r} + PCINTER_{i,r} CINTER_{i,r}$$

Perfect competition:

$$Y_{i,r} = a_{VA_{i,r}} VA_{i,r} = a_{CINTER_{i,r}} CINTER_{i,r}$$

$$PY_{i,r} Y_{i,r} = PVA_{i,r} VA_{i,r} + PCINTER_{i,r} CINTER_{i,r} + Pquota_{i,r} Quota_{i,r}$$

Determination of factors demand by producers results from the following optimization programs:

$$Min \ PVA_{i,r} VA_{i,r} = PL_{i,r} L_{i,r} + PTE_{i,r} TE_{i,r} + PRN_{i,r} RN_{i,r} + PQ_{i,r} Q_{i,r}$$

$$s.t.: \quad VA_{i,r}^{1-\frac{1}{\sigma_{VA_i}}} = a_{L_i} L_{i,r}^{1-\frac{1}{\sigma_{VA_i}}} + a_{Q_{i,r}} Q_{i,r}^{1-\frac{1}{\sigma_{VA_i}}} + a_{RN_{i,r}} RN_{i,r}^{1-\frac{1}{\sigma_{VA_i}}} + a_{TE_{i,r}} TE_{i,r}^{1-\frac{1}{\sigma_{VA_i}}}$$

and

$$Min \ PQ_{i,r} Q_{i,r} = PK_{i,r} K_{i,r} + PH_{i,r} H_{i,r}$$

$$s.t.: \quad Q_{i,r}^{1-\frac{1}{\sigma_{CAP_i}}} = a_{K_{i,r}} K_{i,r}^{1-\frac{1}{\sigma_{CAP_i}}} + a_{H_{i,r}} H_{i,r}^{1-\frac{1}{\sigma_{CAP_i}}}$$

Demand

LES-CES (first stage)

$$C_{i,r} - cmin_{i,r} = a_{C_{i,r}} UT_r \left[\frac{P_r}{PC_{i,r}} \right]^{\sigma_c}$$

$$P_r UT_r = \sum_i PC_{i,r} (C_{i,r} - cmin_{i,r})$$

$$BUDC_r = \sum_i PC_{i,r} C_{i,r}$$

$$PC_{i,r} = PDEMTOT_{i,r} (1 + taxcc_{i,r})$$

Intermediate consumption (first stage)

$$IC_{i,j,r} = a_{IC_{i,j,r}} CINTER_{j,r} \left[\frac{PCINTER_{j,r}}{PIC_{i,j,r}} \right]^{\sigma_{IC}}$$

$$PCNTER_{j,r} CNTER_{j,r} = \sum_i PIC_{i,j,r} IC_{i,j,r}$$

$$PIC_{i,j,r} = PDEMTOT_{i,r} (1 + taxicc_{i,j,r})$$

Capital good (first stage)

$$epa_r REV_r = PINVTOT_r INVTOT_r$$

$$KG_{i,r} = a_{KGi,r} INVTOT_r \left[\frac{PINVTOT_r}{PKG_{i,r}} \right]^{\sigma_{KG}}$$

$$PINVTOT_r INVTOT_r = \sum_i PKG_{i,r} KG_{i,r}$$

$$PKG_{i,r} = PDEMTOT_{i,r} (1 + taxkgc_{i,r})$$

Total demand

$$DEMTOT_{i,r} = C_{i,r} + \sum_j IC_{i,j,r} + KG_{i,r}$$

Groups of regions (second stage)

$$Min \ PDEMTOT_{i,r} DEMTOT_{i,r} = PDEMU_{i,r} DEMU_{i,r} + PDEMV_{i,r} DEMV_{i,r}$$

$$s.t.: \quad DEMTOT_{i,r}^{1-\frac{1}{\sigma_{GEOi}}} = a_{U_{i,r}} DEMU_{i,r}^{1-\frac{1}{\sigma_{GEOi}}} + a_{V_{i,r}} DEMV_{i,r}^{1-\frac{1}{\sigma_{GEOi}}}$$

Armington (third stage)

$$Min \ PDEMU_{i,r} DEMU_{i,r} = PDEM_{i,r,r} DEM_{i,r,r} + PDEMETR_{i,r} DEMETR_{i,r}$$

$$s.t.: \quad DEMU_{i,r}^{1-\frac{1}{\sigma_{ARMi}}} = a_{LOC_{i,r}} DEM_{i,r,r}^{1-\frac{1}{\sigma_{ARMi}}} + a_{ETR_{i,r}} DEMETR_{i,r}^{1-\frac{1}{\sigma_{ARMi}}}$$

Regions (forth stage)

For foreign regions of the same level of development:

$$DEM_{i,r,s} = a_{IMPi,r,s} DEMETR_{i,s} \left[\frac{PDEMETR_{i,s}}{PDEM_{i,r,s}} \right]^{\sigma_{IMPi}}$$

$$PDEMETR_{i,s} DEMETR_{i,s} = \sum_{r \in Etra(s)} PDEM_{i,r,s} DEM_{i,r,s}$$

For foreign regions of a different level of development:

$$DEM_{i,r,s} = a_{IMPi,r,s} DEMV_{i,s} \left[\frac{PDEMV_{i,s}}{PDEM_{i,r,s}} \right]^{\sigma_{IMPi}}$$

$$PDEM_{i,s}^{(1-\sigma_{IMP_i})} = \sum_{r \in V(s)} a_{IMP_{i,r,s}} PDEM_{i,r,s}^{(1-\sigma_{IMP_i})}$$

Varieties (fifth stage, imperfect competition)

$$DEMVAR_{i,r,s} = DEM_{i,r,s} NB_{i,r,t}^{1-\frac{1}{\sigma_{VAR_i}}}$$

$$PDEM_{i,r,s} = PDEMVAR_{i,r,s} NB_{i,r,t}^{\frac{1}{1-\sigma_{VAR_i}}}$$

Commodity market equilibrium

Imperfect competition:

$$Y_{i,r} = \sum_s DEMVAR_{i,r,s}$$

$$TRADE_{i,r,s} = NB_{i,r} DEMVAR_{i,r,s}$$

Perfect competition:

$$Y_{i,r} = \sum_s DEM_{i,r,s} \quad (i \neq TrT)$$

$$Y_{Trt,r} = \sum_s DEM_{TrT,r,s} + TRM_r$$

$$TRADE_{i,r,s} = DEM_{i,r,s}$$

Transport sector

Transport demand:

$$TR_{i,r,s} = \mu_{i,r,s} TRADE_{i,r,s}$$

$$MONDTR = \sum_{i,r,s} TR_{i,r,s}$$

Transport supply:

$$MONDTR = a_T \prod_r TRM_r^{\theta_r}$$

$$PY_{TrT,r} (1+tax_{TrT,r}) TRM_r = \theta_r PT MONDTR$$

Full use of endowments:

$$Lbar_r = \sum_j L_{j,r,t}$$

$$TEbar_r = \sum_j TE_{j,r}$$

$$Hbar_r = \sum_j H_{j,r}$$

Mobility:

$$PL_{j,r} = PLbar_r$$

$$PTE_{j,r} = PTEbar_r$$

$$PH_{j,r} = PHbar_r$$

$$PK_{i,r} = Pkbar_r$$

K and Land returns, subsidies included:

$$WK_{i,r} = PK_{i,r} + TsubK_{i,r}$$

$$WTE_{i,r} = PTE_{i,r} + TsubTE_{i,r}$$

Land supply:

$$WTEbar_r TEbar_r = \sum_i WTE_{i,r} TE_{i,r}$$

$$TEbar_r = TEbarO_r WTEbar_r^{\sigma_{TEbar}} \quad (NB: WTEbarO_r = 1)$$

Land allocation:

$$TE_{i,r} = b_{Ti,r} TEbar_r \left(\frac{WTE_{i,r}}{WTEbar_r} \right)^{\sigma_{TE}}$$

Price definition

CIF Price:

$$PCIF_{i,r,s} = \frac{PY_{i,r}}{(1 + EP_{i,r,s})} (1 + taxP_{i,r}) (1 + TAXEXP_{i,r,s} + taxAMF_{i,r,s}) + \mu_{i,r,s} PT \quad (\text{imp. competition})$$

$$PCIF_{i,r,s} = PY_{i,r} (1 + taxP_{i,r}) (1 + TAXEXP_{i,r,s} + taxAMF_{i,r,s}) + \mu_{i,r,s} PT \quad (\text{perfect competition})$$

Sale price:

$$PDEMVAR_{i,r,s} = PCIF_{i,r,s} (1 + DD_{i,r,s}) \quad (\text{imperfect competition})$$

$$PDEM_{i,r,s} = PCIF_{i,r,s} (1 + DD_{i,r,s}) \quad (\text{perfect competition})$$

Revenue

Profits (imperfectly competitive sectors):

$$0 = PY_{i,r} \sum_s \frac{TRADE_{i,r,s}}{(1 + EP_{i,r,s})} - (PVA_{i,r} VA_{i,r} + PCNTER_{i,r} CNTER_{i,r})$$

Tax revenues:

$$RECPROD_{i,r} = taxP_{i,r} PY_{i,r} \sum_s \frac{TRADE_{i,r,s}}{(1 + EP_{i,r,s})} \quad (\text{imperfect competition})$$

$$RECPROD_{i,r} = taxP_{i,r} PY_{i,r} Y_{i,r} \quad (\text{perfect competition})$$

$$RECEXP_{i,r} = PY_{i,r} (1 + taxP_{i,r}) \sum_s (TAXEXP_{i,r,s} + taxAMF_{i,r,s}) \frac{TRADE_{i,r,s}}{(1 + EP_{i,r,s})} \quad (\text{imp. competition})$$

$$RECEXP_{i,r} = PY_{i,r} (1 + taxP_{i,r}) \sum_s (TAXEXP_{i,r,s} + taxAMF_{i,r,s}) TRADE_{i,r,s} \quad (\text{perf. competition})$$

$$RECDD_{i,s} = \sum_r DD_{i,r,s} PCIF_{i,r,s} TRADE_{i,r,s}$$

$$RECONS_{i,r} = PDEMTOT_{i,r} (taxcc_{i,r} C_{i,r} + taxkgc_{i,r} KG_{i,r} + \sum_j taxicc_{i,j,r} IC_{i,j,r})$$

$$RECTAX_r = \sum_i RECPROD_{i,r} + RECEXP_{i,r} + RECDD_{i,r} + RECONS_{i,r}$$

Regional equilibrium:

$$REV_r + SOLD_r = \sum_i PRN_{i,r} RN_{i,r} + PTE_{i,r} TE_{i,r} + PK_{i,r} K_{i,r}$$

$$+ PLbar_r Lbar_r + PHbar_r Hbar_r + RECTAX_r + \sum_s rente_{r,s} - rente_{s,r}$$

Savings:

$$BUDC_r = (1 - epa_r) REV_r$$

Imperfect competition

Definition of market shares:

$$SE_{i,r,s} = \frac{PDEM_{i,r,s} DEM_{i,r,s}}{\sum_{rr \in Etra(s)} PDEM_{i,rr,s} DEM_{i,rr,s}}, SU_{i,r,s} = \frac{PDEM_{i,r,s} DEM_{i,r,s}}{\sum_{rr \notin V(s)} PDEM_{i,rr,s} DEM_{i,rr,s}},$$

$$SV_{i,r,s} = \frac{PDEM_{i,r,s} DEM_{i,r,s}}{\sum_{\pi \in V(s)} PDEM_{i,\pi,s} DEM_{i,\pi,s}}, \quad ST_{i,r,s} = \frac{PDEM_{i,r,s} DEM_{i,r,s}}{\sum_{\pi} PDEM_{i,\pi,s} DEM_{i,\pi,s}}$$

Mark-up in domestic markets:

$$NB_{i,r} \left[EP_{i,r} + \frac{1}{\sigma_{VAR_i}} \right] = \left[\frac{1}{\sigma_{VAR_i}} - \frac{1}{\sigma_{ARM_i}} \right] + \left[\frac{1}{\sigma_{ARM_i}} - \frac{1}{\sigma_{GEO_i}} \right] SU_{i,r} + \left[\frac{1}{\sigma_{GEO_i}} - \frac{1}{\sigma_{C_i}} \right] ST_{i,r}$$

Mark-up in foreign markets in countries with the same level of development:

$$NB_{i,r} \left[EP_{i,r,s} + \frac{1}{\sigma_{VAR_i}} \right] = \left[\frac{1}{\sigma_{VAR_i}} - \frac{1}{\sigma_{ARM_i}} \right] + \left[\frac{1}{\sigma_{IMP_i}} - \frac{1}{\sigma_{ARM_i}} \right] SE_{i,r,s} + \left[\frac{1}{\sigma_{ARM_i}} - \frac{1}{\sigma_{GEO_i}} \right] SU_{i,r,s} + \left[\frac{1}{\sigma_{GEO_i}} - \frac{1}{\sigma_{C_i}} \right] ST_{i,r,s}$$

Mark-up in foreign markets in countries with a different level of development:

$$NB_{i,r} \left[EP_{i,r,s} + \frac{1}{\sigma_{VAR_i}} \right] = \left[\frac{1}{\sigma_{VAR_i}} - \frac{1}{\sigma_{ARM_i}} \right] + \left[\frac{1}{\sigma_{IMP_i}} - \frac{1}{\sigma_{GEO_i}} \right] SV_{i,r,s} + \left[\frac{1}{\sigma_{GEO_i}} - \frac{1}{\sigma_{C_i}} \right] ST_{i,r,s}$$