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ABSTRACT

Tariff Peaks in the Quad and Least Developed Country Exports*

Although average tariffs in Quad markets are very low, tariff peaks and tariff escalation have a disproportional effect on exports from least developed countries (LDCs). Tariff peak products tend to be heavily concentrated in agriculture and food products and in labour-intensive sectors such as apparel and footwear. Full duty and quota free access for LDCs in the Quad for tariff peak products would result in an 11% increase in their total exports - in the order of \$2.5 billion. Exports to Quad countries of tariff peak products would expand by 30–60%. Given that LDC exports of tariff peak items account for only a small share of total developing country exports, granting LDCs duty free access has a negligible impact on other developing countries. For the same reason, Quad imports increase only marginally, suggesting that this should not be a factor constraining implementation of duty free access for the poorest countries.

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NON-TECHNICAL SUMMARY

Although average most favoured nation (MFN) tariffs in the Quad (Canada, the EU, Japan and the United States) have fallen to about 5%, there is still a large number of products that face tariffs three times this level. Around 1077 tariff lines out of a total of 5032 at the 6 digit level of the Harmonized System face an MFN tariff of more than 15% in at least one member of the Quad. Tariff rates are as high as 343% in Canada, 252% in the EU, 171% in Japan and 121% in the United States.

Such tariff peaks are often concentrated in products that are of export interest to developing countries. They include major agricultural staple food products, such as sugar, cereals and fish; tobacco and certain alcoholic beverages; fruits and vegetables; food industry products with a high sugar content, clothing and footwear. To illustrate this note that imports of tariff peak items into the Quad represent only 4% of their total imports, but 11% of their imports from least developed countries (LDCs).

Although tariff preferences granted to developing countries through different schemes (LDCs, GSP etc.) tend to be relatively generous on average, this is not the case for tariff peak items, as 'sensitive' products are excluded from these schemes or some type of quantitative limitation is imposed, either in terms of the amount that can be imported under the preferential rates (a tariff rate quota) or in terms of the countries that are eligible. Preferences are concentrated in products that already enjoy low tariffs (between 0 and 10%) rather than on tariff peaks. In other words, preferential schemes offer little protection against tariff peaks in the Quad, the exception being the European Union, which offers relatively generous preferences on tariff peak items.

The Paper assesses the potential effects on the value and the pattern of trade from implementing initiatives to grant least developed countries duty free access for tariff peak items in Quad markets. The Paper is motivated by recent proposals of the Commission of the European Communities to provide LDCs with free access to the EU for all products except arms. We investigate what implementation of this proposal by *all* Quad countries would mean for LDCs. The Paper focuses on tariff peaks only – tariffs below 15% are ignored. We do this for a number of reasons. First, peaks affect commodities that are of relatively greater importance for LDCs than other developing countries – they account for a larger share of total LDC exports. Second, from a political economy point of view this is where the 'action' is – these are the products with the highest protection in the Quad. Third, moving beyond tariff peaks to consider elimination of all tariffs on all imports from LDCs requires the use of a computable general equilibrium model of the world economy. Although such tools are readily available, they do not allow a detailed and disaggregated analysis of the effect of liberalization at the product and country level. As we are interested in determining the likely impact of duty free access on the

pattern and composition of trade, we use a partial equilibrium approach. By limiting our focus to tariff peaks – which account for only a small share of total trade of most countries – such an approach is unlikely to lead to misleading conclusions.

Simulation results suggest that granting preferential duty free access to LDCs into the Quad would result in an increase of \$2.5 billion in LDC exports or 11% of their total exports of goods to the world. It will also create some trade diversion, as exports from other sources decline, but these losses are very small in relative terms, given the small size of LDCs in world markets – in general less than 0.1%.

The distribution of export increases across products and countries reflects differences in both the export bundle of LDCs and the tariff peak items in Quad countries. In terms of specific product categories and countries, the impact of duty free access for LDCs is relatively concentrated. In the US and Canada, most of the action is in apparel. In the EU and Japan, the action is primarily in sugar and related products, and cereals. In terms of which LDCs benefit most, Bangladesh would be a big beneficiary, as the largest LDC exporter of apparel, footwear and fish to the EU, US and Canada. Other LDCs will also benefit significantly in relative terms. Cambodia, Cape Verde, Haiti, Lao, Liberia, Malawi, the Maldives and Somalia would all see their exports increase by 20% or more. Given that tariff peaks across Quad countries occur in different products and that LDC export bundles are quite varied, it is important that all Quad members grant preferential access to ensure that all LDCs benefit.

It is well known that protectionist trade regimes in industrialized countries are not the most important factor constraining LDC export growth – important as well are domestic distortions and institutional weaknesses that create high transaction costs, bias investment incentives and raise risk premia. Duty free access will not solve the problem of the marginalization of LDCs in global trade. It is something that can, however, be offered to these countries by the Quad, and that can help offset to some extent the major domestic challenges and transaction costs that confront domestic entrepreneurs in these countries. In the process it may help alter the domestic political economy forces that constrain the adoption and implementation of better policies by mobilizing groups that will benefit from improved access to the Quad.

Introduction

Average most-favored-nation (MFN) tariffs in the Quad (Canada, the EU, Japan and the US) have fallen to about 5 percent. Given that the Quad grant developing countries preferential access to their markets through the General System of Preferences (GSP) and related schemes, as well as reciprocal trade agreements such as NAFTA or the Euro-Mediterranean Partnership Agreements, the majority of goods imported from developing countries enters into Quad markets on a duty-free basis.¹ Despite the low average MFN and preferential tariff rates that apply in developed countries, tariffs for some commodities are over 100 percent. Such tariff peaks are often concentrated in products that are of export interest to developing countries. They include major agricultural staple food products, such as sugar, cereals and fish; tobacco and certain alcoholic beverages; fruits and vegetables; food industry products with a high sugar content, clothing and footwear. The Uruguay Round of multilateral trade negotiations actually increased tariff dispersion, as tariffication of non-tariff barriers (NTBs) in agriculture led to the imposition of high duties on agricultural products that had previously been quota constrained (Hoekman and Kostecki, 2001). As a result, tariffs that are more than three times higher than the average MFN duty are not uncommon in the Quad.

In many cases where there are tariff peaks, preferences tend to be limited, in that 'sensitive' products are excluded from the schemes or some type of quantitative limitation is imposed, either in terms of the amount that can be imported under the preferential rates (a tariff rate quota) or in terms of the countries that are eligible (Michalopoulos, 1999, Hallaert, 2000). Moreover, the tariff structure of developed countries shows significant tariff escalation, so that market access for more processed products (embodying greater value added) is more restricted. For example, fully-processed manufacturing food products face tariffs twice as large as products in the first-stage of processing in the EU and Japan, with final goods confronting an average MFN tariff of 24 and 65 percent, respectively. In Canada the ratio is even higher: tariffs on

¹ Both GSP and North-South FTAs give rise to trade diversion. This will benefit some developing countries, but hurt others.

fully-processed food products are 12 times higher than for 1st stage processed products (the MFN tariff on fully processed is 42 percent).² The existence of duty-drawback systems for Quad-based exporters and the fact that GSP preferences in the Quad are more likely to be granted for products with low MFN tariffs (see below), reinforces the degree of escalation, as some imports of semi-processed products or raw materials are exempted from duties when used as inputs in export production.

This paper assesses the potential effects on the value and the pattern of trade from implementing initiatives to grant least developed countries (LDCs) duty free access for tariff peak items in Quad markets.³ The paper is motivated by recent proposals of the Commission of the European Communities to provide LDCs with free access to the EU for all products except arms. We investigate what implementation of this proposal by *all* Quad countries would mean for LDCs. The paper focuses on tariff peaks only—tariffs below 15 percent are ignored. We do this for a number of reasons. First, peaks affect commodities that are of relatively greater importance for LDCs than other developing countries—they account for a larger share of total LDC exports. Second, from a political economy point of view this is where the ‘action’ is—these are the products with the highest protection in the Quad. Third, moving beyond tariff peaks to consider elimination of all tariffs on all imports from LDCs requires the use of a computable general equilibrium model of the world economy. Although such tools are readily available, they do not allow a detailed and disaggregated analysis of the effect of liberalization at the product and country level. As we are interested in determining the likely impact of duty-free access on the pattern and composition of trade, we use a partial equilibrium approach. By limiting our focus to tariff peaks—which account for only a small share of total trade of most countries—such an approach is unlikely to lead to misleading conclusions.⁴

We do not quantify the effect of remaining NTBs—the focus is solely on tariffs and tariff preferences. NTBs are relatively unimportant in the Quad—only 1.2 percent of tariff lines are subject to NTBs in Canada, 4.2 percent in Europe, 2.6 in Japan and 2.9 in

² Figures are from WTO Trade Policy Reviews of Quad countries.

³ We use the United Nations definition of LDCs. This comprises the 48 countries listed in Table 7 below.

⁴ See Ianchovichina, Mattoo and Olarreaga (2000) for a CGE-based estimate of the gains for Sub-Saharan Africa of unrestricted market access for all goods in the Quad.

the US (OECD, 1997a). However, they do apply to a sector that is of great interest to developing countries—clothing—which is still constrained by quotas. By ignoring these quotas and the associated rents, our analysis underestimates the potential export response by LDCs following duty-free access for tariff peak products. However, given that the WTO Agreement on Textiles and Clothing requires that remaining quotas are to be removed no later than 2005, in the medium term what matters are the tariff preferences. As any duty free access initiative will in all likelihood take some time to be implemented, ignoring textiles and clothing quotas should not have major implications for our results. In the case of agriculture, the Uruguay Round led to tariffication of all NTBs in the Quad (with the exception of rice in Japan). Although tariff rate quotas are often used, these involve two-tier tariff systems, with out of quota imports subject to higher tariffs. In this paper we use out of quota tariffs as the appropriate measure of protection, which may lead to an overestimate of the effects of duty-free access. Specific tariffs—frequently used for agricultural products in the Quad—have been converted into ad valorem equivalents using OECD data (OECD, 1997a; 2000).

The paper is structured as follows. We start with a description of the extent and importance of existing tariff peaks in the Quad (Section 1); the preferential treatment granted to developing countries for these tariff peaks products (Section 2) and the prevailing pattern of developing country exports (Section 3).⁵ We then assess the possible impact of granting duty free access for tariff peak items to the Quad for LDCs, using partial equilibrium simulation methods (Section 4). Section 5 concludes.

1 Tariff peaks and imports in Quad

Between 6 and 14 percent of Quad tariff lines at the 6-digit of the Harmonized System (HS) are above 15 percent (Table 1).⁶ There are 200 to 300 such lines in the US, the EU and Japan, whereas Canada has more than 700 tariff peaks. The average tariff in the Quad over all tariff peak products is 28 percent, or 4.5 times the unweighted total average tariff of 6.2 percent. The highest average tariff for peak products is found in the EU with an

⁵ Under preferential treatment we include both unilateral schemes such as GSP, Lomé or LDC preferences, and those granted under bilateral agreements, such as NAFTA, Canada-Chile and the Euro-Med agreements.

⁶ The WTO and UNCTAD define tariff peaks as all tariff line above 15 percent (at the 6 digit of the HS).

average of 40.3 percent (compared to an average of 7.4 percent for all products). In the US and Canada, most of the tariff peaks are in industrial products (over 85 percent), whereas in the EU and Japan most peaks affect agricultural products (91 and 77 percent). The maximum tariff rate at the 6-digit level of aggregation in Canada, the EU, Japan and the US, respectively, applies to butter (340 percent), edible bovine offal (250 percent), raw cane sugar (170 percent) and ground nuts in shell (120 percent).

Total imports of products subject to tariff peaks in the Quad in 1999 was \$92.8 billion. More than 60 percent of Quad imports of these products originate in developing countries (55.2/92.8—see Table 1) and *potentially* face an average tariff of 28 percent.⁷ This represents around 5 percent of total developing countries exports to the Quad. LDC exports are disproportionately affected by tariff peaks in the Quad—products subject to tariff peaks represent 15 to 30 percent of total exports to the US, EU and Canada. Up to \$22 billion of tariff revenue may be collected on these tariff peak items by Quad countries, half of which is contributed by developing country exporters (including those with preferential treatment); LDC exporters may pay up to \$200 million in tariff revenue, in spite of their preferences.

Tables 2a-d provide a more detailed description of Quad imports of peak products from developing countries at the HS 2 digit level. The trade values reported correspond only to imports of products with tariffs above 15 percent at the 6 digit level for each of the 2 digit categories. In the US and Canada, the largest import category subject to tariff peaks is apparel: more than 90 percent of LDC exports of tariff peak products to the US and Canada occur in HS 61 and 62 (apparel and clothing). For developing countries in general, clothing and footwear represent more than 60 percent of exports of tariff peak products to the Quad. Exports of clothing to the EU and Japan are also relatively large, but these products are not tariff peak items in either market. Most developing country exports of tariff peak products to the EU and Japan occur in agriculture, food products and footwear.

⁷ “Potentially” because tariff preferences granted to developing countries through bilateral or unilateral schemes will bring down the tariff faced by these exporters.

Table 1: Tariff peaks and imports by Quad, 1999

Tariff Peak Product (at HS 6-digit Level)	USA	EU15 /a	Japan	Canada	All Quad
No. of Tariff Peak Products (mfn \geq 15%) /b	307	317	233	732	1077 /e
of which: Agriculture Products /b	48	290	178	85	364 /e
Industrial Products /b	263	27	55	647	713 /e
Tariff Peak Products as % of All Tariff Lines	6.1	6.2	4.6	14.3	7.8 /f
Average MFN Tariff Rates (unweighted in %):					
Tariff Peak Products	20.8	40.3	27.8	30.5	28.0
All Products	5.0	7.4	4.3	8.3	6.2
Maximum Rate	121.0	251.9	170.5	342.7	221.5
Total imports of Tariff Peak Products (US\$ billion)	41.2	27.1	15.8	8.7	92.8
of which: All Preferential & GSP Countries	26.3	16.5	4.8	7.6	55.2
Least Developed Countries /c	0.9	0.3	0.03	0.09	1.3
ACP Developing Countries /d		2.7			2.7
Share of Tariff Peak products in total imports (%)	4.6	3.4	4.9	4.6	4.2
of which: All Preferential & GSP Countries (%)	6.6	4.9	2.8	4.8	5.2
Least Developed Countries /c	15.0	2.8	2.6	30.2	11.4
ACP Developing Countries /d		15.0			
Import Revenue Collection in Tariff Peak Products from the World (in Billion of US\$)	5.4	8.9	6.3	1.6	22.2
of which: All Preferential & GSP Dev. Countries	4.6	4.3	1.4	0.7	11.0
Least Developed Countries /c	0.2	0.03	0.001	0.02	0.2
ACP Developing Countries /d		0.57			0.6

Notes: /a Excludes all EU intra trade in world totals
 /b No overlapping items in the Quad aggregates
 /c Based on the United Nations classification of 48 countries
 /d Based on fourth Lomé Convention for 59 Africa, Caribbean and Pacific (ACP) low income countries. Includes a large number of LDCs.
 /e Number of non-overlapping categories.
 /f This is the simple (unweighted) average across Quad countries. Note that of the 5032 tariff lines at the 6 digit level of the Harmonized System, 21 percent (1077/5032) includes a tariff peak item in at least one Quad member.

Sources: OECD for MFN tariff, WTO tariff files for preferences and UN Comtrade Statistics for trade.

Table 2a: Canadian Tariff Peak Imports by HS 2-digit (1996-98 average)

Tariff Peak at HS 2-digit Product	DC (non-LDC)		LDCs		World	
	\$ '000	All Peaks	\$ '000	All Peaks	\$ '000	All Peaks
01 Live animals.	134	0.0	0	0.0	25118	0.3
02 Meat and edible meat offal	12	0.0	0	0.0	116718	1.3
04 Dairy prod; birds' eggs; honey	9653	0.3	12	0.0	227028	2.6
06 Live tree & other plant; bulb, cut flowers	38432	1.1	3	0.0	50659	0.6
08 Edible fruit and nuts; melons	0	0.0	0	0.0	20	0.0
10 Cereals.	2937	0.1	0	0.0	16482	0.2
11 Prod mill indust; malt; starches	649	0.0	0	0.0	16511	0.2
12 Oil seed, oleagi fruits; misc grain	0	0.0	0	0.0	0	0.0
13 Lac; gums, resins & other veg	0	0.0	0	0.0	3	0.0
15 Animal/veg fats & oils & prod	14003	0.4	5	0.0	67360	0.8
16 Prep of meat, fish or mollusks	16	0.0	0	0.0	111379	1.3
17 Sugars and sugar confectionery	0	0.0	0	0.0	76	0.0
18 Cocoa and cocoa preparations	11530	0.3	12	0.0	225982	2.6
19 Prep of cereal, flour, starch/milk prod	2583	0.1	1	0.0	109161	1.3
20 Prep of vegetable, fruit, nuts prod	8454	0.2	4	0.0	11073	0.1
21 Miscellaneous edible preparations	21007	0.6	17	0.0	333050	3.8
22 Beverages, spirits and vinegar	5573	0.2	1	0.0	116947	1.3
23 Residues & waste from food indust	8333	0.2	148	0.2	141109	1.6
24 Tobacco and manufactured	313	0.0	0	0.0	10187	0.1
33 Essential oils & resinoids, perf.	197	0.0	1	0.0	81149	0.9
35 Albuminoidal subs; modified starches	110	0.0	0	0.0	5602	0.1
39 Plastics and articles thereof.	36479	1.0	151	0.2	396692	4.6
40 Rubber and articles thereof.	35795	1.0	85	0.1	100675	1.2
42 Articles of leather; saddlery, travel pr	108267	3.0	45	0.1	118978	1.4
43 Furskins and artificial fur thereof.	9796	0.3	7	0.0	17308	0.2
51 Wool, fine/coarse animal hair nes	32530	0.9	9	0.0	87919	1.0
52 Cotton.	51587	1.4	26	0.0	241263	2.8
53 Other vegetable textile fibres & yarns	2193	0.1	0	0.0	4220	0.0
54 Man-made filaments.	79183	2.2	1	0.0	249164	2.9
55 Man-made staple fibres.	98053	2.7	60	0.1	272819	3.1
56 Wadding, felt & nonwoven, yarns etc.	9119	0.3	15	0.0	240986	2.8
57 Carpets and other textile floor coverings	7148	0.2	176	0.2	66718	0.8
58 Special woven fab; tufted tex fab etc	22818	0.6	11	0.0	106245	1.2
59 Impregnated, coated, cover/laminated	13128	0.4	1	0.0	164554	1.9
60 Knitted or crocheted fabrics	78072	2.2	2	0.0	247784	2.9
61 Art of apparel & clothing access	756272	20.9	34576	38.9	1134671	13.1
62 Art of apparel & clothing access	1068566	29.6	50355	56.6	1502785	17.3
63 Other made up textile articles	141153	3.9	1410	1.6	414617	4.8
64 Footwear, gaiters and articles	606225	16.8	141	0.2	859968	9.9
65 Headgear and parts thereof.	40650	1.1	1559	1.8	56996	0.7
67 Prepr feathers & down; art flower nes	2629	0.1	89	0.1	3727	0.0
68 Art of stone, plaster, cement, asbestos	0	0.0	0	0.0	177	0.0
70 Glass and glassware.	1150	0.0	0	0.0	44277	0.5
85 Electrical mech equip parts, sound pr	171068	4.7	2	0.0	392525	4.5
86 Railw/tramw locom, rolling stock etc.	7	0.0	0	0.0	22473	0.3
89 Ships, boats and floating structures	53317	1.5	0	0.0	73031	0.8
91 Clocks and watches and parts nes	8740	0.2	9	0.0	13005	0.1
94 Furniture; bedding, mattress, cushion	16789	0.5	1	0.0	54570	0.6
95 Toys, games & sports requisites, nes	26841	0.7	0	0.0	54440	0.6
96 Miscellaneous manufactured articles	10824	0.3	4	0.0	75004	0.9
All above Peak Products (50)	3612335	100.0	88940	100.0	8683203	100.0
All Peaks as % of All Goods	12.1		30.2		4.6	
All goods	29735968		294206		189663049	

Source: Computations based on UN COMTRADE Statistics.

Table 2b: European Union Tariff Peak Imports by HS 2-digit (1996-1998 average)

Tariff Peak at HS 2-digit Products	DCs (non-LDCs)		LDCs & ACP			World (excl intra EU)	
	Imports \$ '000	As % of All Peaks	LDCs \$ '000	ACP \$ '000	Total as % of All Peaks	Imports \$ '000	As % of All Peaks
01 Live animals.	196738	1.2	3	0	0.0	198627	0.4
02 Meat and edible meat offal	1484861	9.0	2501	32284	1.2	2479580	4.7
03 Fish & crustacean, mollusk nes	414792	2.5	18352	58281	2.6	640485	1.2
04 Dairy prod; birds' eggs; honey	408724	2.5	532	1120	0.1	1158305	2.2
06 Live tree & other plant; bulb, cut flowers	403997	2.5	24351	172061	6.6	616188	1.2
07 Edible vegetables and roots & tubers	748841	4.5	1893	6239	0.3	786957	1.5
08 Edible fruit and nuts; melons	3215127	19.5	11357	523714	18.0	3854199	7.2
09 Coffee, tea, mat and spices	5718	0.0	18	136	0.0	7712	0.0
10 Cereals.	655581	4.0	5992	43400	1.7	1812641	3.4
11 Prod mill indust; malt; starches	30152	0.2	72	930	0.0	64027	0.1
12 Oil seed, oleagi fruits; misc grain	76	0.0	0	0	0.0	76	0.0
13 Lac; gums, resins & other veg	4783	0.0	29	44	0.0	12102	0.0
15 Animal/veg fats & oils & prod	283301	1.7	35	105	0.0	293660	0.6
16 Prep of meat, fish or mollusks	1504943	9.1	73048	475351	18.4	2599617	4.9
17 Sugars and sugar confectionery	290881	1.8	50961	872813	31.0	1305696	2.4
18 Cocoa and cocoa preparations	1040	0.0	0	2	0.0	2284	0.0
19 Prep of cereal, flour, starch/milk prod	109982	0.7	275	1880	0.1	337617	0.6
20 Prep of vegetable, fruit, nuts prod	2788622	16.9	3115	128265	4.4	3360717	6.3
21 Miscellaneous edible preparations	235059	1.4	1308	54198	1.9	745369	1.4
22 Beverages, spirits and vinegar	413058	2.5	2170	262588	8.9	903738	1.7
23 Residues & waste from food indust	158264	1.0	179	1073	0.0	1278138	2.4
24 Tobacco and manufactured	415206	2.5	34135	67035	3.4	658981	1.2
29 Organic chemicals.	1452	0.0	0	0	0.0	6456	0.0
35 Albuminoidal subs; modified starches	17148	0.1	1	0	0.0	58026	0.1
38 Miscellaneous chemical products	207	0.0	0	0	0.0	1630	0.0
56 Wadding, felt & nonwoven, yarns etc.	4143	0.0	5084	79	0.2	10053	0.0
64 Footwear, gaiters and articles	2117353	12.9	27649	10328	1.3	3032077	5.7
87 Vehicles o/t railw/tramw roll stock, pts	550465	3.3	4888	139	0.2	873057	1.6
All above Peak Products (28)	16460512	100.0	267948	2712065	100.0	53322977	100.0
All Peaks as % of All Goods	4.9		2.8	15.0		6.7	
All Goods	336372956		9486662	18046842		793651939	
Memo: Non-Peak Items							
61 Art of apparel & clothing accessories	12628395	76.7	1045824	531205	52.9	30819954	57.8
62 Art of apparel & clothing accessories	20492103	124.5	1205487	258471	49.1	40252929	75.5

Source: Computations based on UN COMTRADE Statistics.

Table 2c: Japan's Tariff Peak Imports by HS 2-digit Product (1996-98 average)

Tariff Peak at HS 2-digit products	DCs (non-LDCs)		LDCs		World	
	Value \$ '000	As % of All Peaks	Value \$ '000	As % of All Peaks	Value \$ '000	As % of All Peaks
02 Meat and edible meat offal	2890	0.1	1832	6.2	2806021	17.7
03 Fish & crustacean, mollusk nes	0	0.0	0	0.0	38	0.0
04 Dairy prod; birds' eggs; honey	119343	2.5	71	0.2	827820	5.2
07 Edible vegetables and roots & tubers	846	0.0	0	0.0	847	0.0
08 Edible fruit and nuts; melons	632238	13.1	5	0.0	842950	5.3
09 Coffee, tea, mat and spices	26052	0.5	163	0.6	74160	0.5
10 Cereals.	182470	3.8	223	0.8	2529817	16.0
11 Prod mill indust; malt; starches	10262	0.2	0	0.0	392065	2.5
12 Oil seed, oleagi fruits; misc grain	14104	0.3	278	0.9	16654	0.1
15 Animal/veg fats & oils & prod	520	0.0	0	0.0	3254	0.0
16 Prep of meat, fish or mollusks	24717	0.5	0	0.0	164710	1.0
17 Sugars and sugar confectionery	352085	7.3	3	0.0	583853	3.7
18 Cocoa and cocoa preparations	85582	1.8	0	0.0	266135	1.7
19 Prep of cereal, flour, starch/milk prod	288889	6.0	1	0.0	674369	4.3
20 Prep of vegetable, fruit, nuts prod	871435	18.1	5	0.0	1264282	8.0
21 Miscellaneous edible preparations	266046	5.5	51	0.2	747216	4.7
22 Beverages, spirits and vinegar	358005	7.4	32	0.1	2030025	12.8
24 Tobacco and manufactured	1755	0.0	0	0.0	5178	0.0
29 Organic chemicals.	31194	0.6	0	0.0	47472	0.3
35 Albuminoidal subs; modified starches	93962	2.0	0	0.0	180893	1.1
38 Miscellaneous chemical products	1636	0.0	0	0.0	1638	0.0
41 Raw hides and skins (other than fur)	34476	0.7	12069	41.0	116134	0.7
42 Articles of leather; saddlery, travel pr	336185	7.0	67	0.2	592537	3.7
43 Furskins and artificial fur thereof.	85942	1.8	1	0.0	120450	0.8
53 Other vegetable textile fibres & yarns	1580	0.0	7	0.0	17462	0.1
58 Special woven fab; tufted tex fab etc	24482	0.5	2	0.0	36376	0.2
60 Knitted or crocheted fabrics	6300	0.1	0	0.0	7275	0.0
64 Footwear, gaiters and articles	956262	19.9	14621	49.7	1491240	9.4
All above Peak Products (28)	4809258	100.0	29430	100.0	15840872	100.0
All Peaks as % of All Goods	2.8		2.6		4.9	
All goods	172280687		1139299		321584044	
Memo: Non-Peak Items						
61 Art of apparel & clothing accessories	5798652	120.6	8433	28.7	7014898	44.3
62 Art of apparel & clothing accessories	7631923	158.7	16294	55.4	9220499	58.2

Source: Computations based on UN COMTRADE Statistics.

Table 2d: United States Tariff Peak Imports by HS 2-digit (1996-98 average)

Tariff Peak at HS 2-digit Product	Developing countries (non LDC)			LDCs		World	
	Non-Mex \$ '000	Mexico \$ '000	Total As % of All Peaks	Imports \$ '000	As % of All Peaks	Imports \$ '000	As % of All Peaks
02 Meat and edible meat offal	63	0	0.0	0	0.0	18312	0.0
04 Dairy prod; birds' eggs; honey	147	32	0.0	0	0.0	704	0.0
07 Edible vegetables and roots nes	21946	163044	1.0	17	0.0	220214	0.5
08 Edible fruit and nuts; melons	145263	166620	1.7	6	0.0	317574	0.8
11 Prod mill indust; malt; starches	23	6	0.0	0	0.0	33	0.0
12 Oil seed, oleagi fruits; misc etc.	41151	3871	0.2	92	0.0	45380	0.1
15 Animal/veg fats & oils & prod	2959	5862	0.0	1	0.0	18770	0.0
19 Prep of cereal, flour, milk prod	2831	318	0.0	0	0.0	8504	0.0
20 Prep of vegetable, fruit, nuts	309031	66832	2.0	15	0.0	441239	1.1
21 Miscellaneous edible prep	132	469	0.0	0	0.0	5230	0.0
24 Tobacco and manufactured	828882	31038	4.7	63707	6.9	1132888	2.8
28 Inorgn chem; compds of prec	27	218	0.0	0	0.0	435	0.0
29 Organic chemicals.	230	0	0.0	0	0.0	9034	0.0
30 Pharmaceutical products.	9140	99	0.0	0	0.0	118917	0.3
42 Articles of leather; saddlery	132	35	0.0	1	0.0	10084	0.0
51 Wool, fine/coarse animal hair	46265	12525	0.3	18	0.0	185022	0.4
52 Cotton.	1797	77	0.0	3	0.0	15085	0.0
54 Man-made filaments.	128835	17204	0.8	4	0.0	714444	1.7
55 Man-made staple fibres.	177819	7248	1.0	246	0.0	479378	1.2
56 Wadding, felt & nonwoven, yarn	707	13	0.0	0	0.0	8213	0.0
58 Special woven fab; tufted fabrics	4642	12311	0.1	9	0.0	137878	0.3
60 Knitted or crocheted fabrics	1292	1817	0.0	7	0.0	238127	0.6
61 Art of apparel & clothing access	4957240	1716956	36.1	376335	41.0	11050780	26.8
62 Art of apparel & clothing access	4245221	582678	26.1	476601	51.9	9293099	22.6
64 Footwear, gaiters and parts etc.	950635	132102	5.9	730	0.1	4904978	11.9
69 Ceramic products.	111009	127765	1.3	20	0.0	855098	2.1
70 Glass and glassware.	67670	32752	0.5	1181	0.1	327747	0.8
82 Tool, implement, cutlery, spoon	5184	770	0.0	0	0.0	75849	0.2
86 Railw/tramw locom, rolling stock	48	19692	0.1	0	0.0	416215	1.0
87 Vehicles o/t railw/tramw roll stock	281	3289379	17.8	0	0.0	10063170	24.4
96 Miscellaneous manufactures	3513	26215	0.2	15	0.0	56282	0.1
All Above Peak Products (31)	12064119	6417948	100.0	919009	100.0	41172410	100.0
All Peaks as % of All Goods	8.4	7.5		15.0		4.6	
All Goods	143519745	85767530		6114833		886667625	

Source: Computations based on UN COMTRADE Statistics.

2 Tariff peaks and developing country preferences

Most developing countries enjoy preferential access to Quad markets, either through unilateral schemes such as the GSP, or through free trade agreements such as NAFTA or EU Association Agreements. In the case of Canada, Japan and the EU, around 170 developing countries benefit from GSP (or better) preferences.⁸ In the case of the US, 29 developing countries are excluded from GSP, so that only 140 developing countries benefit from some sort of preferential access.

Preferences granted by the Quad are of a cascading nature—countries with FTAs generally get the best treatment, followed by LDCs and other developing countries. The US grants preferences to the members of the Andean Pact (ATP) and the Caribbean (CAR), and to Mexico under NAFTA.⁹ For the EU, we report both Lomé preferences (ACP), and the FTA preferences granted to Eastern Europe and Mediterranean countries. Note that in the case of the EU three different groups of countries are constructed: LDCs that are not ACP members; ACP countries (broken down into LDC and non-LDC countries); and non-ACP, non-LDC developing countries that benefit from GSP treatment. Finally, in the case of Canada, developing countries are grouped into those benefiting from LDC, GSP, or Caribbean preferences, and Mexico and Chile, that benefit from FTAs.

On average these preferential schemes are quite generous. In the EU, the average tariff faced by LDCs or ACP members is below 1 percent, compared to the 7.4 percent average MFN tariff. GSP preferences in the EU are close to 50 percent. In the United States LDC and GSP preferences offer more than a 50 percent average margin --LDC preferences being more generous around 65 percent. Japan offers a 48 percent preference margin under their GSP regime, and an average 60 percent preference for LDCs. Canada gives a 25 percent preference to GSP countries and 45 percent to LDCs.

⁸ The EU was the first customs territory to grant GSP preferences to developing countries in 1971. See Kenan and Stevens (1997) or Hallaert (2000) for a detailed description of the European GSP.

⁹ In the simulations discussed in section 4 we also include preferences for developed countries that benefit from preferences in other Quad markets (see footnotes in Table 3 for a description).

Table 3: Tariff Peaks and Preferential Duty Rates in the Quad, 1999

Preferential Trade Agreements/GSP	Number of Countries	Average Pref. Rate (unweighted in %)	
		Tariff Peak Products	All Goods at HS-6
United States:			
Canada	1	0.6	0.1
Mexico	1	1.6	0.3
Israel	1	0.6	0.1
ANDEAN /a	4	14	1.7
Caribbean Community /b	22	13.5	1.6
GSP-only beneficiaries /c	80	16	2.4
Least developed Countries /d	38	14.4	1.8
Other Countries (MFN Rate)		(20.8)	(5.0)
European Union:			
Eastern Europe and Middle East /e	30	20.1	1.8
GSP-only beneficiaries /f	42	19.8	3.6
Least Developed ACP Countries /g	37	11.9	0.8
Other ACP Countries /h	32	12.4	0.9
Other Least Developed Countries /i	11	12.6	0.9
Other Countries (MFN Rate) /j		(40.3)	(7.4)
Japan:			
GSP-only beneficiaries /k	127	22.7	2.3
Least Developed Countries /l	42	19.0	1.7
Other Countries (MFN Rate)		(27.8)	(4.3)
Canada:			
United States	1	7.1	1.6
Australia	1	28.2	7.8
New Zealand	1	28.2	7.8
Mexico	1	15.9	3.1
Chile	1	12.2	2.4
Israel	1	11.8	2.5
Caribbean Countries /m	18	23.3	4.3
GSP-only beneficiaries /n	108	28.2	6.2
Least Developed Countries /o	47	22.8	4.4
Other Countries (MFN Rate)		(30.5)	(8.3)

Notes: /a Included Bolivia, Colombia, Ecuador and Peru under Andean Trade Preference Act.
 /b Based on 20 Caribbean countries under Caribbean Basin Economic Recovery Act and Bahamas, Nicaragua.
 /c Included 80 developing countries or territories under GSP scheme but excluding 29 other developing economies.
 /d Based on UN 48 least developed countries but excluding 10 countries.
 /e Including countries with reciprocal and non reciprocal trade agreements with the EU.
 /f Most developing countries in Latin America and Asia; excludes Hong Kong, Korea and Singapore (non-GSP nations).
 /g Included 37 ACP and least developed countries under Lome Convention.
 /h Included ACP 32 countries under Lome Convention but not under the group of least developed countries.
 /i Included 11 least developed countries but not under ACP countries.
 /j Included all industrial countries, Hong Kong, Korea, Singapore and 14 transition countries.
 /k 127 countries; excludes Albania, Bosnia, Estonia, Latvia, Lebanon, Lithuania, Macedonia, Moldova, Vietnam, Yugoslavia.
 /l Excludes 3 LDCs: Comoros, Djibouti and Tuvalu. 3 others (Congo DR, Kiribati and Zambia) are included in the GSP group.
 /m Included 18 Caribbean countries or territories under Commonwealth Caribbean Countries Tariff.
 /n Excluded 8 developing countries: Albania, Aruba, Bosnia & Herz, Macedonia, Mongolia, Oman, Saudi Arabia, Yugoslavia
 /o Excluded Myanmar.

Source: WTO files.

Preferences are much less generous for tariff peak products. Indeed, except for the EU, the preference margins are significantly below the average across all products. Preference margins for GSP beneficiaries in Canada, Japan and the US on tariff peak items are only 8, 18 and 23 percent, respectively. For LDCs the margins fall to 25 percent in Canada and 30 percent in the US and Japan. More detail on the structure of preferences for different tariff brackets in the Quad is provided in Table 4. For example, for tariffs between 50 and 100 percent, the preference margin granted to LDCs is only 17 percent in the US and 22 percent in Japan. Thus, although existing preferential schemes grant significant preferences to developing countries, preferences are concentrated in products which already enjoy low tariffs (between 0 and 10 percent) rather than on tariff peaks. In other words, preferential schemes offer little protection against tariff peaks in the Quad, except for the European Union. Data on the average MFN import duties on tariff peak products at the HS 2 digit level, and preference margins granted by the Quad to different groups of developing countries are provided in Appendix A. A value of 1 in the preference columns means that the products enter the Quad member duty-free—there is a 100 percent margin.

3 Tariff peaks and LDC exports

In order to simulate the possible effect of duty free access to the Quad, data are required on the total value of LDC exports to the world of products that are subject to tariff peaks in the Quad. Tariff peaks in the Quad affect LDC exports to the world because Quad tariffs lower world prices (see Appendix C). Data on global exports of LDCs of products subject to peaks in the Quad are reported in Tables 5a-d at the HS 2 digit level, where values again correspond only to those 6-digit products *within* each 2 digit category that face tariff peaks in the Quad (i.e., they do not correspond to exports of all products within the 2 digit category). Total exports of LDCs to each Quad member and to the world at the 2 digit level are reported in Appendix B. They amount to \$22.7 billion, of which \$17 billion is exported to the Quad.¹⁰

¹⁰ More than 26 percent are mineral fuels exports (HS 27) for which there are no tariff peaks in the Quad. Non-oil exports of LDC amount to \$17 billion.

Table 4: Structure of MFN and LDC Duty Rates by Quad Countries, 1999

Tariff Rate at HS-6 digit	United States				European Union			
	No. of Tar Lines	As % of All Lines	MFN Rate	LDCs Rate	No. of Tar Lines	As % of All Lines	MFN Rate	LDCs Rate
MFN >= 100	3	0.1	115.4	42.8	22	0.4	132.5	46.2
MFN >= 50	5	0.1	86.0	70.9	49	1.0	73.8	26.0
MFN >= 40	1	0.0	44.0	38.9	25	0.5	43.6	12.1
MFN >= 30	9	0.2	33.3	20.5	46	0.9	34.5	13.3
MFN >= 25	20	0.4	26.4	16.8	26	0.5	27.0	9.4
MFN >= 20	47	0.9	22.0	13.0	60	1.2	22.2	5.0
MFN >= 15	226	4.4	16.8	12.5	89	1.7	17.2	1.7
MFN >= 10	374	7.3	12.0	6.8	715	14.0	11.9	0.2
MFN >= 5	1096	21.4	6.9	1.9	1478	28.9	6.8	0.0
MFN > 0	2355	46.1	2.9	0.1	2125	41.6	3.0	0.0
MFN = 0	977	19.1	0.0	0.0	478	9.3	0.0	0.0
All Products	5113	100.0	5.0	1.8	5113	100.0	7.4	0.8
Tariff Peak Prod (MFN >= 15)	311	6.1	20.8	14.4	317	6.2	40.3	12.3
Tariff Rate	Japan				Canada			
MFN >= 100	3	0.1	139.2	118.0	38	0.7	184.9	141.1
MFN >= 50	11	0.2	67.0	52.3	22	0.4	79.4	42.6
MFN >= 40	17	0.3	45.4	25.6	2	0.0	46.0	24.5
MFN >= 30	26	0.5	33.8	19.4	1	0.0	35.3	35.3
MFN >= 25	36	0.7	27.2	19.9	6	0.1	25.0	1.8
MFN >= 20	55	1.1	22.4	17.5	305	6.0	22.8	20.6
MFN >= 15	85	1.7	17.1	11.2	358	7.0	17.7	11.2
MFN >= 10	341	6.7	12.6	2.8	572	11.2	11.4	3.1
MFN >= 5	832	16.3	7.2	1.7	1376	26.9	7.6	2.1
MFN > 0	1465	28.7	3.5	0.4	1087	21.3	3.0	1.0
MFN = 0	2241	43.8	0.0	0.0	1346	26.3	0.0	0.0
All Products	5112	100.0	4.3	1.5	5113	100.0	8.3	4.4
Tariff Peak Prod (MFN >= 15)	233	4.6	27.8	19.3	732	14.3	30.5	22.8

Source: WTO files

More than \$5.5 billion of LDC exports to the world, or 25 percent of their total exports, are *potentially* affected by tariff peaks in Canada (Table 5a—column 3). Most of these affected exports are in apparel and clothing (HS 62 and 62). More interestingly, more than 99 percent of LDC exports of apparel to the world are affected by a tariff peak in Canada (total exports are reported in Appendix B). There is almost no preferential access for LDCs in these items (the preference margin is only 8 percent—see Table A1). This implies that full duty free access to Canada is likely to have a significant effect on

LDC exports. Exports of other developing countries *potentially* affected by a Canadian tariff peaks are also concentrated in apparel—and preference margins are even smaller (around 3 percent). However, Mexico and Chile benefit from a 66 percent preference margin in these items under their respective bilateral trade agreements with Canada which brings the tariff they face to around 10 percent.

Similarly, more than \$3 billion of LDC exports to the world, or 14 percent, are *potentially* affected by tariff peaks in the US (Table 5d). Most LDC exports to the world facing a tariff peak in the US are again concentrated in apparel (\$2.6 billion dollars), and do not benefit from preferential access. Tobacco is another tariff peak item that is an important export for both LDCs and GSP beneficiaries. In the case of LDCs, more than 95 percent of their total exports of tobacco to the world *potentially* face a tariff peak in the US of 63 percent (the MFN rate on these products averages 73 percent, with a 14 percent preference margin for LDCs—see Appendix Table B4).

The numbers are smaller in the case of Japan and the EU (Tables 5b and 5c), with tariff peaks in each market affecting some \$500 and \$800 million of LDC exports to the world, respectively. Although these numbers are small in absolute terms, the effect of peaks in these markets on specific LDCs may be quite large. For example, currently Djibouti, Kiribati, Somalia and Tuvalu together export less than \$50 million to the world. LDC exports affected by EU tariff peaks are concentrated in meat and fish products (HS 16), fish and crustaceans (HS 03), sugar (HS 17), tobacco (HS 24) and footwear (HS 64) (Table 5b). However, as indicated in Table A2, with the exception of meat, fish or mollusk products (HS 16) and sugar (HS 17), all of these exports benefit from full duty free access into the EU. In the case of preparations of meat, the 68 percent preference margin brings the tariff faced by LDC exporters around 10 percent. In the case of sugar, however, the preference margin granted to LDCs is quite small; their exports face an average tariff of 29 percent.

LDC exports that are affected by Japanese tariff peaks include sugar (HS 17), raw hides and skins (HS 41) and footwear (HS 64) (Table 5c). Of these, sugar is the only one where no preference is granted to LDCs. Full duty free access is granted for footwear, while in the case of hides and skins, an 80 percent preference margin is granted to LDCs—see Appendix Table A3.

Table 5a

Canada: Tariff Peaks and developing country exports to the world (US\$ million)

Tariff Peak at HS 2-digit Product	MFN tariff	Exp of LDC	Exp of GSP	Exp of Mex	Exp of Chl	Exp of CAR	Exp of Wld
01 Live animals.	198.8	0.0	195.9	0.0	3.4	0.0	746.6
02 Meat and edible meat offal	109.9	0.1	1705.9	2.4	17.0	0.5	6463.9
04 Dairy prod; birds' eggs; honey	197.5	1.4	1389.0	10.0	23.7	4.8	23700.0
06 Live tree & other plant; bulb, cut flowers	15.2	29.5	1163.3	19.5	2.8	0.9	4020.2
08 Edible fruit and nuts; melons	16.6	0.0	1.3	0.0	0.0	0.0	10.9
10 Cereals.	70.2	0.3	1671.3	35.4	0.2	0.1	14100.0
11 Prod mill indust; malt; starches	85.3	4.6	411.5	1.1	9.0	0.3	2745.5
12 Oil seed, oleagi fruits; misc grain	18.3	0.0	3.8	0.0	0.0	0.0	23.8
13 Lac; gums, resins & other veg	74.0	0.0	41.9	0.0	0.0	0.0	54.5
15 Animal/veg fats & oils & prod	28.0	1.8	3524.5	2.1	1.8	0.4	6514.0
16 Prep of meat, fish or mollusks	68.7	0.2	610.1	3.3	8.0	0.3	2402.3
17 Sugars and sugar confectionery	16.6	0.0	16.4	0.0	0.0	0.0	74.8
18 Cocoa and cocoa preparations	85.5	0.2	303.6	18.0	6.0	0.3	3893.8
19 Prep of cereal, flour, starch/milk prod	54.5	0.2	395.6	7.2	2.1	1.6	2486.0
20 Prep of vegetable, fruit, nuts prod	19.4	0.0	502.7	9.4	7.1	0.0	918.3
21 Miscellaneous edible preparations	48.9	2.2	880.6	42.4	66.2	10.6	9137.3
22 Beverages, spirits and vinegar	26.7	2.0	398.1	74.8	2.2	7.0	2498.6
23 Residues & waste from food indust	30.3	4.4	347.7	2.5	6.4	0.0	3996.9
24 Tobacco and manufactured	17.6	7.8	917.1	6.6	0.5	0.8	9859.3
33 Essential oils & resinoids, perf.	18.0	0.7	118.2	4.6	1.7	1.6	2285.8
35 Albuminoidal subs; modified starches	18.0	0.0	204.4	0.8	0.0	0.1	977.3
39 Plastics and articles thereof.	16.7	1.3	1693.8	39.7	4.0	0.3	8907.0
40 Rubber and articles thereof.	16.8	0.4	1897.0	45.7	0.9	0.0	3412.1
42 Articles of leather; saddlery, travel pr	16.6	3.2	4278.2	18.8	0.6	0.0	4999.2
43 Furskins and artificial fur thereof.	19.2	0.1	420.7	0.1	1.5	0.0	777.7
51 Wool, fine/coarse animal hair nes	16.5	0.1	309.5	14.8	4.6	0.1	2659.2
52 Cotton.	17.3	11.3	4035.9	172.2	25.4	0.6	9109.7
53 Other vegetable textile fibres & yarns	16.0	0.0	208.6	0.2	0.7	0.0	411.4
54 Man-made filaments.	19.0	2.1	7224.0	33.1	3.9	0.3	13400.0
55 Man-made staple fibres.	19.0	3.3	5002.1	21.7	10.4	0.9	10600.0
56 Wadding, felt & nonwoven, yarns etc.	16.9	15.4	1062.2	82.8	2.8	1.4	5643.1
57 Carpets and other textile floor coverings	18.9	4.4	501.7	12.7	0.4	0.1	2258.4
58 Special woven fab; tufted tex fab etc	17.9	1.3	1838.0	60.3	4.9	1.2	4782.5
59 Impregnated, coated, cover/laminated	17.8	0.7	2147.3	15.7	1.3	0.0	5756.6
60 Knitted or crocheted fabrics	18.0	1.8	4663.7	36.7	0.7	0.3	8004.4
61 Art of apparel & clothing access	23.3	1776.5	45500.0	2233.2	13.9	452.2	72000.0
62 Art of apparel & clothing access	22.4	2678.1	63200.0	3185.4	30.4	144.6	94900.0
63 Other made up textile articles	22.1	99.9	7835.3	466.0	3.2	3.9	13400.0
64 Footwear, gaiters and articles	20.8	74.9	30700.0	391.6	12.5	5.4	45800.0
65 Headgear and parts thereof.	18.7	136.1	1487.6	38.5	0.1	1.2	2071.0
67 Prepr feathers & down; art flower nes	21.3	1.7	391.0	0.1	0.0	0.0	433.9
68 Art of stone, plaster, cement, asbestos	21.3	0.0	0.6	0.0	0.0	0.0	3.7
70 Glass and glassware.	16.6	0.1	361.1	54.1	0.0	0.1	2224.0
85 Electrical mech equip parts, sound pr	16.7	0.3	5098.9	505.9	0.6	0.5	12800.0
86 Railw/tramw locom, rolling stock etc.	15.0	1.3	178.9	19.7	0.4	0.0	996.1
89 Ships, boats and floating structures	22.5	621.7	4623.6	1.0	0.5	301.0	10500.0
91 Clocks and watches and parts nes	18.6	0.0	689.2	0.2	0.1	2.4	835.2
94 Furniture; bedding, mattress, cushion	21.0	1.1	1073.0	59.5	3.6	0.0	1818.8
95 Toys, games & sports requisites, nes	16.4	0.0	713.8	5.7	0.0	0.0	1099.3
96 Miscellaneous manufactured articles	17.5	0.1	496.7	54.4	0.1	1.3	1995.5
All above Peak Products (50)	30.5	5,492.8	212,471.1	7,809.9	285.8	947.0	438,508.4
All Peaks as % of All Goods		0.25					
All goods	8.3	22,263		102,498		5,560	

Source: Computations based on UN COMTRADE Statistics.

**Table 5b:
EU Tariff Peaks and developing countries exports to the world US\$ million)**

Tariff Peak at HS 2-digit Products	MFN Tariff	Exports of LDC of (Non- ACP)	Exports of GSP	Exp of ACP (non LDC)	Exports of ACP+LDC	Exports of FTAs	World trade
01 Live animals.	38.2	0.7	747.1	0.7	1.0	247.2	6455.3
02 Meat and edible meat offal	71.0	0.4	4053.2	35.7	9.7	876.6	35436.3
03 Fish & crustacean, mollusk nes	18.7	28.3	1980.6	235.1	86.5	175.4	3401.9
04 Dairy prod; birds' eggs; honey	59.1	1.1	942.5	7.5	0.6	542.9	28565.7
06 Live tree & other plant; bulb, cut flowers	16.9	0.1	959.5	190.2	29.6	235.9	3552.6
07 Edible vegetables and roots & tubers	25.4	0.2	1490.6	16.9	2.0	227.3	2991.5
08 Edible fruit and nuts; melons	20.2	0.4	6446.6	549.0	12.1	945.5	8832.7
09 Coffee, tea, mat and spices	16.0	0.0	7.2	0.3	0.0	4.3	64.6
10 Cereals.	75.6	9.8	4708.6	52.5	11.4	687.1	35831.3
11 Prod mill indust; malt; starches	38.2	5.2	530.4	10.4	0.6	148.3	5779.8
12 Oil seed, oleagi fruits; misc grain	74.4	0.0	0.1	0.0	0.0	3.3	8.4
13 Lac; gums, resins & other veg	17.8	0.0	23.1	0.0	0.1	2.5	112.8
15 Animal/veg fats & oils & prod	56.0	0.8	134.1	2.2	0.1	369.4	4623.0
16 Prep of meat, fish or mollusks	23.5	24.9	5214.1	490.3	56.8	578.3	11229.7
17 Sugars and sugar confectionery	37.6	1.4	3540.0	1155.3	83.1	514.9	11643.8
18 Cocoa and cocoa preparations	24.0	0.0	8.2	0.8	0.0	3.8	140.1
19 Prep of cereal, flour, starch/milk prod	34.1	1.6	938.8	10.0	0.3	143.1	9413.7
20 Prep of vegetable, fruit, nuts prod	26.1	1.4	5222.8	170.3	3.7	1516.9	16249.0
21 Miscellaneous edible preparations	19.2	2.1	1373.4	83.4	2.0	245.7	11612.6
22 Beverages, spirits and vinegar	35.7	2.3	1747.4	365.8	3.4	392.6	11729.6
23 Residues & waste from food indust	71.4	5.2	652.4	14.9	4.8	153.4	8403.0
24 Tobacco and manufactured	56.2	3.6	1292.4	384.4	47.1	731.5	18118.1
29 Organic chemicals.	33.9	0.0	54.0	0.0	0.0	3.6	182.8
35 Albuminoidal subs; modified starches	24.9	0.0	191.5	0.3	0.0	5.7	1140.6
38 Miscellaneous chemical products	45.9	0.0	13.2	0.0	0.0	1.9	103.9
56 Wadding, felt & nonwoven, yarns etc.	21.1	0.4	75.6	0.3	10.2	1.6	114.8
64 Footwear, gaiters and articles	18.2	31.4	11400.0	50.7	1.5	293.0	9117.8
87 Vehicles o/t railw/tramw roll stock, pts	16.3	5.0	2533.0	3.5	0.5	170.8	25041.1
All above Peak Products (28)	40.3	126.5	56280.5	3830.5	366.9	9222.2	269896.6
All Peaks as % of All Goods							
All Goods							

Source: Computations based on UN COMTRADE Statistics.

Table 5c:

Japan's Tariff Peaks and world exports of developing countries (millions US\$)

Tariff Peak at HS 2-digit products	MFN Tariff	Exp. Of LDC	Exp. of GSP	World trade
02 Meat and edible meat offal	39.31	12.7	1755.5	12991.7
03 Fish & crustacean, mollusk nes	15.00	0.8	101.2	975.8
04 Dairy prod; birds' eggs; honey	28.99	3.2	1514.4	23006.5
07 Edible vegetables and roots & tubers	15.80	0.0	15.9	31.0
08 Edible fruit and nuts; melons	19.81	27.2	9279.3	16292.5
09 Coffee, tea, mat and spices	17.81	6.5	556.5	1998.6
10 Cereals.	63.38	16.9	1592.2	8527.1
11 Prod mill indust; malt; starches	23.24	11.2	543.6	3530.4
12 Oil seed, oleagi fruits; misc grain	19.10	23.8	66.6	111.1
15 Animal/veg fats & oils & prod	26.99	0.1	114.3	1268.5
16 Prep of meat, fish or mollusks	20.69	0.2	686.1	1662.8
17 Sugars and sugar confectionery	71.25	175.4	5636.1	10761.1
18 Cocoa and cocoa preparations	22.77	0.7	557.0	5570.7
19 Prep of cereal, flour, starch/milk prod	21.91	6.4	1775.9	12640.9
20 Prep of vegetable, fruit, nuts prod	22.69	4.7	6327.4	12775.8
21 Miscellaneous edible preparations	22.35	7.8	1860.0	11362.8
22 Beverages, spirits and vinegar	38.65	9.5	3314.3	23943.4
24 Tobacco and manufactured	18.63	0.2	533.3	1578.4
29 Organic chemicals.	20.00	0.0	196.0	746.5
35 Albuminoidal subs; modified starches	23.31	0.1	206.8	1483.1
38 Miscellaneous chemical products	80.83	0.0	9.6	74.4
41 Raw hides and skins (other than fur)	26.08	370.9	5158.7	11496.8
42 Articles of leather; saddlery, travel pr	15.52	12.2	5085.9	6690.7
43 Furskins and artificial fur thereof.	16.25	0.7	827.3	2226.4
53 Other vegetable textile fibres & yarns	16.00	0.2	482.2	946.1
58 Special woven fab; tufted tex fab etc	17.90	1.3	310.5	635.0
60 Knitted or crocheted fabrics	15.70	1.7	245.9	483.6
64 Footwear, gaiters and articles	36.24	95.6	18062.0	31305.7
All above Peak Products (50)	27.8	790.2	66814.5	205117.5
All Peaks as % of All Goods				
All goods	4.3	22263		

Source: Computations based on UN COMTRADE Statistics.

Table 5d:

US tariff peaks and global exports of developing countries (US\$ million)

Product Description	MFN	Export LDC	ExportG SP	Export NGSP	Export MEX	Export ATP	Export CAR	Export WLD
02 Meat and edible meat offal	19.2	0	538	1	0	0	0	1170
04 Dairy prod; birds' eggs; honey	20.9	0	298	2	0	2	0	694
07 Edible vegetables and roots nes	20.6	14	1288	316	211	3	4	2808
08 Edible fruit and nuts; melons	16.7	2	1139	62	218	13	1	2254
11 Prod mill indust; malt; starches	16.3	0	10	0	0	0	0	12
12 Oil seed, oleagi fruits; misc etc.	78.0	17	695	220	4	1	0	993
15 Animal/veg fats & oils & prod	19.9	1	1569	30	6	34	0	2088
19 Prep of cereal, flour, milk prod	16.8	0	253	7	15	9	0	776
20 Prep of vegetable, fruit, nuts	28.7	0	3070	295	86	111	26	4981
21 Miscellaneous edible prep	19.8	0	623	5	1	4	0	1079
24 Tobacco and manufactured	73.5	400	9862	750	61	43	1	17143
28 Inorgn chem; compds of prec	15.1	0	1	0	0	0	0	4
29 Organic chemicals.	16.8	0	65	15	0	0	0	156
30 Pharmaceutical products.	30.0	0	950	42	9	1	0	2169
42 Articles of leather; saddlery	20.0	0	39	76	0	0	0	137
51 Wool, fine/coarse animal hair	20.5	0	1660	139	26	17	0	2804
52 Cotton.	18.3	0	122	51	0	1	0	230
54 Man-made filaments.	16.4	2	3370	5356	24	11	0	11570
55 Man-made staple fibres.	16.3	3	3992	2978	17	17	0	9283
56 Wadding, felt & nonwoven	15.2	0	53	47	0	4	0	146
58 Special woven, tufted fabrics	18.5	0	850	753	39	12	0	2087
60 Knitted or crocheted fabrics	18.6	0	377	663	2	4	0	1294
61 Art of apparel & clothing	19.5	1326	17607	13490	1765	293	335	40452
62 Art of apparel & clothing	18.9	1342	18087	13211	614	117	75	38129
64 Footwear, gaiters and parts etc.	27.8	40	6432	10514	143	16	1	18271
69 Ceramic products.	17.6	0	3774	122	138	39	0	5832
70 Glass and glassware.	16.2	1	1266	266	47	7	0	2098
82 Tool, implement, cutlery	15.2	0	74	152	1	0	0	313
86 Railw/tramw locom,	17.2	1	390	8	20	0	0	987
87 Vehicles o/t railw/tramw	25.0	0	11192	408	3595	94	0	33540
96 Miscellaneous manufactures	20.7	0	76	34	29	1	0	195
Total (tariff peak products)	20.8	3151	89724	50016	7073	853	447	203696
Peaks as a % of Total		0.14	0.04	0.07	0.07	0.02	0.08	0.04
Total (All goods)	5/0	22263	2108310	732781	102498	41605	5560	4787750

4. Effects of Reducing tariff peaks in the Quad

The small size of LDC exports relative to total developing country exports that are potentially affected by Quad tariff peaks implies that the gains for developing countries from a reduction in tariff peaks could be much larger than the tariff revenue collected in

the Quad on their exports. Indeed, preferential access may allow for re-directing an important share of their exports to the market that grants further preferential access. This section provides estimates of the change in LDC exports if each Quad member was to grant duty free access to all LDC exports of tariff peak items. For comparison purposes, we also calculate the impact of duty free access for peak items for all developing countries (current GSP beneficiaries), and the effect of a nondiscriminatory (MFN) reduction of all tariff peaks to a level of 5 percent (the Quad average). For each Quad member, we group developing countries according to the type of preference that they receive, distinguishing between LDCs, GSP beneficiaries and FTA partners (results for the latter are not reported for space reasons).¹¹ In all simulations we also have groups of developed countries corresponding to the different tariff regimes in Quad members. In the case of the EU and Japan, all developed countries enter into the MFN regime category, whereas for Canada we separate Australia, New Zealand, the US and Israel. We do not report results of changes in exports for developed countries.¹² To further simplify the presentation, we report results at the 2-digit level of the HS. However, simulations pertain only to affected 6-digit tariff peak items within each 2-digit category.

The simulations use a simple partial equilibrium model of the world market for each ‘product’—defined as a 6-digit tariff line item. We assume that each 6-digit item represents only a small share of the economy, so that the effects on other markets of a change in tariffs can be ignored. Import demand and export supply are iso-elastic and are calibrated for each country/group using trade value, unit prices, tariffs and preference margins at the 6-digit tariff line level. World markets are assumed to be perfectly competitive and integrated, in the sense that there is no further scope for arbitrage across countries. Products are perfectly homogenous. The world price is determined by equating total world import demand (the sum across countries/groups) to total world export supply (the sum across countries/groups). We employ a conservative supply elasticity of 0.5 to reflect the difficulty many LDCs will have in generating a supply response to the changed incentives following duty free access for tariff peak items. Demand elasticities were

¹¹ Stevens and Kennan (2000) have identified more than 30 tariff regimes in the EU. We follow them in working with only the major aggregate categories/groups.

¹² These are available from the authors upon request.

derived using the estimates reported in Shiells, Stern and Deardorff (1986) and Stern *et al.* (1976).

Appendix C provides a more detailed description of the methodology and data sources. As shown there, granting duty free access to a group of developing countries unambiguously reduces the world price (at the existing world price there is excess supply), which will in turn reduce other developing countries' exports. The country/group benefiting from duty free access obviously benefits (in spite of the world price decline). We report results for each Quad member in turn.

Canada

Table 6a reports changes in the value of exports of LDCs and GSP beneficiaries, both in terms of dollar value of percentage change of tariff peak exports to Canada, following the elimination of tariff peaks in Canada. The first simulation grants duty free access to LDCs only, whereas the second simulation grants full duty free access to all developing countries for peak items—including not only LDCs, but also GSP beneficiaries. Both scenarios have implications for developing country groups. Thus, duty free access for LDCs will result in some trade diversion away from GSP beneficiaries and FTA members. Extending duty free access to all developing countries will be to the detriment of countries that currently obtain the greatest preference margins, generally countries that are members of FTAs.

LDC exports expand by \$1.6 billion if duty free access is granted exclusively to these countries. Under this scenario the loss in export revenue (associated with trade diversion) for other developing countries is small—total exports fall by \$555 million relative to the base line. This is equivalent to 0.3 percent of their total exports of peak products to the world. Note that the predicted changes in export revenue for LDCs are larger than the tariff revenue data in Table 1. The reason is that all exports to the world of products facing tariff peaks in Canada will be affected by Canada's tariff reforms.

The greatest increases for LDC exports under the preferential duty free access scenario occur in products that are both highly protected and where LDCs have an existing supply capacity (as reflected in existing exports to the world of the products

concerned). As can be seen from Table 6a, virtually all of the increase occurs in categories 61-62 of the HS: apparel.¹³ Coming a far second is footwear and headgear.

Which LDCs are the major gainers? Table 7 reports the total predicted increase in exports for each LDC. In absolute terms, Bangladesh is by far the largest gainer, with a more than \$1 billion increase in exports following the grant of duty free access to LDCs (equal to some 60 percent of the total increase in LDC exports). Liberia follows with a \$180 million increase. However, in relative terms, the increase in exports of Bangladesh and Liberia is similar to those of Haiti, Lao and Cambodia—who all see their exports increase by 20 percent. Table 8 shows the top 5 products at the 2 digit level of the Harmonized System would experience the largest increase in export revenue in dollar terms and the top 5 countries that benefit from these increases. Bangladesh is the top exporter in all 5 products.

The largest gains for developing countries obviously occur when duty free access is granted to all developing countries (simulation II). Exports to Canada of peak items by non-LDCs increase by 22 percent, while those of LDCs increase by 16 percent. In absolute terms, the increase in GSP countries exports dominates, reflecting their much larger share of the total market. Total exports of tariff peak products increase by some \$47 billion, of which \$46.1 billion accrues to GSP beneficiaries (2.1 percent of their total exports to the world) and \$892 million to LDCs (4 percent of total LDC exports to the world). Most of the overall increase in exports again occurs in textiles and apparel. However, a few other sectors are also significant, including dairy and cereals.

An MFN reduction in tariff peaks to 5 percent, moving the structure of protection closer to uniformity, would generate an increase in total export revenue of slightly more than 0.1 percent for non-LDC developing countries (\$1.5 billion). LDCs would see their exports decline slightly (0.5 percent of current exports to the world), as existing preferential access is eroded. The largest losses are for Mexico (\$925 million—not reported), reflecting preference erosion in the Canadian market. However, this represents less than 1 percent of total Mexican exports to the world.

¹³ Most of these gains are heavily concentrated in around 10 tariff lines at the 6 digit level of the Harmonized System.

The European Union

Table 6b reports changes in the value of exports of LDCs and GSP beneficiaries, both in terms of dollar value and percentage change of tariff peak exports to the EU, following elimination of tariff peaks by the EU. The effect of duty free access for LDCs are smaller than in the case of Canada, reflecting the fact the EU already provides significant preferential access to all developing countries. However, exports of LDCs could increase by some \$185 million, representing a 37 percent increase in exports of peak items to the EU. In contrast to the Canadian case, most of the increase in exports occurs in agricultural commodities, especially sugar products (accounting for 64 percent of the increase), followed by cereals, meat, and fruit. Exports of textiles and clothing are of course also important in the EU, but these are not tariff peak items.

Full duty free access for all developing countries would increase exports of tariff peak items to the EU by some 18 percent (\$11 billion), while not detrimentally affecting LDC exports. Sugar accounts for about 15 percent of the total increase. The largest expansion occurs in meat (almost 30 percent). Cereals and footwear are other important growth areas, each accounting for about 15 percent of the total increase. A MFN reduction in peaks to 5 percent would increase non-LDC developing country exports of tariff peak items by only 1.3 percent, and reduce LDC exports of such products by some 9 percent. LDC exports of sugar would expand slightly, but most categories decline.

Table 7 reports export increases by LDC. The largest absolute increase under duty free access for LDCs only occurs in Madagascar with an expansion in exports of \$26 million, equivalent to about 4 percent of Madagascar's total exports. In relative terms, the LDC that gains the most from duty free access to the EU is the Maldives, with a 19 percent increase in exports (\$13.5 million); followed by Kiribati with a 17 percent increase (\$1 million) and Somalia with a 15 percent increase (\$4.4 million). Table 8b reports the top 5 products in terms of export value growth at the 2 digit level of the Harmonized System and the top 5 exporters in these categories. Countries that gain include Malawi, Myanmar, Sudan and Nepal.

Granting duty free access to LDCs generates an export revenue loss for those ACP countries that are not LDCs (however, ACP members as a whole experience a net gain of \$135 million, as the majority are LDCs). Our estimates suggest that the \$23

million loss in export revenue for these non-LDC ACP countries associated with granting duty free access to LDCs represents less than 0.1 percent of their total exports to the world. Finally, if tariff peaks are reduced on a MFN basis to 5 percent, then the loss for ACP countries that do not benefit from LDC preferences would be ten times larger (around 1 percent). LDCs would also see their export revenue fall by 0.2 percent as their preference margins erode.

Japan

In the case of Japan, elimination of tariff peaks for LDCs has a significant effect on their exports of sugar and certain cereals. Increases in exports of these commodities account for almost all of the 62 percent increase in LDC exports of tariff peak items to Japan (Table 6c). Other developing countries lose market share in Japan as a result of granting duty free access to LDCs, but the decline in exports is only 0.4 percent of their total exports to the world.

One would expect to see large increases in exports of products such as rice and groundnuts, as these are highly protected, with ad valorem equivalents of the specific tariffs that apply to out of quota quantities often exceeding 100 percent—WTO (1997). Rice is currently the only quota constrained product in Japan—the domestic/world price ratio is over 5. In the simulations, LDCs do not experience a large increase in exports of these items because they are not significant exporters of these commodities.¹⁴ Those LDCs that produce rice largely consume it domestically. Total exports to the world of cereals—including rice—by LDCs was only \$20 million in the late 1990s (Appendix B). Thus, no matter how high the preference margin in Japan, the methodology used in the simulations cannot generate a large increase in exports. In the longer run, rice producers might change policies so as to export domestic production to Japan, importing their requirements from the rest of the world. There is clearly a large incentive to do this, and doing so would greatly increase the gains of preferential access to the Japanese market.

¹⁴ Using the out of quota ad-valorem equivalents provided in the WTO's 1997 Trade Policy Review of Japan for groundnuts and dairy products and setting an ad-valorem equivalent for rice at 150 percent provides slightly larger gains for LDCs and other developing countries. Full duty free access to LDC generates an extra \$15 million to the existing \$497 million increase in exports; whereas when GSP beneficiaries also benefit from duty free access, this generates an extra \$2 billion to the existing \$14 billion increase in GSP exports.

If full duty free access is extended to all developing countries, their total exports would expand by \$13.6 billion, or 20 percent of total exports to Japan. LDC exports would also increase slightly. The composition of the increased trade would be different. In addition to sugar, which would account for about 25 percent of the total increase, major growth categories include footwear (another 25 percent), alcoholic beverages, cereals, and meat.

The LDC that benefits the most from duty free access to Japan in absolute terms is Bangladesh, with a simulated export increase of \$229 million (47 percent of the total increase in LDC exports). However, this represents only around 5 percent of Bangladesh exports. In relative terms, the main beneficiaries are Somalia (a 43 percent increase in exports—or 12.8 million) and Cape Verde (a 23 percent increase—\$4.4 million). Sudan and Togo follow with more than 10 percent. Looking at the major growth items, countries that gain significantly include Madagascar, Myanmar and Nepal (Table 8a).

United States

Granting duty free access to LDCs for the 307 tariff peaks in the US while keeping tariffs on other sources of supply unchanged (first column of Table 6d) generates an extra \$1.1 billion dollar of export revenue for LDCs (a 35 percent increase, or 5 percent of their total exports to the world). Other developing countries see their export revenue contract, but the aggregate reduction is less than \$0.4 billion. Total diversion losses are negligible given the small size of LDC exports. Mexico, the Andean Pact and Caribbean countries are not affected (their overall export revenue contracts by just \$18 million, compared to total exports of \$150 billion). Most of the action in the US market revolves around apparel, which accounts for two-thirds of the LDC export increase. Tobacco accounts for most of the remaining increase.

If duty free access is extended to all the developing countries that now have preferential treatment, total exports of tariff peak items to the US of both the LDC and non-LDC group would expand by about 20 percent. Total exports of LDCs to the world increases by 2.9 percent. In the case of GSP countries, the \$18 billion increase is equal to 1 percent of their exports to the world. Many more product categories would see

significant increases, but the same categories dominate. One noteworthy difference is the predicted increase in imports of automotive products (mostly parts).

The smallest gain for LDCs is obtained when tariff peaks in the US are reduced to 5 percent on a MFN basis. This generates an increase of only 4 percent in total LDC exports of tariff peak items to the US. GSP developing countries increase their export revenue by a total of almost \$3 billion, some of which occurs to the detriment of Mexico.

The LDC that benefits the most from duty free access to the US is Bangladesh, with an increase in exports of \$737 million (67 percent of the total increase in exports of LDCs). This represents a 16 percent increase in Bangladesh's exports to the world. In relative terms, the main beneficiary is Malawi with a 25 percent increase. If we focus on the major growth items, countries that expand their exports include Cambodia and Myanmar (textiles) and Malawi, Gambia and Sudan.

Summary of the simulation results

The results suggest that the greatest impact for LDCs associated with a reduction in tariff peaks is to be expected if full duty free access is granted to them exclusively. In order to calculate the total impact on LDC exports, the gains calculated above for each LDC in each Quad market cannot simply be added. This is because in some cases tariff peaks on a 6-digit item are found in more than one Quad market. It is therefore necessary to correct for double counting. Once this is done, we arrive at an estimate of the total increase in LDC exports following duty-free access for peak products in the Quad of \$2.5 billion. This is equivalent to an 11 percent increase in their total exports of all goods to the world.

Total imports into the Quad associated with duty free access for peak products will expand by only a modest \$132 million (most of it concentrated in the US—not reported). The reason for this small effect on the import side is that the increase in LDC export revenues essentially involves diversion of trade from other sources (both developed and developing countries). The small import effect suggests there is not a compelling reason to be concerned with possible adjustment costs for domestic import-competing industries located in the Quad. The diversion does imply losses for other developing countries. However, these losses are very small in relative terms, given the very small magnitude of LDC exports. Overall, the decline in exports of other developing

countries and OECD nations will be less than 0.1 percent of their total exports to the world.

If duty free access is also granted to other developing countries, the increase in export revenue for LDCs would be halved to 6 percent of their current exports to the world, as they now need to compete with other developing countries in Quad markets. An MFN reduction of tariff peak items to 5 percent would have little effect on LDC exports as they would not only need to compete with other developing and industrialized countries in Quad markets, but also would see the value of their current preferential access under GSP or LDC preferential schemes erode. Thus, although an MFN reduction of tariff peak items is desirable from a world welfare point of view, it provides relatively little in terms of export revenue gains for LDCs. The same is true under duty free access for all developing countries as a group. While this benefits non-LDCs significantly, LDCs do not experience major gains—indeed, they may lose. Both a unilateral MFN elimination of all tariff peaks in the Quad and duty free access for all developing countries is likely to be difficult to realize in political terms, as it will lead to substantially greater import penetration in the Quad. Attaining such outcomes is likely to require a broader negotiating context that allows for reciprocal concessions to be offered by developing countries. Such negotiations are likely to be launched in the coming years, and as a result one can expect that tariff barriers will be reduced further. As far as LDCs are concerned, the results of the simulations suggest that an immediate offer of duty free access is a low cost option for the Quad to offer, while not imposing a very large cost on other, less advanced, developing countries.

Table 6a: Estimates of Export Changes in LDCs and GSP Groups by HS-2 Product After Canadian Tariff Peak Reform

HS-2 Product	Simulation I: LDC=0				Simulation II: LDC=GSP=0				Simulation III: MFN=5%			
	LDC-Exp (\$ '000)	LDC-Exp % change	GSP-Exp (\$ '000)	GSP-Exp % change	LDC-Exp (\$ '000)	LDC-Exp % change	GSP-Exp (\$ '000)	GSP-Exp % change	LDC-Exp (\$ '000)	LDC-Exp % change	GSP-Exp (\$ '000)	GSP-Exp % change
01 Live animals.	26	0.0	-16	0.0	4	0.0	16643	0.0	0	0.0	681	0.0
02 Meat and edible meat offal	10	0.0	0	0.0	-37	0.0	954329	0.4	-77	0.0	-175297	-0.1
04 Dairy prod; birds' eggs; honey	5578	0.1	-209	0.0	4273	0.1	4131186	1.9	-400	0.0	61779	0.0
06 Live tree & other plant; bulb, cut flowers	3384	0.1	-1021	0.0	2265	0.0	89336	0.0	-1142	0.0	-45044	0.0
08 Edible fruit and nuts; melons	0	0.0	0	0.0	0	0.0	268	0.0	0	0.0	0	0.0
10 Cereals.	310	0.0	-44	0.0	226	0.0	1400094	0.7	149	0.0	1099119	0.5
11 Prod mill indust; malt; starches	7313	0.1	-1527	0.0	4375	0.1	446131	0.2	154	0.0	19446	0.0
12 Oil seed, oleagi fruits; misc grain	0	0.0	0	0.0	0	0.0	735	0.0	0	0.0	47	0.0
13 Lac; gums, resins & other veg	0	0.0	0	0.0	0	0.0	1397	0.0	0	0.0	0	0.0
15 Animal/veg fats & oils & prod	468	0.0	-79	0.0	277	0.0	149039	0.1	-270	0.0	-70307	0.0
16 Prep of meat, fish or molluscs	119	0.0	-17	0.0	76	0.0	400045	0.2	-45	0.0	1267	0.0
17 Sugars and sugar confectionery	0	0.0	0	0.0	0	0.0	3241	0.0	0	0.0	0	0.0
18 Cocoa and cocoa preparations	0	0.0	0	0.0	-17	0.0	292203	0.1	-125	0.0	-36028	0.0
19 Prep of cereal, flour, starch/milk prod	12	0.0	-2	0.0	-7	0.0	188940	0.1	-65	0.0	-45104	0.0
20 Prep of vegetable, fruit, nuts prod	8	0.0	-5	0.0	2	0.0	58906	0.0	0	0.0	2206	0.0
21 Miscellaneous edible preparations	165	0.0	-16	0.0	45	0.0	413859	0.2	-696	0.0	-82297	0.0
22 Beverages, spirits and vinegar	0	0.0	0	0.0	-135	0.0	87470	0.0	-590	0.0	-25270	0.0
23 Residues & waste from food indust	648	0.0	-71	0.0	434	0.0	119692	0.1	-329	0.0	30167	0.0
24 Tobacco and manufactured	2142	0.0	-181	0.0	1916	0.0	225674	0.1	415	0.0	48911	0.0
33 Essential oils & resinoids, perf.	0	0.0	0	0.0	-2	0.0	7039	0.0	-103	0.0	-12235	0.0
35 Albuminoid subs; modified starches	11	0.0	-2	0.0	8	0.0	55368	0.0	0	0.0	253	0.0
39 Plastics and articles thereof.	0	0.0	0	0.0	-68	0.0	177653	0.1	-150	0.0	-40018	0.0
40 Rubber and articles thereof.	0	0.0	0	0.0	-51	0.0	214335	0.1	-63	0.0	7351	0.0
42 Articles of leather; saddlery, travel pr	0	0.0	0	0.0	-239	0.0	309936	0.1	-371	0.0	-129272	-0.1
43 Furskins and artificial fur thereof.	0	0.0	0	0.0	-7	0.0	35266	0.0	-14	0.0	-5899	0.0
51 Wool, fine/coarse animal hair nes	1	0.0	0	0.0	-2	0.0	30822	0.0	-13	0.0	-19401	0.0
52 Cotton.	2777	0.1	-716	0.0	1944	0.0	545558	0.3	56	0.0	53466	0.0
53 Other vegetable textile fibres & yarns	0	0.0	0	0.0	-4	0.0	20101	0.0	-5	0.0	-1750	0.0
54 Man-made filaments.	511	0.0	-218	0.0	239	0.0	1032003	0.5	-28	0.0	42605	0.0
55 Man-made staple fibres.	980	0.0	-426	0.0	502	0.0	778653	0.4	29	0.0	34216	0.0
56 Wadding, felt & nonwoven, yarns etc.	2283	0.0	-1343	0.0	821	0.0	147773	0.1	71	0.0	-162	0.0
57 Carpets and other textile floor coverings	0	0.0	0	0.0	-278	0.0	48726	0.0	-562	0.0	-24355	0.0
58 Special woven fab; tufted tex fab etc	304	0.0	-118	0.0	152	0.0	260649	0.1	-12	0.0	16947	0.0
59 Impregnated, coated, cover/laminated	2	0.0	0	0.0	-59	0.0	245129	0.1	-94	0.0	-21938	0.0
60 Knitted or crocheted fabrics	387	0.0	-205	0.0	141	0.0	542854	0.3	-25	0.0	32582	0.0
61 Art of apparel & clothing access	626521	11.4	-203022	-0.1	380824	6.9	9971146	4.7	8146	0.1	326556	0.2
62 Art of apparel & clothing access	879046	16.0	-320456	-0.2	510282	9.3	12819728	6.0	12552	0.2	371658	0.2
63 Other made up textile articles	29345	0.5	-12099	0.0	15682	0.3	1353439	0.6	-883	0.0	27389	0.0
64 Footwear, gaiters and articles	19937	0.4	-6886	0.0	11096	0.2	5783008	2.7	-1989	0.0	13252	0.0
65 Headgear and parts thereof.	19362	0.4	-8899	0.0	3585	0.1	197310	0.1	-9119	-0.2	3091	0.0
67 Prepr feathers & down; art flower nes	0	0.0	0	0.0	0	0.0	0	0.0	-109	0.0	-23518	0.0
68 Art of stone, plaster, cement, asbestos	2	0.0	0	0.0	2	0.0	181	0.0	0	0.0	35	0.0
70 Glass and glassware.	8	0.0	-1	0.0	7	0.0	60935	0.0	-3	0.0	-5970	0.0
85 Electrical mech equip parts, sound pr	82	0.0	-17	0.0	60	0.0	969865	0.5	1	0.0	21973	0.0
86 Railw/tramw locom, rolling stock etc.	0	0.0	0	0.0	-26	0.0	14495	0.0	-114	0.0	-5437	0.0
89 Ships, boats and floating structures	0	0.0	0	0.0	-46304	-0.8	1141569	0.5	-120460	-2.2	69328	0.0
91 Clocks and watches and parts nes	0	0.0	0	0.0	-4	0.0	46011	0.0	-6	0.0	-22401	0.0
94 Furniture; bedding, mattress, cushion	347	0.0	-155	0.0	167	0.0	159223	0.1	18	0.0	16766	0.0
95 Toys, games & sports requisites, nes	7	0.0	-3	0.0	3	0.0	79335	0.0	0	0.0	7812	0.0
96 Miscellaneous manufactured articles	10	0.0	-2	0.0	5	0.0	67535	0.0	-5	0.0	-5392	0.0
Net gains fm all peaks	1,602,106	29.2	-557,757	-0.3	892,175	16.2	46,094,833	21.7	-116,274	-2.1	1511,809	0.7

Note: Total LDC exports to the world of peak items in base year: \$5.5 billion; total GSP exports of peak items to world in base year was \$212 billion. The first column in each group of countries and in each simulation gives the dollar value of the export change. The second column provides the percentage change relative to current exports of tariff peak items to Canada. Source: Authors calculations

Table 6b: Estimates of Export Changes in LDCs and GSP Groups by HS-2 Product After EU Tariff Peak Reform

HS-2 Product	Simulation I: LDC=0				Simulation II: LDC=GSP=0				Simulation II:MFN=5%			
	LDC-Exp (\$ '000)	LDC-Exp (%)	GSP-Exp (\$ '000)	GSP-Exp (%)	LDC-Exp (\$ '000)	LDC-Exp (%)	GSP-Exp (\$ '000)	GSP-Exp (%)	LDC-Exp (\$ '000)	LDC-Exp (%)	GSP-Exp (\$ '000)	GSP-Exp (%)
01 Live animals.	1731	0.4	-396	0.0	467	0.1	157654	0.3	-157	0.0	13581	0.0
02 Meat and edible meat offal	18392	3.7	-3267	0.0	9104	1.8	3241296	5.4	-641	-0.1	333896	0.6
03 Fish & crustacean, mollusc nes	0	0.0	0	0.0	-13897	-2.8	216244	0.4	-17466	-3.5	7826	0.0
04 Dairy prod; birds' eggs; honey	2206	0.4	-56	0.0	1784	0.4	603378	1.0	123	0.0	213247	0.4
06 Live tree & plant; bulb, flowers	0	0.0	0	0.0	-3481	-0.7	39764	0.1	-2758	-0.6	12247	0.0
07 Edible vegetables, roots & tubers	752	0.2	-919	0.0	-489	-0.1	-125392	-0.2	-392	-0.1	-82339	-0.1
08 Edible fruit and nuts; melons	2672	0.5	-3356	0.0	-1275	-0.3	-346249	-0.6	-647	-0.1	-113213	-0.2
09 Coffee, tea, mat and spics	0	0.0	0	0.0	-1	0.0	168	0.0	-2	0.0	-127	0.0
10 Cereals.	24376	4.9	-17676	0.0	-172	0.0	1365455	2.3	-4331	-0.9	18514	0.0
11 Prod mill indust; malt; starches	4341	0.9	-523	0.0	3189	0.6	245100	0.4	1374	0.3	98045	0.2
12 Oil seed, oleagi fruits; misc grain	0	0.0	0	0.0	0	0.0	17	0.0	0	0.0	12	0.0
13 Lac; gums, resins & other veg	0	0.0	0	0.0	-6	0.0	2594	0.0	-4	0.0	1762	0.0
15 Animal/veg fats & oils & prod	39	0.0	-1	0.0	-13	0.0	44006	0.1	-75	0.0	18176	0.0
16 Prep of meat, fish or molluscs	669	0.1	-332	0.0	-12701	-2.6	422568	0.7	-11899	-2.4	-6408	0.0
17 Sugars and sugar confectionery	119020	24.1	-67516	-0.1	29576	6.0	1593922	2.6	7053	1.4	391943	0.7
18 Cocoa and cocoa preparations	2	0.0	0	0.0	1	0.0	2252	0.0	0	0.0	228	0.0
19 Prep of cereal, flour, starch/milk	822	0.2	-150	0.0	521	0.1	337005	0.6	122	0.0	81865	0.1
20 Prep of vegetable, fruit, nuts prod	131	0.0	-41	0.0	-571	-0.1	592750	1.0	-752	-0.2	102750	0.2
21 Miscellaneous edible prep.	233	0.0	-26	0.0	80	0.0	193192	0.3	-261	-0.1	17860	0.0
22 Beverages, spirits and vinegar	395	0.1	-117	0.0	-339	-0.1	238450	0.4	-874	-0.2	-45232	-0.1
23 Residues & waste from food	9070	1.8	-5469	0.0	1794	0.4	350258	0.6	-93	0.0	12389	0.0
24 Tobacco and manufactured	0	0.0	0	0.0	-4993	-1.0	382245	0.6	-9381	-1.9	-120977	-0.2
29 Organic chemicals.	0	0.0	0	0.0	0	0.0	19613	0.0	0	0.0	4104	0.0
35 Albuminoidal subs; starches	0	0.0	0	0.0	0	0.0	0	0.0	-5	0.0	-24025	0.0
38 Miscellaneous chemical products	0	0.0	0	0.0	-1	0.0	6628	0.0	-3	0.0	1919	0.0
56 Wadding, felt & nonwoven, yarns	0	0.0	0	0.0	-1674	-0.3	5241	0.0	-1462	-0.3	2241	0.0
64 Footwear, gaiters and articles	0	0.0	0	0.0	-1991	-0.4	1271984	2.1	-3885	-0.8	-114896	-0.2
87 Vehicles o/t railw/tramw roll	0	0.0	0	0.0	-301	-0.1	254541	0.4	-534	-0.1	-28553	0.0
Net gains from all peaks	184,848	37.5	-99,844	-0.2	4612	0.9	11,114,668	18.5	-46,949	-9.5	796,838	1.3

Note: Total LDC exports to the world of peak items in base year: \$493 million; total GSP country exports of peak items to world in base year was \$60 billion. The first column in each group of countries and in each simulation gives the dollar value of the export change. The second column provides the percentage change relative to current exports of tariff peak items to the EU.

Source: Authors calculations

**Table 6c: Estimates of Export Changes in LDCs and GSP Groups by HS-2 Product
After Japanese Tariff Peak Reform**

HS-2 Product	Simulation I: LDC=0				Simulation II: LDC=GSP=0				Simulation III:MFN=5%			
	LDC-Exp (\$ '000)	LDC-Exp (%)	GSP-Exp (\$ '000)	GSP-Exp (%)	LDC-Exp (\$ '000)	LDC-Exp (%)	GSP-Exp (\$ '000)	GSP-Exp (%)	LDC-Exp (\$ '000)	LDC-Exp (%)	GSP-Exp (\$ '000)	GSP-Exp (%)
02 Meat and edible meat offal	6971	0.9	-842	0.0	5780	0.7	734494	1.1	-1039	-0.1	-119565	-0.2
03 Fish & crustacean, mollusc nes	78	0.0	-1	0.0	77	0.0	3808	0.0	0	0.0	0	0.0
04 Dairy prod; birds' eggs; honey	1560	0.2	-234	0.0	1291	0.2	399000	0.6	-56	0.0	-28976	0.0
07 Edible vegetables and roots & tubers	9	0.0	-6	0.0	3	0.0	1094	0.0	0	0.0	-5	0.0
08 Edible fruit and nuts; melons	1306	0.2	-1055	0.0	-4161	-0.5	323370	0.5	-3010	-0.4	46387	0.1
09 Coffee, tea, mat and spics	513	0.1	-306	0.0	-87	0.0	60437	0.1	-701	-0.1	-5701	0.0
10 Cereals.	18250	2.3	-5459	0.0	9285	1.2	875825	1.3	-1718	-0.2	-162089	-0.2
11 Prod mill indust; malt; starches	3270	0.4	-625	0.0	2507	0.3	128772	0.2	94	0.0	-34714	-0.1
12 Oil seed, oleagi fruits; misc grain	4230	0.5	-6249	0.0	-1909	-0.2	5347	0.0	-330	0.0	-924	0.0
15 Animal/veg fats & oils & prod	40	0.0	-4	0.0	34	0.0	45917	0.1	0	0.0	86	0.0
16 Prep of meat, fish or molluscs	61	0.0	-21	0.0	37	0.0	90851	0.1	-2	0.0	-12927	0.0
17 Sugars and sugar confectionery	450913	57.1	-277419	-0.4	85637	10.8	3066181	4.6	1240	0.2	62666	0.1
18 Cocoa and cocoa preparations	154	0.0	-11	0.0	131	0.0	143325	0.2	-53	0.0	-14835	0.0
19 Prep of cereal, flour, starch/milk prod	1561	0.2	-226	0.0	1224	0.2	467175	0.7	-413	-0.1	-21184	0.0
20 Prep of vegetable, fruit, nuts prod	1186	0.2	-438	0.0	574	0.1	989634	1.5	-190	0.0	-11574	0.0
21 Miscellaneous edible preparations	1376	0.2	-198	0.0	1025	0.1	377751	0.6	-527	-0.1	-55139	-0.1
22 Beverages, spirits and vinegar	2323	0.3	-714	0.0	1506	0.2	1247766	1.9	-409	-0.1	-147708	-0.2
24 Tobacco and manufactured	64	0.0	-10	0.0	52	0.0	89218	0.1	0	0.0	63	0.0
29 Organic chemicals.	0	0.0	0	0.0	0	0.0	0	0.0	-4	0.0	-29511	0.0
35 Albuminoidal subs; modified starches	0	0.0	0	0.0	0	0.0	0	0.0	-13	0.0	-38260	-0.1
38 Miscellaneous chemical products	0	0.0	0	0.0	0	0.0	0	0.0	-19	0.0	-5075	0.0
41 Raw hides and skins (other than fur)	0	0.0	0	0.0	-31499	-4.0	358526	0.5	-57933	-7.3	-293718	-0.4
42 Articles of leather; saddlery, travel pr	2517	0.3	-996	0.0	1375	0.2	579281	0.9	-121	0.0	-11439	0.0
43 Furskins and artificial fur thereof.	83	0.0	-21	0.0	60	0.0	45508	0.1	-38	0.0	-56026	-0.1
53 Other vegetable textile fibres & yarns	0	0.0	0	0.0	0	0.0	0	0.0	-13	0.0	-37357	-0.1
58 Special woven fab; tufted tex fab etc	0	0.0	0	0.0	-60	0.0	23576	0.0	-160	0.0	-14361	0.0
60 Knitted or crocheted fabrics	0	0.0	0	0.0	-81	0.0	15822	0.0	-179	0.0	-10533	0.0
64 Footwear, gaiters and articles	29	0.0	-5	0.0	-6463	-0.8	3509678	5.3	-27858	-3.5	-2776550	-4.2
Net gains from all peaks	496,495	62.8	-294,840	-0.4	66337	8.4	13,582,356	20.3	-93,454	-11.8	-3,778,969	-5.7

Note: Total LDC exports to the world of peak items in base year: \$790 million; total GSP exports of peak items to world in base year was \$66.8 billion. The first column in each group of countries and in each simulation gives the dollar value of the export change. The second column provides the percentage change relative to current exports of tariff peak items to Japan.

Source: Authors calculations

**Table 6d: Estimates of Export Changes in LDCs and GSP Groups by HS-2 Product
After United States Tariff Peak Reform**

HS-2 Product	Simulation I: LDC=0				Simulation II: LDC=GSP=0				Simulation III:MFN=5%			
	LDC-Exp (\$ '000)	LDC-Exp (% change)	GSP-Exp (\$ '000)	GSP-Exp (% change)	LDC-Exp (\$ '000)	LDC-Exp (% change)	GSP-Exp (\$ '000)	GSP-Exp (% change)	LDC-Exp (\$ '000)	LDC-Exp (% change)	GSP-Exp (\$ '000)	GSP-Exp (% change)
02 Meat and edible meat offal	1	0.0	-1	0.0	0	0.0	79681	0.1	0	0.0	3668	0.0
04 Dairy prod; birds' eggs;	0	0.0	0	0.0	0	0.0	50447	0.1	-1	0.0	1749	0.0
07 Edible vegetables, roots	764	0.0	-426	0.0	-289	0.0	113713	0.1	-525	0.0	40389	0.0
08 Edible fruit and nuts;	26	0.0	-15	0.0	-110	0.0	59455	0.1	-126	0.0	22148	0.0
11 Prod mill indust; malt;	0	0.0	0	0.0	-21	0.0	775	0.0	-17	0.0	306	0.0
12 Oil seed, oleagi fruits;	26997	0.9	-28536	0.0	-3273	-0.1	128751	0.1	2427	0.1	104374	0.1
15 Animal/veg fats & oils	0	0.0	0	0.0	-1	0.0	154186	0.2	-53	0.0	50412	0.1
19 Prep of cereal, flour, starch	16	0.0	-3	0.0	3	0.0	28926	0.0	-19	0.0	-2335	0.0
20 Prep.vegetable, fruit, nuts	79	0.0	-24	0.0	38	0.0	462751	0.5	1	0.0	74933	0.1
21 Misce. edible prep.	0	0.0	0	0.0	0	0.0	84203	0.1	0	0.0	9436	0.0
24 Tobacco	329056	10.4	-198019	-0.2	89662	2.8	1830789	2.0	39858	1.3	371948	0.4
28 Inorgn chem;	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	-82	0.0
29 Organic chemicals.	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	-6117	0.0
30 Pharmaceutical products.	170	0.0	-47	0.0	110	0.0	296017	0.3	9	0.0	24090	0.0
42 Articles of leather	13	0.0	-2	0.0	11	0.0	10440	0.0	2	0.0	1602	0.0
51 Wool, fine/coarse	63	0.0	-31	0.0	27	0.0	239031	0.3	2	0.0	13167	0.0
52 Cotton.	20	0.0	-9	0.0	10	0.0	18488	0.0	1	0.0	2343	0.0
54 Man-made filaments.	420	0.0	-84	0.0	321	0.0	625595	0.7	13	0.0	33369	0.0
55 Man-made staple fibres.	810	0.0	-270	0.0	502	0.0	617246	0.7	25	0.0	26676	0.0
56 Wadding, felt, yarns	46	0.0	-16	0.0	26	0.0	7021	0.0	0	0.0	107	0.0
58 Special woven fab; tufted	67	0.0	-19	0.0	43	0.0	147539	0.2	3	0.0	11402	0.0
60 Knitted or crocheted fab.	10	0.0	-2	0.0	7	0.0	80568	0.1	1	0.0	8307	0.0
61 Art of apparel & clothing	395761	12.6	-83168	-0.1	293339	9.3	3859192	4.3	48514	1.5	650588	0.7
62 Art of apparel & clothing	336286	10.7	-73015	-0.1	251660	8.0	3495104	3.9	37013	1.2	439221	0.5
64 Footwear, gaiters	16630	0.5	-2927	0.0	12851	0.4	1932681	2.2	1562	0.0	243656	0.3
69 Ceramic products.	33	0.0	-11	0.0	20	0.0	586311	0.7	1	0.0	38940	0.0
70 Glass and glassware.	0	0.0	0	0.0	-78	0.0	194680	0.2	-168	0.0	14443	0.0
82 Tool, implement, cutlery	0	0.0	0	0.0	0	0.0	4713	0.0	0	0.0	-4612	0.0
86 Railw/tramw, rolling .	0	0.0	0	0.0	0	0.0	0	0.0	-92	0.0	-26391	0.0
87 Vehicles o/t railw/tramw	0	0.0	1	0.0	-29	0.0	3476051	3.9	-92	0.0	803051	0.9
96 Miscellaneous manuf.	60	0.0	-22	0.0	11	0.0	7060	0.0	-33	0.0	-1696	0.0
Net gains from all peaks	1,107,327	35.1	-386,646	-0.4	644,841	20.5	18,591,414	20.4	128305	4.1	2,949,094	3.3

Note: Total LDC exports to the world of peak items in base year: \$3.2 billion; total GSP exports of peak items to world in base year was \$89.8 billion. The first column in each group of countries and in each simulation gives the dollar value of the export change. The second column provides the percentage change relative to current exports of tariff peak items to the US.

Source: Authors calculations

**Table 7: Estimates of LDC Export Changes by Market After Quad Tariff Peak Reform
(based on 1996-98 export averages in \$ million)**

Country	All Goods Export to World	Canadian Tariff Peak Reform				EU Tariff Peak Reform				Japanese Tariff Peak Reform				United States Tariff Peak Reform			
		LDC=0	ldc=gsp=0	mfn=5	Exp	LDC=0	ldc=gsp=0	mfn=5	Exp	LDC=0	ldc=gsp=0	mfn=5	Exp	LDC=0	ldc=gsp=0	mfn=5	Exp
		Exp Chg	Exp Chg	% Exp Chg	share in %	Exp Chg	Exp Chg	% Exp Chg	share in %	Exp Chg	Exp Chg	% Exp Chg	share in %	Exp Chg	Exp Chg	% Exp Chg	share in %
Afghanistan	102.9	0.7	0.4	-0.1	0.04	0.1	0.0	0.0	0.08	0.9	0.1	-0.2	0.17	0.1	0.1	0.0	0.01
Angola	4272.5	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.02	0.2	0.0	0.0	0.03	0.0	0.0	0.0	0.00
Bangladesh	4496.1	1030.2	573.7	-74.8	64.30	12.2	0.3	-3.1	6.63	229.1	30.6	-43.1	46.14	736.7	429.0	85.4	66.53
Benin	193.6	0.5	0.3	0.0	0.03	1.0	0.0	-0.2	0.53	0.4	0.1	-0.1	0.08	0.5	0.3	0.1	0.05
Bhutan	22.5	0.4	0.2	0.0	0.02	0.2	0.0	0.0	0.10	0.5	0.1	-0.1	0.10	0.2	0.1	0.0	0.02
Burkina Faso	148.9	0.3	0.2	0.0	0.02	3.7	0.1	-0.9	1.99	11.4	1.5	-2.1	2.29	0.2	0.1	0.0	0.01
Burundi	82.4	0.0	0.0	0.0	0.00	0.1	0.0	0.0	0.06	0.3	0.0	-0.1	0.06	0.2	0.1	0.0	0.02
Cambodia	471.7	99.4	55.4	-7.2	6.20	3.8	0.1	-1.0	2.07	9.2	1.2	-1.7	1.84	58.5	34.1	6.8	5.28
Cape Verde	18.9	2.8	1.6	-0.2	0.18	0.6	0.0	-0.2	0.34	4.4	0.6	-0.8	0.89	1.9	1.1	0.2	0.17
Central African Rep.	183.9	0.1	0.1	0.0	0.01	0.6	0.0	-0.2	0.35	0.4	0.1	-0.1	0.08	0.5	0.3	0.1	0.05
Chad	115.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.01	0.1	0.0	0.0	0.02	0.0	0.0	0.0	0.00
Comoros	15.5	0.1	0.0	0.0	0.00	0.7	0.0	-0.2	0.36	0.1	0.0	0.0	0.02	0.0	0.0	0.0	0.00
Congo, Dem. Rep.	1284.0	0.2	0.1	0.0	0.01	1.4	0.0	-0.4	0.75	1.3	0.2	-0.3	0.27	1.0	0.6	0.1	0.09
Djibouti	16.0	0.1	0.1	0.0	0.01	0.1	0.0	0.0	0.08	0.6	0.1	-0.1	0.11	0.1	0.1	0.0	0.01
Equatorial Guinea	316.6	0.0	0.0	0.0	0.00	6.3	0.2	-1.6	3.40	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.00
Eritrea	33.5	0.2	0.1	0.0	0.01	0.1	0.0	0.0	0.04	0.7	0.1	-0.1	0.14	0.3	0.2	0.0	0.03
Ethiopia	482.3	0.6	0.3	0.0	0.04	0.4	0.0	-0.1	0.21	13.1	1.7	-2.5	2.63	0.3	0.2	0.0	0.03
Gambia, The	158.0	0.1	0.1	0.0	0.01	0.5	0.0	-0.1	0.25	1.0	0.1	-0.2	0.19	3.2	1.8	0.4	0.29
Guinea	708.5	0.1	0.1	0.0	0.01	2.5	0.1	-0.6	1.34	0.3	0.0	-0.1	0.06	0.2	0.1	0.0	0.02
Guinea-Bissau	62.4	0.0	0.0	0.0	0.00	0.4	0.0	-0.1	0.19	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.00
Haiti	253.1	49.3	27.4	-3.6	3.08	2.4	0.1	-0.6	1.28	9.1	1.2	-1.7	1.84	38.1	22.2	4.4	3.44
Kiribati	6.0	0.0	0.0	0.0	0.00	1.0	0.0	-0.3	0.54	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.00
Lao PDR	172.2	31.1	17.3	-2.3	1.94	1.0	0.0	-0.2	0.53	4.2	0.6	-0.8	0.85	22.9	13.3	2.6	2.07
Lesotho	na	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.00
Liberia	1098.6	180.6	100.6	-13.1	11.27	2.2	0.1	-0.6	1.17	0.3	0.0	-0.1	0.06	2.0	1.2	0.2	0.18
Madagascar	694.3	55.3	30.8	-4.0	3.45	25.5	0.6	-6.5	13.77	21.8	2.9	-4.1	4.39	15.3	8.9	1.8	1.38

Malawi	446.0	11.4	6.3	-0.8	0.71	20.0	0.5	-5.1	10.84	29.9	4.0	-5.6	6.02	112.3	65.4	13.0	10.14
Maldives	72.0	8.5	4.7	-0.6	0.53	13.5	0.3	-3.4	7.28	0.1	0.0	0.0	0.01	3.0	1.7	0.3	0.27
Mali	214.9	0.3	0.2	0.0	0.02	0.2	0.0	-0.1	0.13	2.7	0.4	-0.5	0.55	0.2	0.1	0.0	0.02
Mauritania	519.8	0.6	0.3	0.0	0.04	1.5	0.0	-0.4	0.81	0.7	0.1	-0.1	0.14	0.5	0.3	0.1	0.05
Mozambique	237.1	1.4	0.8	-0.1	0.08	7.3	0.2	-1.9	3.97	21.3	2.8	-4.0	4.30	2.4	1.4	0.3	0.22
Myanmar	937.1	65.3	36.4	-4.7	4.08	8.7	0.2	-2.2	4.69	16.7	2.2	-3.1	3.36	51.6	30.0	6.0	4.66
Nepal	441.1	44.0	24.5	-3.2	2.75	4.1	0.1	-1.0	2.21	13.1	1.7	-2.5	2.63	16.5	9.6	1.9	1.49
Niger	210.2	0.1	0.1	0.0	0.01	0.1	0.0	0.0	0.06	0.5	0.1	-0.1	0.09	0.1	0.1	0.0	0.01
Rwanda	75.9	0.2	0.1	0.0	0.01	0.0	0.0	0.0	0.02	0.5	0.1	-0.1	0.10	0.1	0.1	0.0	0.01
Samoa	57.7	0.5	0.3	0.0	0.03	1.6	0.0	-0.4	0.89	2.3	0.3	-0.4	0.47	0.0	0.0	0.0	0.00
Sao Tome and Principe	10.5	0.1	0.1	0.0	0.01	0.1	0.0	0.0	0.07	0.4	0.0	-0.1	0.08	0.0	0.0	0.0	0.00
Sierra Leone	171.8	0.8	0.4	-0.1	0.05	1.2	0.0	-0.3	0.66	0.9	0.1	-0.2	0.18	0.6	0.3	0.1	0.05
Solomon Islands	173.2	0.0	0.0	0.0	0.00	16.8	0.4	-4.3	9.11	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.00
Somalia	30.0	0.0	0.0	0.0	0.00	4.4	0.1	-1.1	2.37	12.8	1.7	-2.4	2.59	0.1	0.1	0.0	0.01
Sudan	325.5	0.2	0.1	0.0	0.01	3.6	0.1	-0.9	1.94	40.0	5.4	-7.5	8.07	3.1	1.8	0.4	0.28
Togo	225.0	1.3	0.7	-0.1	0.08	1.1	0.0	-0.3	0.58	2.2	0.3	-0.4	0.44	0.4	0.3	0.1	0.04
Tuvalu	0.9	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.02	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.00
Uganda	547.1	2.2	1.2	-0.2	0.14	4.0	0.1	-1.0	2.18	3.0	0.4	-0.6	0.61	4.6	2.7	0.5	0.41
United Rep. of Tanzania	584.2	7.6	4.2	-0.6	0.47	14.0	0.3	-3.6	7.58	16.7	2.2	-3.1	3.35	24.7	14.4	2.9	2.23
Vanuatu	58.6	1.8	1.0	-0.1	0.11	3.2	0.1	-0.8	1.73	2.4	0.3	-0.5	0.48	0.2	0.1	0.0	0.02
Yemen, Rep.	1538.4	0.1	0.1	0.0	0.01	1.6	0.0	-0.4	0.88	0.4	0.0	-0.1	0.08	0.1	0.0	0.0	0.01
Zambia	645.0	3.3	1.9	-0.2	0.21	10.9	0.3	-2.8	5.90	20.6	2.8	-3.9	4.15	4.5	2.6	0.5	0.41
LDC Net Gain/Loss	22931.5	1602.1	892.2	-116.3	100.00	184.8	4.6	-46.9	100.00	496.5	66.3	-93.5	100.00	1107.3	644.8	128.3	100.00

Sources: Based on the simulation results and UN COMTRADE Statistics.

Table 8a: Export Changes in LDCs by Major Product After Duty Free Access in EU and Japan (Based on 1996-98 export average in \$ Million)

HS-2 Product	EU Tariff Peak Reform				Japanese Tariff Peak Reform			
	Beneficial LDCs	Peak Exp to World	Export Increase	Exp Sh in %	Beneficial LDCs	Peak Exp to World	Export Increase	Exp Sh in %
02 Meats & edible meat	SDN	5.2	9.5	51.8	MDG	2.1	2.3	33.2
	MDG	2.2	4.1	22.1	SDN	2.0	2.2	31.1
	VUT	1.8	3.3	18.1	VUT	1.8	2.0	28.4
	MYR	0.2	0.3	1.6	MYR	0.1	0.2	2.3
	UGA	0.1	0.2	1.0	UGA	0.1	0.1	1.6
	All LDCs	10.1	18.4	100.0	All LDCs	6.4	7.0	100.0
10 Cereals	MYR	8.9	9.6	39.3	MYR	3.3	6.8	37.3
	MDG	3.1	3.3	13.7	MOZ	2.2	4.6	25.2
	SDN	2.9	3.2	13.0	MDG	2.1	4.4	23.9
	MOZ	2.2	2.4	9.8	UGA	0.5	1.1	6.0
	TZA	1.6	1.7	7.0	GMB	0.2	0.5	2.6
	All LDCs	22.6	24.4	100.0	All LDCs	8.7	18.3	100.0
11 Flour, malt & starch	NPL	3.6	2.6	60.5	NPL	3.5	1.9	59.5
	BGD	0.8	0.6	13.6	BGD	0.8	0.4	13.7
	MYR	0.6	0.4	9.4	ETH	0.5	0.3	8.0
	ETH	0.3	0.2	5.1	MYR	0.4	0.2	7.3
	BTN	0.2	0.2	3.6	BTN	0.2	0.1	3.6
	All LDCs	5.9	4.3	100.0	All LDCs	5.9	3.3	100.0
12 Oil seed & misc grain					SDN	11.0	3.9	92.3
					MYR	0.3	0.1	2.3
					AFG	0.2	0.1	1.6
					NER	0.2	0.1	1.3
					CAM	0.1	0.0	1.0
					All LDCs	11.9	4.2	100.0
17 Sugars & confectionery	MWI	23.1	32.0	26.9	MWI	23.2	99.6	22.1
	ZMB	16.6	23.0	19.3	ZMB	16.6	71.3	15.8
	MOZ	13.0	18.0	15.2	MOZ	15.3	65.8	14.6
	MDG	11.4	15.8	13.3	SDN	14.8	63.7	14.1
	TZA	9.9	13.7	11.5	MDG	11.4	48.9	10.9
	All LDCs	85.9	119.0	100.0	All LDCs	104.9	450.9	100.0
23 Residue & waste food	MYR	3.5	3.2	34.8				
	ZAR	1.7	1.6	17.2				
	NPL	1.6	1.4	15.8				
	MOZ	0.7	0.6	6.9				
	TGO	0.7	0.6	6.8				
	All LDCs	10.1	9.1	100.0				

Table 8b: Export Changes in LDCs by Major Product After Duty Free Access in Canada and US (Based on 1996-98 export average in \$ Million)

HS-2 Product	Canadian Tariff Peak Reform				USA Tariff Peak Reform			
	Beneficial LDCs	Peak Exp to World	Export Increase	Exp Sh in %	Beneficial LDCs	Peak Exp to World	Export Increase	Exp Sh in %
12 Oil seed & misc grain					GMB	8.4	13.5	50.1
					SDN	6.4	10.3	38.2
					MWI	0.5	0.9	3.2
					MDG	0.4	0.7	2.4
					NER	0.2	0.4	1.3
					All LDCs	16.8	27.0	100.0
24 Tobacco					MWI	310.1	250.3	76.1
					TZA	54.0	43.6	13.2
					UGA	11.0	8.9	2.7
					ZMB	10.1	8.1	2.5
					LBR	5.6	4.6	1.4
					All LDCs	407.6	329.1	100.0
61 Clothing, knitted	BGD	1145.6	404.0	64.5	BGD	936.3	279.3	70.6
	CAM	192.3	67.8	10.8	CAM	121.8	36.3	9.2
	HTI	119.7	42.2	6.7	HTI	91.9	27.4	6.9
	MYR	109.6	38.6	6.2	MYR	78.4	23.4	5.9
	MDG	93.5	33.0	5.3	LAO	28.9	8.6	2.2
	All LDCs	1776.6	626.5	100.0	All LDCs	1326.8	395.8	100.0
62 Clothing, not knitted	BGD	2109.1	692.2	78.7	BGD	1133.3	283.9	84.4
	CAM	133.4	31.2	5.0	MYR	65.2	16.3	4.9
	MYR	99.9	23.4	3.7	CAM	36.7	9.2	2.7
	NPL	95.6	22.4	3.6	LAO	34.8	8.7	2.6
	MDG	90.2	21.1	3.4	NPL	27.0	6.8	2.0
	All LDCs	2678.5	879.0	100.0	All LDCs	1342.4	336.3	100.0
63 Other made up textiles	BGD	80.4	23.5	80.1				
	MWI	6.9	2.0	6.8				
	NPL	6.0	1.7	6.0				
	CAM	2.0	0.6	2.0				
	MDG	1.7	0.5	1.7				
	All LDCs	100.3	29.3	100.0				
64 Footwear	BGD	41.5	11.0	55.3	BGD	22.1	9.2	55.2
	CAM	11.2	3.0	14.9	CAM	7.9	3.3	19.6
	CPV	7.0	1.9	9.3	CPV	3.5	1.5	8.8
	MYR	6.7	1.8	9.0	MYR	2.4	1.0	5.9
	LAO	3.6	1.0	4.8	LAO	1.5	0.6	3.8
	All LDCs	75.1	19.9	100.0	All LDCs	40.1	16.6	100.0
65 Headgear & parts	BGD	130.8	18.6	96.1				
	NPL	3.0	0.4	2.2				
	MDG	0.8	0.1	0.6				
	CAM	0.6	0.1	0.4				
	HTI	0.5	0.1	0.4				
	All LDCs	136.1	19.4	100.0				

Sources: Based on simulation results and UN COMTRADE Statistics.

Caveats

The estimated gains from preferential access may be too high even though we have deliberately assumed a limited supply response.¹⁵ Although expanding exports to a particular market by re-directing exports from other regions does not require an increase in total exports (and therefore in supply), it does require the establishment of strong business relationships and a good reputation as a supplier in the new market, which may limit the gains from these preferential initiatives. However, one can also argue that the static nature of the simulations underestimates the potential export gains for LDCs. If allowance is made investment, the supply response in LDCs to large tariff preference margins in the Quad may be much higher than the one assumed in the simulations.

An important qualification to consider is that the estimates are premised on the assumption that access is truly free. In practice any type of preferences will be accompanied by rules of origin and may remain subject to the threat of contingent protection—antidumping, countervailing duties and safeguard actions. Both types of policy instruments can be used to make duty free access irrelevant in practice. Examples abound of protectionist lobbying in Quad members to tighten GSP rules of origin to restrict the ability of beneficiaries to significantly expand exports. Usually such lobbying is facilitated by the use of value added tests or local content requirements—e.g., at least 40 percent of the value added in production must originate in the country of export. The problem with such criteria is that they can be changed unilaterally and allow significant discretion for administering authorities to determine if the rule has been met.

An example from the US illustrates how rules of origin may be used to nullify the benefits of preferences. In 1983, the US adopted the Caribbean Basin Initiative, which granted Caribbean countries duty-free access to the US for many products. To determine whether a product was eligible for preferential treatment, at least 35 percent of the value of the good imported into the US must have been generated in the Caribbean. The preference scheme induced foreign investment in the Caribbean, including firms that established operations in Costa Rica and Jamaica to convert surplus European wine into ethanol, which was then exported to the US. This production process met the 35 percent

¹⁵ One can also argue that the static nature of the simulations underestimates the potential export gains for LDCs. Once we allow for investment (FDI), the supply response in LDCs to large tariff preference margins in the Quad may be much higher than the one assumed in the simulations.

value added test. Two years later, with production and exports doing well, the exporters were hit with a rule change: a US Congressman introduced an amendment to a tax bill raising the value added requirement for ethanol to 70 percent—an impossible requirement to meet for the Caribbean producers. The US industry that had lobbied for this rule change was never threatened by the imports—which never exceeded three percent of US consumption (Bovard, 1991: 22). Rules of origin are also high cost to administer—the tariff equivalent of the associated red tape can be significant. Herin (1986) estimated the ad-valorem cost of fulfilling rules of origin in EFTA was high enough for some 25% of all trade to pay the MFN tariff rather than document origin.

The WTO includes an Agreement on Rules of Origin that aims to foster the harmonization of the rules used by members. The agreement calls for a work program to be undertaken by a Technical Committee, in conjunction with the WCO, to develop a classification system regarding the changes in tariff subheadings based on the Harmonized System that constitute a substantial transformation. In principle, such rules are to be based on the change in tariff heading methodology, not value added criteria. The former involves rules that specify that a good originates if in the production process, the good that is produced is classified in a HS category that differs from that applying to the major inputs used. The WCO harmonization program, expected to be completed by the end of 2001, provides a potential solution to the rules of origin problem, as it creates the possibility of the Quad adopting the WCO rules. The WCO rules of origin are intended to be applied for non-preferential commercial policy instruments—tariffs, import licensing, antidumping and so forth—but there is no reason why they could not be applied to preferential trade as well. Doing so would help to greatly reduce transactions costs and uncertainty.

The threat of antidumping and similar instruments of contingent protection can also make duty free access redundant if there is a probability that once exports have expanded they will be targeted by such mechanisms. It is therefore important that duty free access schemes exempt LDCs exempt from the application of antidumping and safeguard actions. While this may be politically difficult to achieve, the small trade flows concerned should make such a promise relatively painless in practice. A problem, however, is that antidumping is an ‘automatic’ type of instrument, whose application

cannot be blocked by the political authorities unless the relevant laws and regulations are amended. More generally, being unilateral, it must be recognized that duty free access offers by the Quad are not enforceable. This implies a need for good faith efforts to deliver on promises to open markets fully and to prevent attempts to re-impose protection through the backdoor. Monitoring of the implementation of duty free access by civil society (development-oriented NGOs) could help ensure compliance. This is an area where it is not possible to rely on WTO dispute settlement, given that preferences are unilateral.

Finally, it should be noted that the above analysis completely ignores the fact that trade barriers faced by developing countries include policies imposed by other developing countries. Almost 40 percent of developing countries exports were imported by other developing countries in 1998 (Hertel and Martin, 1999). Moreover, tariffs are higher in developing countries for products. Own liberalization is likely to be a major precondition for benefiting fully from duty free access in the Quad.

5 Concluding remarks

Although average tariffs confronting LDCs in Quad markets are very low, tariff peaks and tariff escalation have a disproportional effect on LDC exports. Goods that are subject to MFN tariffs of 15 percent or higher account for 11 percent of LDC exports to the Quad, although these types of products represent only 4 percent of total Quad imports (\$93 billion). Of this small amount, LDCs account for less than 4 percent of total Quad imports of tariff peak items—they are very small players.

Products that are subject to tariff peaks, especially in Canada and the US, tend to benefit from only limited preferential access. The impact of tariff peaks is therefore disproportionately great for LDCs. Tariff peak products tend to be heavily concentrated in agriculture products (sugar, cereals, meat) and in labor intensive sectors such as apparel and footwear. LDC exports of tariff peak items to the Quad tend to be highly concentrated. In Japan, LDCs are virtually not present in the market; in the US and Canada exports are heavily concentrated in apparel. Only in the EU do LDCs have a relatively diversified presence in that they export non-negligible quantities of a number products.

Elimination of tariff peaks for LDCs in Quad markets will have a significant effect on LDC exports to these markets, ranging from 30 to 60 percent. The extra \$2.5 billion of exports by LDCs represents an 11 percent increase in their total exports to the world. This would constitute a major improvement in terms of export performance. The impact of duty free access on domestic producers and domestic consumption in the Quad would be very small, in part LDCs will displace trade from other sources. While such displacement—trade diversion—is inherently a problem associated with granting preferential access to only a subset of countries, the amounts involved are very small relative to total developing (non-LDC) country exports of tariff peak products. Moreover, LDC exports expand more than other developing countries trade contracts. In terms of other developing country total exports to the world, the decline associated with providing LDCs with free access to the Quad is quite small—less than 0.1 percent of their global exports.

The overall increase in exports of \$2.5 billion can be compared to the magnitude of the official development assistance (ODA) given by the Quad to LDCs. Total ODA to LDCs stood at \$6.7 billion in 1998, more than two-thirds of which was provided by the EU and its member states. If we divide the projected increase in LDC exports of tariff peak items following granting of duty free access in Canada, the EU, Japan and the US by the ODA provided by each of these Quad members to all LDCs, we can conclude that duty free access would generate an increase in exports that is equivalent to more than 5 times ODA granted by Canada; more than double that provided by the US, about half that granted by Japan ODA, and only 4 percent of EU ODA.¹⁶

The distribution of export increases across products and countries reflects differences in both the export bundle of LDCs and the tariff peak items in Quad countries. In terms of specific product categories and countries, the impact of duty free access for LDCs is relatively concentrated. In the US and Canada, most of the action is in apparel. In the EU and Japan, the action is primarily in sugar and related products, and cereals. In terms of which LDCs benefit most, Bangladesh would be a big beneficiary, as the largest LDC exporter of apparel, footwear and fish to the EU, US, and Canada. Other LDCs will also benefit significantly in relative terms. Cambodia, Cape Verde, Haiti, Lao,

¹⁶ Data on ODA based on OECD DAC figures.

Liberia, Malawi, the Maldives and Somalia would all see their exports increase by 20 percent or more. Given that tariff peaks across Quad countries occur in different products and that LDC export bundles are quite varied, it is important that all Quad members grant preferential access to ensure that all LDCs benefit.

It is well known that protectionist trade regimes in industrialized countries are not the most important factor constraining LDC export growth—important as well are domestic distortions and institutional weaknesses that create high transactions costs, bias investment incentives and raise risk premia—see, e.g., Ng and Yeats (1996), World Bank (2001). Duty free access will not solve the problem of the marginalization of LDCs in global trade. However, it is something that can be offered to these countries by the Quad, and that can help offset to some extent the major domestic challenges and transactions costs that confront domestic entrepreneurs in these countries. In the process it may help alter the domestic political economy forces that constrain the adoption and implementation of better policies by mobilizing groups that will benefit from improved access to the Quad.

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APPENDIX A: Tariff Peaks at 2-digit HS in Quad

Table A1: Peaks and preferential access into the Canadian market

Tariff Peak at HS 2-digit Product	# 6 -digit lines	MFN tariff	LDC pref.	GSP pref	Mex Pref	Chl Pref	CAR Pref
01 Live animals.	4	198.8	0.00	0.00	0.00	0.25	0.25
02 Meat and edible meat offal	10	109.9	0.60	0.17	0.17	0.60	0.60
04 Dairy prod; birds' eggs; honey	26	197.5	0.31	0.03	0.05	0.50	0.54
06 Live tree & other plant; bulb, cut flowers	1	15.2	0.47	0.47	0.51	0.60	1.00
08 Edible fruit and nuts; melons	1	16.6	0.00	0.00	0.00	0.00	0.00
10 Cereals.	3	70.2	0.00	0.00	1.00	0.69	0.53
11 Prod mill indust; malt; starches	7	85.3	0.14	0.02	0.14	0.07	0.14
12 Oil seed, oleagi fruits; misc grain	1	18.3	0.00	0.00	0.00	0.00	0.00
13 Lac; gums, resins & other veg	1	74.0	0.00	0.00	0.00	0.00	0.00
15 Animal/veg fats & oils & prod	8	28.0	0.80	0.57	1.00	1.00	1.00
16 Prep of meat, fish or mollusks	5	68.7	0.59	0.14	0.22	0.50	0.66
17 Sugars and sugar confectionery	1	16.6	0.00	0.00	0.00	0.00	0.00
18 Cocoa and cocoa preparations	2	85.5	1.00	0.18	1.00	0.73	1.00
19 Prep of cereal, flour, starch/milk prod	3	54.5	0.96	0.26	0.87	0.96	1.00
20 Prep of vegetable, fruit, nuts prod	2	19.4	0.00	0.00	0.77	0.48	1.00
21 Miscellaneous edible preparations	4	48.9	0.97	0.37	0.77	0.83	1.00
22 Beverages, spirits and vinegar	3	26.7	0.67	0.27	1.00	1.00	1.00
23 Residues & waste from food indust	2	30.3	0.29	0.00	0.40	0.50	0.50
24 Tobacco and manufactured	1	17.6	0.00	0.00	1.00	1.00	1.00
33 Essential oils & resinoids, perf.	1	18.0	1.00	0.74	1.00	0.57	1.00
35 Albuminoidal subs; modified starches	2	18.0	0.00	0.00	0.00	0.50	0.50
39 Plastics and articles thereof.	5	16.7	1.00	0.36	0.70	0.72	1.00
40 Rubber and articles thereof.	7	16.8	1.00	0.37	0.85	1.00	1.00
42 Articles of leather; saddlery, travel pr	3	16.6	1.00	0.42	0.72	1.00	1.00
43 Furskins and artificial fur thereof.	2	19.2	1.00	0.34	0.61	1.00	1.00
51 Wool, fine/coarse animal hair nes	7	16.5	0.87	0.41	1.00	1.00	0.00
52 Cotton.	66	17.3	0.15	0.06	0.62	0.62	0.00
53 Other vegetable textile fibres & yarns	2	16.0	1.00	0.13	1.00	1.00	0.00
54 Man-made filaments.	34	19.0	0.01	0.00	1.00	1.00	0.00
55 Man-made staple fibres.	68	19.0	0.10	0.03	1.00	1.00	0.00
56 Wadding, felt & nonwoven, yarns etc.	22	16.9	0.39	0.16	0.77	0.77	0.00
57 Carpets and other textile floor coverings	14	18.9	1.00	0.47	0.77	0.77	0.00
58 Special woven fab; tufted tex fab etc	31	17.9	0.34	0.11	0.65	0.65	0.00
59 Impregnated, coated, cover/laminated	13	17.8	0.90	0.33	0.73	0.73	0.00
60 Knitted or crocheted fabrics	16	18.0	0.38	0.12	0.65	0.65	0.00
61 Art of apparel & clothing access	114	23.3	0.07	0.02	0.62	0.62	0.00
62 Art of apparel & clothing access	116	22.4	0.09	0.04	0.66	0.66	0.00
63 Other made up textile articles	52	22.1	0.14	0.06	0.68	0.68	0.03
64 Footwear, gaiters and articles	23	20.8	0.12	0.07	0.70	0.67	0.00
65 Headgear and parts thereof.	4	18.7	0.61	0.12	1.00	1.00	0.00
67 Prepr feathers & down; art flower nes	4	21.3	1.00	1.00	1.00	1.00	1.00
68 Art of stone, plaster, cement, asbestos	1	21.3	0.00	0.00	1.00	1.00	1.00
70 Glass and glassware.	7	16.6	0.46	0.22	0.73	1.00	1.00
85 Electrical mech equip parts, sound pr	3	16.7	0.00	0.00	0.00	0.00	0.00
86 Railw/tramw locom, rolling stock etc.	7	15.0	1.00	0.55	0.92	1.00	1.00
89 Ships, boats and floating structures	10	22.5	1.00	0.04	0.74	1.00	1.00
91 Clocks and watches and parts nes	6	18.6	1.00	0.50	1.00	1.00	1.00
94 Furniture; bedding, mattress, cushion	2	21.0	0.00	0.00	0.77	1.00	1.00
95 Toys, games & sports requisites, nes	1	16.4	0.13	0.06	0.84	1.00	1.00
96 Miscellaneous manufactured articles	4	17.5	0.68	0.34	0.76	1.00	1.00

Source: OECD and WTO tariff files.

Table A2: Preferential access into the EU market in tariff peaks

Tariff Peak at HS 2-digit Products	# of 6-digit tariff lines	MFN Tariff	LDC Pref.	GSP Pref.	ACP Pref.	ACP +LDC Pref.	FTA Pref.
01 Live animals.	7	38.2	0.06	0.00	0.30	0.35	0.00
02 Meat and edible meat offal	41	71.0	0.08	0.00	0.10	0.10	0.00
03 Fish & crustacean, mollusk nes	17	18.7	1.00	0.10	1.00	1.00	0.00
04 Dairy prod; birds' eggs; honey	25	59.1	0.12	0.01	0.06	0.12	0.02
06 Live tree & other plant; bulb, cut flowers	2	16.9	1.00	0.18	1.00	1.00	0.33
07 Edible vegetables and roots & tubers	12	25.4	0.79	0.15	0.66	0.79	0.00
08 Edible fruit and nuts; melons	8	20.2	0.66	0.12	0.64	0.66	0.06
09 Coffee, tea, mat and spices	2	16.0	0.50	0.69	1.00	1.00	0.00
10 Cereals.	14	75.6	0.06	0.00	0.06	0.07	0.00
11 Prod mill indust; malt; starches	31	38.2	0.17	0.02	0.20	0.21	0.00
12 Oil seed, oleagi fruits; misc grain	1	74.4	0.15	0.00	0.16	0.16	0.00
13 Lac; gums, resins & other veg	1	17.8	1.00	0.30	1.00	1.00	0.00
15 Animal/veg fats & oils & prod	8	56.0	0.60	0.19	0.51	0.60	0.03
16 Prep of meat, fish or mollusks	22	23.5	0.68	0.20	0.67	0.68	0.01
17 Sugars and sugar confectionery	9	37.6	0.14	0.03	0.21	0.25	0.05
18 Cocoa and cocoa preparations	1	24.0	0.25	0.10	0.25	0.25	0.25
19 Prep of cereal, flour, starch/milk prod	13	34.1	0.37	0.11	0.39	0.42	0.30
20 Prep of vegetable, fruit, nuts prod	42	26.1	0.88	0.15	0.88	0.90	0.02
21 Miscellaneous edible preparations	8	19.2	0.95	0.28	0.78	0.95	0.28
22 Beverages, spirits and vinegar	12	35.7	0.71	0.33	0.77	0.78	0.06
23 Residues & waste from food indust	6	71.4	0.06	0.03	0.11	0.13	0.00
24 Tobacco and manufactured	8	56.2	1.00	0.39	1.00	1.00	0.00
29 Organic chemicals.	3	33.9	1.00	0.33	0.53	1.00	0.53
35 Albuminoidal subs; modified starches	2	24.9	1.00	1.00	1.00	1.00	1.00
38 Miscellaneous chemical products	2	45.9	0.50	0.00	0.33	0.50	0.33
56 Wadding, felt & nonwoven, yarns etc.	2	21.1	1.00	0.15	1.00	1.00	1.00
64 Footwear, gaiters and articles	13	18.2	1.00	0.30	1.00	1.00	1.00
87 Vehicles o/t railw/tramw roll stock, pts	5	16.3	1.00	0.44	1.00	1.00	1.00

Source: OECD and WTO tariff files.

Table A3: Preferential access into the Japanese market in tariff peaks

Tariff Peak at HS 2-digit products	# of 6-digit lines	MFN Tariff	LDC preferences	GSP preferences
02 Meat and edible meat offal	9	39.31	0.13	0.13
03 Fish & crustacean, mollusk nes	4	15.00	0.00	0.00
04 Dairy prod; birds' eggs; honey	25	28.99	0.05	0.05
07 Edible vegetables and roots & tubers	1	15.80	0.00	0.00
08 Edible fruit and nuts; melons	11	19.81	0.15	0.09
09 Coffee, tea, mat and spices	5	17.81	0.49	0.11
10 Cereals.	1	63.38	0.00	0.00
11 Prod mill indust; malt; starches	28	23.24	0.11	0.06
12 Oil seed, oleagi fruits; misc grain	1	19.10	0.00	0.00
15 Animal/veg fats & oils & prod	2	26.99	0.00	0.00
16 Prep of meat, fish or mollusks	4	20.69	0.05	0.05
17 Sugars and sugar confectionery	11	71.25	0.05	0.05
18 Cocoa and cocoa preparations	6	22.77	0.49	0.18
19 Prep of cereal, flour, starch/milk prod	13	21.91	0.15	0.04
20 Prep of vegetable, fruit, nuts prod	32	22.69	0.23	0.06
21 Miscellaneous edible preparations	7	22.35	0.19	0.11
22 Beverages, spirits and vinegar	16	38.65	0.39	0.16
24 Tobacco and manufactured	2	18.63	0.00	0.00
29 Organic chemicals.	2	20.00	1.00	1.00
35 Albuminoidal subs; modified starches	2	23.31	1.00	1.00
38 Miscellaneous chemical products	1	80.83	1.00	1.00
41 Raw hides and skins (other than fur)	10	26.08	1.00	0.57
42 Articles of leather; saddlery, travel pr	5	15.52	0.20	0.10
43 Furskins and artificial fur thereof.	8	16.25	0.47	0.47
53 Other vegetable textile fibres & yarns	4	16.00	1.00	1.00
58 Special woven fab; tufted tex fab etc	4	17.90	1.00	0.50
60 Knitted or crocheted fabrics	3	15.70	1.00	0.50
64 Footwear, gaiters and articles	16	36.24	0.81	0.40

Source: Computations based on UN COMTRADE Statistics.

Table A4: Preferential Access into the US market in tariff peaks

Product Description	# lines	MFN	LDC	GSP	Mexico	ATP	Caribbean
02 Meat and edible meat offal	2	19.20	0.00	0.00	1.00	0.00	0.00
04 Dairy prod; birds' eggs; honey	2	20.90	0.38	0.00	0.25	0.38	0.38
07 Edible vegetables and roots nes	10	20.56	0.88	0.18	0.90	1.00	1.00
08 Edible fruit and nuts; melons	5	16.66	0.80	0.18	0.74	0.80	0.80
11 Prod mill indust; malt; starches	1	16.30	1.00	0.00	1.00	1.00	1.00
12 Oil seed, oleagi fruits; misc etc.	3	77.95	0.00	0.33	0.67	0.00	0.00
15 Animal/veg fats & oils & prod	4	19.92	0.50	0.25	0.50	0.50	0.50
19 Prep of cereal, flour, milk prod	2	16.79	0.84	0.50	0.63	0.84	0.84
20 Prep of vegetable, fruit, nuts	11	28.67	0.55	0.11	0.56	0.55	0.55
21 Miscellaneous edible prep	1	19.80	0.74	0.00	0.43	0.74	0.74
24 Tobacco and manufactured	7	73.48	0.14	0.09	0.96	0.14	0.14
28 Inorgn chem; compds of prec	1	15.10	1.00	1.00	1.00	1.00	1.00
29 Organic chemicals.	4	16.75	1.00	1.00	1.00	1.00	1.00
30 Pharmaceutical products.	1	30.00	0.00	0.00	0.00	0.00	0.00
42 Articles of leather; saddlery	1	20.00	0.00	0.00	0.60	0.13	0.13
51 Wool, fine/coarse animal hair	4	20.45	0.00	0.00	1.00	0.00	0.00
52 Cotton.	10	18.34	0.00	0.00	1.00	0.00	0.00
54 Man-made filaments.	27	16.37	0.00	0.00	1.00	0.00	0.00
55 Man-made staple fibres.	56	16.27	0.00	0.00	0.97	0.00	0.00
56 Wadding, felt & nonwoven, yarn	1	15.20	0.00	0.00	1.00	0.00	0.00
58 Special woven fab; tufted fabrics	15	18.47	0.00	0.00	1.00	0.07	0.20
60 Knitted or crocheted fabrics	5	18.58	0.00	0.00	1.00	0.00	0.00
61 Art of apparel & clothing access	58	19.50	0.00	0.00	0.85	0.02	0.05
62 Art of apparel & clothing access	41	18.85	0.00	0.00	0.83	0.02	0.14
64 Footwear, gaiters and parts etc.	12	27.77	0.01	0.01	0.57	0.01	0.01
69 Ceramic products.	4	17.63	0.09	0.09	0.27	1.00	1.00
70 Glass and glassware.	4	16.16	1.00	0.08	0.42	1.00	1.00
82 Tool, implement, cutlery, spoon	1	15.23	1.00	0.65	0.65	1.00	1.00
86 Railw/tramw locom, rolling stock	7	17.20	1.00	1.00	1.00	1.00	1.00
87 Vehicles o/t railw/tramw roll stock	5	25.00	1.00	0.00	1.00	1.00	1.00
96 Miscellaneous manufactures	2	20.66	0.78	0.57	1.00	0.78	0.78

Source: OECD and WTO tariff files.

Appendix B: Total Exports of LDC by HS-2 digit (1996-98 average, peaks and other products)

HS-2 Product	Export Values of LDCs (\$ '000)					Export Shares of All Goods (%)				
	Canada	EU	Japan	USA	World	Canada	EU	Japan	USA	World
01 Live animals.	70	4384	670	3523	12306	0.02	0.05	0.05	0.06	0.05
02 Meat and edible meat offal	0	2649	1905	21	11298	0.00	0.03	0.14	0.00	0.05
03 Fish & crustacean, mollusc nes	10983	569991	400391	136963	1307056	3.74	6.06	29.94	2.25	5.74
04 Dairy prod; birds' eggs; honey	12	535	71	102	1873	0.00	0.01	0.01	0.00	0.01
05 Products of animal origin	17	4372	3248	943	11468	0.01	0.05	0.24	0.02	0.05
06 Live tree & other plant; bulb, cut flowers	141	0	56	1550	34618	0.05	0.00	0.00	0.03	0.15
07 Edible vegetables and roots & tubers	247	61539	8139	613	250776	0.08	0.65	0.61	0.01	1.10
08 Edible fruit and nuts; melons	1510	68239	17	24000	257010	0.51	0.73	0.00	0.39	1.13
09 Coffee, tea, mat and spics	18586	928734	106749	125653	1407068	6.32	9.87	7.98	2.06	6.18
10 Cereals.	41	5995	484	128	19373	0.01	0.06	0.04	0.00	0.09
11 Prod mill indust; malt; starches	10	119	0	165	5460	0.00	0.00	0.00	0.00	0.02
12 Oil seed, oleagi fruits; misc grain	822	120725	57273	23180	282589	0.28	1.28	4.28	0.38	1.24
13 Lac; gums, resins & other veg	12	44216	3305	15826	70480	0.00	0.47	0.25	0.26	0.31
14 Vegetable plaiting materials, nes	110	6088	113	1402	14957	0.04	0.06	0.01	0.02	0.07
15 Animal/veg fats & oils & prod	22	54930	1626	1508	89950	0.01	0.58	0.12	0.02	0.40
16 Prep of meat, fish or molluscs	530	73066	7935	438	83974	0.18	0.78	0.59	0.01	0.37
17 Sugars and sugar confectionery	69	62605	3	22332	103055	0.02	0.67	0.00	0.37	0.45
18 Cocoa and cocoa preparations	268	51913	0	2840	68535	0.09	0.55	0.00	0.05	0.30
19 Prep of cereal, flour, starch/milk prod	19	310	2	177	3158	0.01	0.00	0.00	0.00	0.01
20 Prep of vegetable, fruit, nuts prod	239	3209	15	372	5304	0.08	0.03	0.00	0.01	0.02
21 Miscellaneous edible preparations	66	1327	51	48	4208	0.02	0.01	0.00	0.00	0.02
22 Beverages, spirits and vinegar	131	2271	52	689	6122	0.04	0.02	0.00	0.01	0.03
23 Residues & waste from food indust	155	30380	89	6771	48190	0.05	0.32	0.01	0.11	0.21
24 Tobacco and manufactured	939	208971	39075	63707	405337	0.32	2.22	2.92	1.05	1.78
25 Salt; sulphur; earth & ston, lime	39564	33851	873	4457	119327	13.46	0.36	0.07	0.07	0.52
26 Ores, slag and ash.	34792	565475	6385	124427	757596	11.84	6.01	0.48	2.04	3.33
27 Mineral fuels, oils & prod	55357	664502	253674	2972303	5957934	18.84	7.06	18.97	48.83	26.16
28 Inorgn chem; compds of prec met	7940	67907	21	4701	149466	2.70	0.72	0.00	0.08	0.66
29 Organic chemicals.	137	1647	205	172	7777	0.05	0.02	0.02	0.00	0.03
30 Pharmaceutical products.	12	1494	0	12309	22587	0.00	0.02	0.00	0.20	0.10
31 Fertilisers.	11	1028	4	908	32335	0.00	0.01	0.00	0.01	0.14
32 Tanning/dyeing extract; tannins etc	30	4229	22	735	8154	0.01	0.04	0.00	0.01	0.04
33 Essential oils & resinoids, perf.	209	16215	244	2133	31690	0.07	0.17	0.02	0.04	0.14
34 Soap, organic surface-active agents	14	350	3	80	9957	0.00	0.00	0.00	0.00	0.04
35 Albuminoidal subs; modified starches	53	1790	0	618	2755	0.02	0.02	0.00	0.01	0.01
36 Explosives; pyrotechnic prod	0	10	0	110	141	0.00	0.00	0.00	0.00	0.00
37 Photographic or cinematographic pr	1	585	43	23	790	0.00	0.01	0.00	0.00	0.00
38 Miscellaneous chemical products	97	374	78	141	2496	0.03	0.00	0.01	0.00	0.01
39 Plastics and articles thereof.	221	3954	348	1051	13733	0.08	0.04	0.03	0.02	0.06
40 Rubber and articles thereof.	653	17095	71	10700	106054	0.22	0.18	0.01	0.18	0.47
41 Raw hides and skins (other than fur)	191	171564	14278	10193	321639	0.06	1.82	1.07	0.17	1.41
42 Articles of leather; saddlery, travel gds	226	8063	1173	17929	28818	0.08	0.09	0.09	0.29	0.13
43 Furskins and artificial fur thereof.	46	7997	3	385	8774	0.02	0.08	0.00	0.01	0.04
44 Wood and articles of wood.	647	166790	108025	10358	621952	0.22	1.77	8.08	0.17	2.73
45 Cork and articles of cork	0	1	0	0	46	0.00	0.00	0.00	0.00	0.00
46 Manufactures of straw, plaiting mat etc	65	4782	205	1780	7382	0.02	0.05	0.02	0.03	0.03
47 Pulp of wood/of other fibrous cellulosic	3	90	1181	280	2347	0.00	0.00	0.09	0.00	0.01
48 Paper & paperboard; art & paper pulp	81	7455	92	682	11724	0.03	0.08	0.01	0.01	0.05
49 Printed books, newspaper prod.	59	5149	190	460	9137	0.02	0.05	0.01	0.01	0.04

50 Silk.	11	144	15	34	517	0.00	0.00	0.00	0.00	0.00
51 Wool, fine/coarse animal hair nes	22	14747	49	1126	17828	0.01	0.16	0.00	0.02	0.08
52 Cotton.	7372	387578	9307	2923	893293	2.51	4.12	0.70	0.05	3.92
53 Other vegetable textile fibres & yarns	1899	89221	8461	10282	225674	0.65	0.95	0.63	0.17	0.99
54 Man-made filaments.	27	747	1	31	7510	0.01	0.01	0.00	0.00	0.03
55 Man-made staple fibres.	60	2534	0	313	12684	0.02	0.03	0.00	0.01	0.06
56 Wadding, felt & nonwoven, yarns etc.	235	5815	5115	6713	24786	0.08	0.06	0.38	0.11	0.11
57 Carpets and other textile floor coverings	744	143206	479	18998	176810	0.25	1.52	0.04	0.31	0.78
58 Special woven fab; tufted tex fab etc	23	731	16	935	2275	0.01	0.01	0.00	0.02	0.01
59 Impregnated, coated, cover/laminated	1	72	0	22	822	0.00	0.00	0.00	0.00	0.00
60 Knitted or crocheted fabrics	2	230	58	8	2022	0.00	0.00	0.00	0.00	0.01
61 Art of apparel & clothing access	34576	1045824	8436	617568	1776361	11.77	11.12	0.63	10.15	7.80
62 Art of apparel & clothing access	50358	1205487	16294	1338093	2701549	17.14	12.81	1.22	21.98	11.86
63 Other made up textile articles	1499	42296	4059	62874	134869	0.51	0.45	0.30	1.03	0.59
64 Footwear, gaiters and articles	154	49246	14774	1024	77791	0.05	0.52	1.10	0.02	0.34
65 Headgear and parts thereof.	1584	5354	873	127707	137169	0.54	0.06	0.07	2.10	0.60
66 Umbrellas, walking-stick, whips etc.	1	166	0	11	317	0.00	0.00	0.00	0.00	0.00
67 Prepr feathers & down; art flower nes	108	1731	27	414	2348	0.04	0.02	0.00	0.01	0.01
68 Art of stone, plaster, cement, asbestos	19	550	38	213	1489	0.01	0.01	0.00	0.00	0.01
69 Ceramic products.	263	9749	213	3935	16127	0.09	0.10	0.02	0.06	0.07
70 Glass and glassware.	486	810	47	1206	3249	0.17	0.01	0.00	0.02	0.01
71 Natural/cultured pearls, prec stones	599	1844328	5837	144089	2093964	0.20	19.60	0.44	2.37	9.20
72 Iron and steel.	39	7356	228	1474	25024	0.01	0.08	0.02	0.02	0.11
73 Articles of iron or steel.	92	3023	1285	2503	10879	0.03	0.03	0.10	0.04	0.05
74 Copper and articles thereof.	417	113822	94756	472	386526	0.14	1.21	7.09	0.01	1.70
75 Nickel and articles thereof.	0	708	67	12	2478	0.00	0.01	0.01	0.00	0.01
76 Aluminium and articles thereof.	55	1242	1247	209	7256	0.02	0.01	0.09	0.00	0.03
78 Lead and articles thereof.	1	92	0	0	937	0.00	0.00	0.00	0.00	0.00
79 Zinc and articles thereof.	0	1313	0	0	3057	0.00	0.01	0.00	0.00	0.01
80 Tin and articles thereof.	2	229	19	255	1104	0.00	0.00	0.00	0.00	0.00
81 Other base metals; cerments thereof.	10492	60878	108250	76728	277691	3.57	0.65	8.09	1.26	1.22
82 Tool, implement, cutlery, spoon, fork	111	2838	2	110	4580	0.04	0.03	0.00	0.00	0.02
83 Miscellaneous articles of base metal	48	1207	69	944	2951	0.02	0.01	0.01	0.02	0.01
84 Nuclear reactors, boiler, mech appl.	2510	56041	612	4168	86754	0.85	0.60	0.05	0.07	0.38
85 Electrical mech equip parts, sound pr	2184	27327	6008	6573	102545	0.74	0.29	0.45	0.11	0.45
86 Railw/tramw locom, rolling stock etc.	16	333	0	5	1009	0.01	0.00	0.00	0.00	0.00
87 Vehicles o/t railw/tramw roll stock, pts	183	9563	42	247	17823	0.06	0.10	0.00	0.00	0.08
88 Aircraft, spacecraft, and parts nes	194	27205	5	27	30066	0.07	0.29	0.00	0.00	0.13
89 Ships, boats and floating structures	6	138674	16682	459	631624	0.00	1.47	1.25	0.01	2.77
90 Optical, photo, cine, meas, presision	364	26611	6491	1664	44687	0.12	0.28	0.49	0.03	0.20
91 Clocks and watches and parts nes	23	2074	6	45	2487	0.01	0.02	0.00	0.00	0.01
92 Musical instruments; parts & access	24	581	35	188	975	0.01	0.01	0.00	0.00	0.00
93 Arms and ammunition; parts & access	0	129	0	280	438	0.00	0.00	0.00	0.00	0.00
94 Furniture; bedding, mattress, cushion	173	6468	669	2486	15374	0.06	0.07	0.05	0.04	0.07
95 Toys, games & sports requisites, nes	1258	7033	4756	28926	44491	0.43	0.07	0.36	0.48	0.20
96 Miscellaneous manufactured articles	37	1947	716	917	6021	0.01	0.02	0.05	0.02	0.03
97 Works of art, collectors pieces nes	167	2423	2829	9900	17085	0.06	0.03	0.21	0.16	0.08
All Goods	293848	9408647	1337262	6086994	22772093	100.00	100.00	100.00	100.00	100.00
As % of All Exports to the World	1.3	41.3	5.9	26.7	100.0					

Source: Based on partner's data from UN Comtrade statistics

Appendix C: The empirical model

World markets are perfectly competitive and integrated, in the sense that there is no further scope for arbitrage across countries. Products traded in world markets under the same 6-digit classification of the Harmonized system (HS) are considered as perfectly homogenous. Each product of the 6-digit HS classification is a sufficiently small share of the economy, so that the effects on other product's markets of changes in a particular 6-digit product market can be considered as negligible.

Because we are interested on the consequences of reductions of tariff peaks in country i , let us model import demand for each HS-6-digit product of country $i=US, EU, CAN, JPN$ as given by:

$$M_i = \frac{A_i}{[P_w(1+T_i)]^E} \quad (1)$$

where E is the import demand elasticity (common to all countries in our simulations),¹⁷ P_w is the world price; T_i is the MFN tariff in country i and A_i is a demand parameter in country i . Throughout the paper we will assume that tariffs are kept constant in the rest of the world. Therefore rest-of-the-world import demand is given by:

$$M_{ROW} = \frac{A_{ROW}}{[P_w]^E} \quad (3)$$

Export supply of country j to country i is given by:

$$X_{j \rightarrow i} = B_j [P_w(1+T_i\Pi_{i \rightarrow j})]^\Theta \quad (2)$$

Θ is the export supply elasticity (common to all countries); $\Pi_{i \rightarrow j}$ is the level of tariff preference granted by country i to exports from j . Thus, if $\Pi_{i \rightarrow j} = 0$ imports of i from j

have to pay country i 's MFN tariff. Similarly if $\Pi_{i \rightarrow j} = 1$ exports from j receive the domestic price in i . B_j is a supply parameter.

The equilibrium world price is obtained by solving for the world price the world market clearing condition, i.e.,

$$p_W^E = \underset{P_W}{\text{argsol}} \left[\sum_k M_k - \sum_j X_j = 0 \right] = \left[\frac{A_i / (1 + T_i)^E + A_{ROW}}{\sum_j B_j [1 + T_i \Pi_{i \rightarrow j}]^\theta} \right]^{1/(E+\theta)} \quad (3)$$

All demand and supply parameters are calibrated using UN's trade data (value and quantities) at the 6-digit of the Harmonized system and MFN and preferential margins of country i :¹⁸

$$B_j = \frac{X_j}{[1 + T_i \Pi_{i \rightarrow j}]^\theta} \quad ; \quad A_{ROW} = M_{ROW} [P_W]^E \quad ; \quad A_i = M_i [P_W (1 + T_i)]^E \quad (4)$$

Using the calibrated parameters in (4) and replacing them into the right-hand-side of (3) we simulate in the empirical section the effect on world prices (and developing countries' export revenue) of changes in country i 's tariff peaks. Before jumping into the simulation exercise, let us determine analytically what would be the predictions from the setup described above.

Effect on world prices of a reduction in tariff peaks

To sign the effect of a reduction in tariff peaks on world prices, differentiate (3) with respect to t_i . It yields:

¹⁷ The 6-digit HS import demand elasticities have been derived from Stern et al. (1976).

¹⁸ Given that goods are perfectly substitutable exports of j to the rest-of-the-world need to receive the same price as exports to country i .

$$\frac{\partial P_W^E}{\partial t_i} = \frac{1}{E + \Theta} \left[\frac{A_{ROW} + A_i / (1 + T_i)^E}{\sum_j B_j (1 + T_i \Pi_{i \rightarrow j})^\Theta} \right]^{1/(\Theta + E) - 1} \left(-E \frac{A_i / (1 + T_i)^{E-1}}{\sum_j B_j (1 + T_i \Pi_{i \rightarrow j})^\Theta} - \left\{ \sum_j B_j \Theta (1 + T_i \Pi_{i \rightarrow j})^{\Theta-1} \Pi_{i \rightarrow j} \right\} \frac{A_{ROW} + A_i / (1 + T_i)^E}{\left[\sum_j B_j (1 + T_i \Pi_{i \rightarrow j})^\Theta \right]^2} \right) < 0 \quad (5)$$

Thus a reduction of country i 's tariff peaks will necessarily lead to an increase in world prices. Does this necessarily lead to an increase of country j 's export revenue? No, given that some countries benefit from preferential access and therefore their export price is partly determined by the tariff.

Effect on export revenue of a reduction in tariff peaks

The export revenue of country j is given by:

$$ER_j = P_W (1 + T_i \Pi_{i \rightarrow j}) X_j = B_j (P_W (1 + T_i \Pi_{i \rightarrow j}))^{\Theta+1} \quad (6)$$

The change in export revenue following a change in country's i tariff is obtained by differentiating the right-hand-side of (6) with respect to T_i :

$$\frac{\partial ER_j}{\partial T_i} = B_j (\Theta + 1) (P_W (1 + T_i \Pi_{i \rightarrow j}))^\Theta \left[\frac{\partial P_W}{\partial T_i} + P_W \Pi_{i \rightarrow j} \right] \quad (7)$$

Thus, if country j has no preferential access to country i 's market (i.e., $\Pi_{i \rightarrow j} = 0$), then a tariff cut will necessarily bring an increase in export revenue of country j .¹⁹ Similarly, if

¹⁹ To see this note that the term in square brackets on the right-hand-side of (7) will then have the same sign as the change in world prices (which is negative).

country j has full preferential access into country i 's market (i.e., $\Pi_{i \rightarrow j} = 1$), then a tariff cut will necessarily bring a decline in export revenue of country i .²⁰

More generally, the export revenue of country j will increase following a tariff reduction in country i if:

$$\left| \frac{\partial P_w}{\partial T_i} \frac{T_i}{P_w} \right| < T_i \Pi_{i \rightarrow j} \quad (8)$$

That is, if the elasticity of the world price with respect to the tariff is smaller than the tariff faced by the exporter j in country i .

This suggests that a crucial element of the analysis of the effects of tariff reductions in the Quad on the export revenue of developing countries is the degree of preferential access that developing countries enjoy in Quad markets.

Effect on world price of an increase in preferential access

The derivative of the world price given in equilibrium by equation (3) with respect to the degree of preference ($\Pi_{i \rightarrow j}$) is clearly negative, suggesting that any increase in the tariff preferences that country i grants to country j will reduce world prices.

Annex: Data sources

All trade data is from UN Comtrade Database (value and unit prices). MFN tariff schedules for Quad members are from the OECD compendium of tariff, 2000. Tariff preferences have been calculated using Quad member tariff schedules reported in the WTO IDB database and preference data provided by the WTO's Trade Policy Review division (when data was available at the 8 or 10 digit level, simple averages were taken).

²⁰ To see this note that the term in square brackets on the right-hand-side of (7) will then be necessarily larger than zero as the elasticity of world price with respect to the tariff change in country i is necessarily

In instances where specific tariffs are applied, we use ad valorem equivalents calculated by the OECD and the TPR division. Elasticities of import demand are assumed to be equal across countries and are constructed using data reported in: C. Shiells, R. Stern and A. Deardorff (1986), “Estimates of the elasticities of substitutions between imports and home goods for the United States”, *Weltwirtschaftliches Archiv* **122**, 497-519 and R. Stern, J. Francis and B. Schumacher (1976), *Price elasticities in international trade: an annotated bibliography*, London (An excel file is available from the authors). Export supply elasticities are also assumed constant across countries and due to the lack of information at this level of disaggregation we set its value to 0.5 (alternatively, we provide estimates with the elasticity of export supply set equal to 0).

smaller than the initial tariff in absolute value (unless we are in the presence of the Metzler paradox in which an fall in tariff leads to an increase in domestic prices).