



WP/06/10

IMF Working Paper

Will the Doha Round Lead to Preference Erosion?

Mary Amiti and John Romalis

IMF Working Paper

Research Department

Will the Doha Round Lead to Preference Erosion?

Prepared by Mary Amiti and John Romalis¹

Authorized for distribution by Kalpana Kochhar

January 2006

Abstract

This Working Paper should not be reported as representing the views of the IMF.

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

This paper assesses the effects of reducing tariffs under the Doha Round on market access for developing countries. It shows that for many developing countries, actual preferential access is less generous than it appears because of low product coverage or complex rules of origin. Thus lowering tariffs under the multilateral system is likely to lead to a net increase in market access for many developing countries, with gains in market access offsetting losses from preference erosion. Furthermore, comparing various tariff-cutting proposals, the research shows that the largest gains in market access are generated by higher tariff cuts in agriculture.

JEL Classification Numbers: F13, F14, F15

Keywords: Preference erosion, market access, tariffs, trade preferences

Author(s) E-Mail Address: mamiti@imf.org; jromalis@chicagogsb.edu

¹ This paper was prepared by Mary Amiti (Research Department, IMF) and John Romalis (Associate Professor, University of Chicago and resident scholar at the Trade and Investment Division, IMF, during Financial Year 2004–05). This note has benefited from comments by Katerina Alexandraki, Kalpana Kochhar, Will Martin, Phil McCalman, Raghu Rajan, Arvind Subramanian, Stephen Tokarick, and Shang-Jin Wei.

Contents	Page
I. Introduction	3
II. Data Description and Research Strategy	4
A. Data	4
B. Research Strategy	7
III. Results	9
A. Current State of Play	9
B. Effects of U.S. and EU Tariff Reductions on All Goods	12
IV. Conclusions	21
Appendix	
1. Technical Information	22
References	38
Tables	
1. Export Shares, 2003	7
2. Average Tariffs Are Higher on Non-African LDCs' Goods Exported to the United States and European Union	10
3. Average Tariffs Are Higher on LDC and Developing Country Comparative Advantage Goods in the United States	11
4. Non-African LDC Countries Enjoy No Special Access for Their Comparative Advantage Goods Relative to Developed Countries	11
5. Improved Market Access for Developing Countries Under Doha Round Assuming 40 Percent Uniform Tariff Cut by Region	14
6. LDCs by Region	15
7. Developing Countries by Region	15
8. Change in Market Access with Alternative Demand Elasticity Assumptions Under the Doha Round Assuming 40 Percent Uniform Tariff Cut by Region	16
9. Improved Market Access for Developing Countries Under the Doha Round Assuming 40 Percent Uniform Tariff Cut in Agriculture and Textiles	20
Figures	
1. Average Preference Margin and Predicted Change in U.S. Market Access	17
2. Change in Market Access and Average Preference Margin in the United States	18
3. Change in Market Access and Average Preference Margin in the United States and European Union	19
Appendix Tables	
A1. Total Exports	25
A2. EU and U.S. Preferential Trade Arrangements	31
A3. Change in Market Access Following a 40 Percent Tariff Cut (Proxied by Change in Import Demand by European Union and United States)	32

I. INTRODUCTION

This paper assesses the likely effects of reducing tariffs under the Doha Round on market access for developing countries. A key issue, especially among developing countries, is whether multilateral tariff reductions under the Doha Round will adversely affect their market access to developed countries.² In large part, this concern stems from the fact that developing countries were given nonreciprocal preferential access to developed countries' markets in the 1970s. These preferences entitle developing countries to export their products to developed countries at lower tariff rates than those applied to other World Trade Organization (WTO) members and, in some cases, at zero tariff rates. If tariff cuts were to be granted to all WTO members under the Doha Round, then the relative advantage of developing countries' exports to developed countries would be reduced due to the erosion of these "preference margins" – the difference between the tariff rate for all WTO members and their own under their preferential access. However, offsetting these losses of preference erosion are the gains in market access due to tariff cuts on goods that do not receive preferences. The question is whether the gains outweigh the losses.

Using detailed trade, tariff and preference information for the United States and the European Union, the paper concludes that:

- Preferences granted to developing countries are not as generous as they appear. Some developing countries actually pay higher average tariffs than developed countries under current preference schemes. For example, the average tariffs imposed by the United States on non-African least developed countries' (LDCs') exports is 13.1 percent compared with only 1.2 percent imposed on developed countries' exports. Similarly in the European Union, the average tariff on non-African LDCs is higher at 5.1 percent than on developed country exports at 2.9 percent.
- A simulated uniform cut in tariffs of 40 percent in the United States and the European Union combined leads to an increase in import demand of 2.1 percent averaged across all countries, although the gains are not uniform across countries or regions. Higher-than-average increases in import demand of 8.5 percent are for non-African LDCs' exports, and a loss of one-tenth of a percent on average for African LDCs exports.
- If the United States and the European Union were to exclude sensitive products from tariff cuts, the gains in market access for all regional groupings would be smaller, on average, relative to the uniform cut.
- Simulations that assume a higher than 40 percent tariff cut in agriculture, using a tiered formula, together with a 40 percent cut in manufacturing, generate the largest gains for all groups of countries.

² Other reasons, such as loss in tariff revenue, are not addressed in this paper.

Preferences granted turn out to be less generous than they appear because a large proportion of products are not eligible for preferences and there are complex rules surrounding the process required to apply for the preference. For example, in the United States, the Generalized System of Preferences (GSP) scheme does not apply to all products, with approximately 50 percent of tariff lines completely excluded. Certain articles such as textiles, watches, footwear, handbags, luggage, steel, glass, and electronic equipment are ineligible for the scheme. The granting of duty-free access for eligible products is subject to “competitive needs limitations” which impose limits for each product and country. These limits are automatically exceeded if imports of a product from a country reach 50 percent of the value of total U.S. imports of that product or if these imports exceed a certain dollar value.³ Even when product coverage is more comprehensive, as in the European Union, restrictive rules of origin make it too costly for developing countries to utilize all of these preferences and, thus, exports are often subject to the higher most-favored-nation (MFN) rate. The European Union has product-specific rules of origin which may allow as little as 5 percent imported inputs and may specify processing requirements. For a product to receive preferences at an EU border, the European Union also requires a form to be stamped by an officially designated government authority (UNCTAD, 2003). In many cases, therefore, trade barriers remain high on developing countries’ exports.

Because a large share of developing countries’ exports do not actually enjoy preferences in practice, lowering tariffs under the multilateral system is likely to lead to a net increase in market access, as proxied by the change in import demand by the United States and European Union, for many developing countries. That is, the gains in market access from lower MFN tariffs offset the losses due to preference erosion for many developing countries.

II. DATA DESCRIPTION AND RESEARCH STRATEGY

A. Data

The GSP is a set of trade preferences granted on a non-reciprocal basis by developed countries to developing countries. The system was negotiated over the 1964-1971 period with the first major scheme implemented by the EEC in July 1971, with Japan following suit in August 1971, and the United States in January 1976 (Baldwin and Murray, 1977). All GSP schemes involve tariff concessions to a range of developing country exports. Under the current U.S. scheme, for example, out of a total of 15,467 articles listed in U.S. tariff lines most developing countries may export 6,409 articles duty-free, where imports of the same article from most developed countries would attract a positive tariff (Ozden and Reinhardt, 2002). All countries that receive preferences from the United States or the European Union

³ This dollar value ceiling was \$115 million in 2004, and this increases by \$5 million per year.

or both are labeled LDC or developing in Table 10 of the Appendix I.⁴ Note that there are many preferences in place other than the GSP, which are listed in Table 11 of Appendix I. Prominent examples include EU preferences for African, Caribbean and Pacific (ACP) countries and U.S. preferences for African countries under the African Growth and Opportunity Act (AGOA).

A key feature of this study is the use of data on preference schemes, with details of which preference schemes different products were exported to the U.S. and EU markets. This information is essential in assessing the size of preference erosion as many tariff lines are not eligible for preferences under the GSP, and in many cases countries do not apply for preferences they are entitled to and end up paying the MFN rate because of complex rules governing the use of preferences. Product coverage, defined as the ratio of imports that were eligible to enter under the GSP to total imports, was only 44 percent for LDC beneficiaries of the United States' GSP scheme (dutiable imports in 2002 were \$6.7 billion, of which \$2.9 billion were covered by the GSP scheme).⁵ Within this low product coverage, preference utilization rates, defined as the ratio of imports that received preferences to total imports eligible for preferences, by LDC exporters to the United States are high, at 95.8 percent for the GSP (out of the \$2.9 billion of imports eligible for GSP \$2.8 billion received preferential treatment). (See UNCTAD, 2003).⁶ In the European Union, although product coverage is almost 100 percent, preference utilization rates are low. For LDC exporters to the European Union, preference utilization rates are on average 76 percent for ACP countries and 57 percent on average for non-ACP countries (UNCTAD, 2003). Sometimes preferences are not utilized because there are other more beneficial preference schemes that developing countries can apply for. The preference utilization rates for AGOA were over 80 percent in 2002, however there were sixteen countries that utilized less than 50 percent of the available

⁴ The countries marked with an asterisk do not receive preferences from the U.S. All EU members are labeled 'Developed'.

⁵ Product coverage is much lower when mineral products are excluded (HS Chapters 25-27, mostly oil), collapsing to 3.9 percent (\$1.5 billion out of \$3.9 billion of dutiable imports).

⁶ Previous studies have also identified limitations of GSP. For example, not all developing countries are included (Baldwin and Murray, 1977). Programs typically exclude products where developing countries have the greatest comparative advantage (Devault, 1996). Export eligibility ceilings are often binding (Macphee and Rosenbaum, 1989). The programs impose strict rules of origin requirements (UNCTAD, 2001) and do not remove non-tariff barriers. Up to 42 countries have temporarily dropped or permanently 'graduated' by the U.S. at some time since 1976 (Ozden and Reinhardt, 2003). The U.S. has allowed the GSP to lapse on occasions, including one period in excess of a year, increasing uncertainty for exporters. Mattoo, Roy and Subramanian (2002) highlight that the stringent rule-of-origin that requires exporters to source certain inputs from within Africa or the United States severely restrict the potential benefits from the preferences granted under AGOA.

AGOA preferences. (See Brenton and Ikezuki, 2004).⁷ Thus studies that assume 100 percent utilization rates are likely to over-estimate the costs of preference erosion.⁸

Preferences that are due to be phased in over the next few years are assumed to have already taken place. This avoids counting gains and losses to LDCs that will come from the European Union's phased elimination of tariffs for sugar, rice and bananas under its Everything But Arms Program (EBA), the enhancement of the European Union's GSP scheme for LDCs, and the phased elimination of EU tariffs on sugar, rice and banana imports from ACP countries. It is assumed that LDCs already have tariff-free access to the European Union for those exports. These tariffs will be reduced or eliminated regardless of how the Doha Round turns out. Since the focus of this paper is whether a multilateral tariff reduction resulting from a successful Doha Round itself would lead to preference erosion, these earlier commitments are taken as given.

The tariff cuts in the policy experiments are applied to the bound rates, rather than directly on MFN rates,⁹ as will be the case in the Doha Round. If a tariff is not currently bound it is assumed to be bound at the current MFN rate, and tariff cuts are then applied.¹⁰ If the new bound rate falls below the MFN rate then the MFN rate is also reduced.¹¹ All tariff rates are at the most detailed product line available, which includes more than 10,000 different products – this is at the HS 10-digit level for the United States and HS 8-digit level for the European Union.¹²

⁷ Brenton and Ikezuki (2004) also point out that products that are excluded from AGOA preferences are high-duty products; and the U.S. is not a major export destination for many AGOA country exports.

⁸ These low utilization rates are likely due to high compliance costs such as paperwork and red tape. Francois, Hoekman and Manchin (2005) find a threshold preference margin of 4 percent below which preference margins are irrelevant because of these costs.

⁹ A bound tariff is the maximum tariff that a country can set, as agreed under WTO negotiations. The Most-Favored-Nation (MFN) tariff is the tariff rate applied to all WTO member countries that do not receive special preferences.

¹⁰ Note that over 99 percent of U.S. and EU tariffs are bound (WTO, 2002).

¹¹ The EU's preferential tariffs for developing countries are reduced using the formulas in European Commission (2003a).

¹² Approximately 10 percent of tariff lines include specific tariffs, which have been converted to ad valorem equivalent tariffs by UNCTAD in the case of EU tariffs, and by dividing actual duty paid by the value of imports in the case of the United States.

The study focuses on the effects of tariff cuts by the United States and the European Union.¹³ Although this does not capture the total effects of trade liberalization under the Doha Round, it does incorporate a sizeable share.¹⁴ The shares of LDCs and other developing countries exports to the United States and the European Union markets combined are approximately 50 percent, as seen in Table 1. Individual country export shares to the European Union and United States are provided in Table 10, Appendix I.

Table 1. Export Shares, 2003

	Total Exports (U.S.\$ billions)	Share to U.S. (percent)	Share to EU-15 (percent)	Share to Other Developed Countries (percent)	Share to Developing Countries (percent)
African LDCs	26.5	24.70	29.92	11.26	34.12
Non-African LDCs	16.6	25.14	24.82	12.25	37.79
Other developing countries	1,870.0	23.34	20.20	27.65	28.80
Developed countries	5,480.0	13.98	41.82	21.69	22.51

Source: World Integrated Trade Solution (WITS), World Bank.

B. Research Strategy

Changes in market access likely to result from a successful conclusion of the Doha Round are proxied by simulated changes in import demand by the United States and the European Union. This requires some assumptions on demand and supply elasticities. The analysis assumes that the total share of expenditure on each product at the HS 10-digit level is constant. For example, the share of income spent on shoes is assumed constant.¹⁵ Within this shoe product group, each country will decide from where to purchase different varieties, where each country is assumed to produce a different variety. The elasticity of substitution across these different varieties is assumed to equal 6, thus if the relative price of shoes in one country increases by one percent, relative demand for its shoes will fall by 6 percent. These

¹³ The most recent available data for the United States is 2004 and for European Union it is 2003.

¹⁴ Thus these results understate the gains from the Doha Round because the simulations do not take account of tariff cuts by other countries. Yang (2005) points out that African countries can increase their gains by also seeking greater market access in developing countries as well as making their own liberalization commitments.

¹⁵ This follows from a Cobb-Douglas utility function in the first tier at the product level, which implies an elasticity of substitution between goods equal to one.

assumptions are based on estimates from Romalis (2005) and are consistent with other studies such as Hummels (2001). Simulations with alternative elasticity of substitution assumptions are also presented to show robustness of the results. Each country's current share of EU and U.S. consumption is estimated from the detailed trade data and from the OECD's STAN database. The full details of the estimation procedure are provided in the technical appendix.¹⁶

The relative change in a country's competitiveness due to tariff cuts is explicitly modeled. When there are across-the-board tariff cuts developing countries face two main effects. First, where developing country goods currently enter tariff free, a reduction in bound tariffs must worsen the competitive position of those developing country exports because tariff reductions reduce the average tariff their competitors face in the U.S. and EU markets. Thus the demand for these developing countries' exports falls. Second, where developing country goods enter U.S. and EU markets at the MFN rate, whether due to the absence of a preference or an inability to utilize a preference, a reduction in MFN tariffs improves the competitive position of those developing countries' exports because it reduces the tariff imposed on goods where they have a comparative cost advantage. Their position also improves relative to U.S. and EU domestic producers, and relative to exporters to the United States and European Union that benefit from preferential trade agreements. The relative demand for developing country exports of these goods increases. The net effect depends on whether the losses in preference erosion from the first effect outweigh the gains from tariff cuts due to the second effect.

Throughout the analysis, the supply elasticity for developing countries is assumed to be infinite. This enables the focus to be on the change in demand from the European Union and the United States for developing countries' products as a way to measure changes in market access.^{17,18} If, instead, a finite elasticity were assumed then trade volume responses

¹⁶ Note that these numbers are likely to understate the potential gains in market access and the number of gaining countries since only the 'intensive margin' of trade is modeled i.e. if there were no exports of a particular good from a particular country to the United States or European Union before the tariff cut then there will also be no exports to those countries following the cut. This is particularly relevant for high tariff goods where tariff cuts could lead to changes in the 'extensive margin' that are not captured in these simulations.

¹⁷ Romalis (2005) finds high supply elasticities, but these estimates were not confined to developing countries. The effects of other proposals in the Doha Round such as cuts in export subsidies on agricultural products are not considered here. The focus is on changes in market access resulting from tariff cuts.

¹⁸ The infinite elasticity assumption implicitly implies that all exporting countries will readily respond to the shifts in U.S. and EU demand stemming from tariff changes under the Doha Round. Of course this is unlikely to be the case, notably due to different costs, supply-side constraints such as impediments in infrastructure. However, without detailed country

(continued...)

would be smaller but there would be terms of trade effects from which some developing countries would benefit. The infinite elasticity of supply assumption delivers the maximum export revenue effect, both for revenue gains and losses, but is unlikely to cause a misidentification of winners and losers.

This infinite supply elasticity assumption differs from that made in Subramanian (2003), and Alexandraki and Lankes (2004) where a supply elasticity of one is assumed and no terms of trade effects are considered. Their assumptions deliberately bias the results in favor of overstating losses from preference erosion in order to minimize the risk of overlooking individual countries that might face losses. In addition, they also assume 100 percent utilization of preferences. Despite these assumptions, in simulations following a 40 percent cut in MFN rates Subramanian (2003) finds that losses from preference erosion for LDCs as a whole are very small and likely to be less than 2 percent of exports, and only two countries face losses greater than 10 percent of exports. Alexandraki and Lankes (2004) extend this analysis to middle-income developing countries and also find the overall impact to be small, between 0.5 and 1.2 percent of total exports, but it could be much higher for a subset of countries that are overwhelmingly export dependent on a few products, namely sugar, bananas, and to a lesser extent textiles.

In contrast, this study takes into account available tariff, trade and utilization information for all products in an attempt to assess the likely gains in market access for LDCs and developing countries. Hence, the model incorporates preference utilization rates, bound and applied rate information, as well as various different formula approaches that are being considered for the Doha Round such as exemptions of special products and tiered formulas in agriculture.

III. RESULTS

A. Current State of Play

There are many limitations to GSP programs that result in inferior access to developed markets for some developing countries.

First, despite preferences given to LDCs and developing countries, the average tariffs paid are sometimes higher on developing country exports. This is due to different commodity

information on supply constraints by commodity it would be impossible to incorporate these aspects. To determine how much trade in various commodities will change would require information on supply capacity and other factors that affect supply, which are outside the scope of this exercise. An advantage of the infinite supply elasticity assumption is that the simulations provide an indication of changes in potential market access. Since one of the concerns surrounding the next Doha Round is loss in market access due to preferences erosion this seems the most appropriate assumption to make.

composition and different preference schemes. Table 2 shows that products that are exported by non-African LDCs face higher tariffs (13.1 percent) than products exported to the United States by other developing countries (1.8 percent), which are in turn higher than tariffs on products exported by developed countries (1.1 percent). The African LDCs enjoy the lowest average tariffs into the U.S. market at 0.1 percent. For each product, defined at the U.S. tariff-line level, the average tariff is calculated as the value of duties collected divided by the value of goods imported. Similarly, in the European Union,¹⁹ non-African LDCs face the highest average tariffs but these are much lower at 5.1 percent than those paid in the United States. This difference arises because LDCs enjoy lower tariffs due to the European Union's EBA program and due to the European Union's program for ACP countries.

Table 2. Average Tariffs Are Higher on Non-African LDCs' Goods Exported to the United States and European Union

Exporter	Average Tariff Paid on U.S. Imports	Average Tariff Paid on EU Imports
African LDCs	0.07	0.80
Non-African LDCs	13.14	5.10
Other developing countries	1.82	2.37
Developed countries	1.15	2.89

Source: WITS, U.S. Census Bureau and European Union. Tariffs are averaged across all goods.

Second, on average, higher tariffs are paid on goods exported to the United States where LDCs and developing countries have comparative advantage than on goods that developed countries enjoy comparative advantage.²⁰ Despite preferences, products that LDCs and other developing countries enjoy a comparative advantage are still highly taxed in the United States. Table 3 shows average tariffs paid on each region's comparative advantage goods on world exports to the United States and European Union. It shows that average

¹⁹ Note that total duties collected were unavailable for the European Union. The estimated tariff paid on a product exported by a particular country is a weighted average of the EU MFN tariff for that product and the lowest tariff that product may be eligible for under various EU preference arrangements. The weight on the lowest tariff is the preference utilization rate for exports of that product from that country. Detailed preference utilization rates were obtained from the European Union. Estimated average tariffs for a group of products and/or exporting countries are trade-weighted averages of the estimated tariffs for each product and exporting country.

²⁰ For each region, comparative advantage in each good is identified using the Balassa index of revealed comparative advantage, defined as $B_{ij} = \frac{x_{ij}/X_j}{x_i/X}$ where x_{ij} is industry i exports in region j , x_j is total exports by region j , x_i is total industry i exports in the world and X is total exports in the world. A number greater than one indicates revealed comparative advantage in that industry.

tariffs on LDCs' comparative advantage goods exported to the United States are higher than average tariffs paid on developed countries' comparative advantage goods (3.8 for non-African LDCs and 1.8 percent for African LDCs compared with only 1 percent for developed countries). However, this is not the case on goods exported to the European Union. The average tariff paid on African LDCs' comparative advantage goods exported to the EU market is on average lower (at 1.1) than on non-African comparative advantage goods at 2.3 percent. Other developing country comparative advantage goods exported to the European Union attracted the highest average tariff of 2.9 percent.

Table 3. Average Tariffs Are Higher on LDC and Developing Country Comparative Advantage Goods in the United States

Comparative Advantage	Average Tariff Paid on U.S. Imports on Each Country's Comparative Advantage Products ($B_{ij} > 1$)	Average Tariff Paid on EU Imports on Each Country's Comparative Advantage Products ($B_{ij} > 1$)
African LDCs	1.79	1.09
Non-African LDCs	3.82	2.34
Other developing countries	2.64	2.90
Developed countries	0.97	2.78

Source: WITS, U.S. Census Bureau and European Union. The average tariff reported for each region's comparative advantage goods is the trade-weighted-average tariff paid on all U.S. or EU imports of those goods from all countries.

Third, in goods where LDCs have comparative advantage, the average tariff paid by non-African LDCs is higher than other regional groupings. Table 4 presents average tariffs by country grouping for goods where the LDCs (both African and non-African) have comparative advantage, indicated by a Balassa index greater than one. Non-African LDCs, on average, pay higher average tariffs on these products in the United States and European Union. In contrast, African LDCs enjoy the lowest tariffs on their comparative advantage goods in both the U.S. and EU markets.

Table 4. Non-African LDC Countries Enjoy No Special Access for Their Comparative Advantage Goods Relative to Developed Countries

Exporter	Average Tariff Paid on U.S. Imports on LDCs Comparative Advantage Products ($LDC B_{ij} > 1$)	Average Tariff Paid on EU Imports on LDCs Comparative Advantage Products ($LDC B_{ij} > 1$)
African LDCs	0.06	0.94
Non-African LDCs	13.53	5.35
Other developing countries	3.96	2.35
Developed countries	2.80	1.56

Source: WITS, U.S. Census Bureau and European Union. The average tariff reported for LDC comparative advantage goods is the trade-weighted-average tariff paid on U.S. or EU imports of LDC comparative advantage goods from each of the four exporting regions.

The higher average tariffs paid by non-African LDCs on their comparative advantage goods in the U.S. market is largely due to the fact that the GSP in the United States applies to less than 50 percent of imports.²¹ African LDCs pay lower tariffs partly due to special preferences such as AGOA, and partly due to a higher proportion of lower-taxed minerals in their exports.

In sum, the data shows that:

- Tariffs averaged across all goods are higher on non-African LDCs' goods exported to the United States and EU markets than on developed countries' products.
- Tariffs averaged across each country's comparative advantage goods are higher on LDCs and other developing country comparative advantage goods entering the U.S. market than developed country goods. However, this is not the case in the EU market.
- Non-African LDCs pay the highest average tariffs on LDC comparative advantage goods in both the U.S. and the EU markets, whereas African LDCs pay the lowest average tariffs on these exports.

B. Effects of U.S. and EU Tariff Reductions on All Goods

Three policy experiments are conducted to assess the change in import demand arising from the following tariff cuts:

(i) A uniform tariff reduction of 40 percent on bound rates.²²

(ii) Exclusion of Special Products. Countries will negotiate on the number of tariff lines that will be allowed to be excluded from tariff cuts, and they will be able to choose which tariff lines to exclude. Since it is unclear which product lines will be chosen, an exclusion list of 3 percent of the highest tariff lines is assumed for this simulation.

(iii) A tiered formula for agriculture. The current proposal is for 5 bands for developed countries, with different tariff cuts to be applied to different levels of tariffs. Because the actual details have yet to be negotiated, the simulations here are based on the Harbinson proposal (WTO, 2003), with a 40 percent cut in tariffs under 20 percent, 50 percent cut in

²¹ See Dean and Wainio (2005) for detailed measures of size, utilization and value of U.S. non-reciprocal trade preferences.

²² It is impossible to know exactly what the tariff cut will be under the next Doha Round. This number is based on cuts in previous rounds and pre-Doha Round informal discussions.

tariffs between 20 percent and 80 percent, and 60 percent cut for tariffs above 80 percent with a 100 percent cap.²³ No tariff lines are excluded in this simulation.

The results show that gains in market access to the United States and European Union under a successful conclusion of the Doha Round are likely to more than offset any losses due to preference erosion for many LDCs and other developing countries.²⁴ Tables 5 to 7 summarize the change in market access (proxied by changes in import demand by the European Union and United States) for each region. Table 5 shows that:

- On average, all country groupings, except African LDCs, enjoy an increase in combined market access to the United States and European Union following a 40 percent cut in tariffs. African LDCs experience a small loss of 0.1 of a percent on average.
- Non-African LDCs enjoy the largest percentage increase in access to the combined U.S. and EU markets under all policy scenarios presented.
- The gains in market access for all country groupings are reduced if exclusion of the highest tariff lines were allowed.
- The largest gains for all countries occur with a tiered formula in agriculture (which results in an average tariff reduction of 50 percent in the case of EU tariffs, and 47 percent in the case of U.S. tariffs).

²³ Sebastian, Laborde and Martin (2005) also base their numbers on the Harbinson proposal, with some variations, arguing that although the proposal was not adopted its transition points are likely to reflect a great deal of consultations and thought.

²⁴ These results are consistent with Francois, Hoekman and Manchin (2005) that shows the potential magnitude of preference erosion is reduced due to the high compliance costs of obtaining preferences. In their policy experiment all OECD members abolish all trade distorting policies.

Table 5. Improved Market Access for Developing Countries Under Doha Round Assuming 40 Percent Uniform Tariff Cut by Region

Exporter	No Exclusions			Exclusion of Highest 3 Percent Tariff Lines			Tiered Formula in Agriculture		
	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined
African LDCs	0.64	-1.01	-0.15	0.17	-0.75	-0.27	0.83	-1.01	-0.04
Non-African LDCs	4.14	13.90	8.54	4.08	10.64	7.04	4.16	13.90	8.55
Other developing countries	2.84	1.86	2.28	2.12	1.63	1.83	3.19	1.88	2.43
Developed countries	2.97	1.59	1.98	2.41	1.47	1.72	3.27	1.60	2.08
All	2.89	1.73	2.14	2.26	1.55	1.79	3.21	1.74	2.27

Source: authors' calculations. The tiered formula is based on the Harbinson proposal – 40 percent cut in tariffs under 20 percent, 50 percent cut in tariffs between 20 percent, 80 percent, and 60 percent for tariffs above 80 percent with a 100 percent cap.

A closer examination reveals that some countries experience net losses in market access under all policy experiments. For example, Haiti experiences large losses due to losses in clothing exports. See Table 12, Appendix I, for individual country results. Sub-Saharan African countries experience a loss in the U.S. market due to losses in mineral exports, mainly crude petroleum.²⁵ Some countries experience net gains under all policy experiments, with non-African LDCs gains driven by South Asian and other LDC countries, which experience large gains in clothing exports. Within the developing country grouping, presented in Table 7, Mexico experiences net losses mainly because of its free trade agreement with the United States; further tariff cuts by the United States for other countries will reduce its relative advantage. China and South Asian countries gain from further tariff cuts because they derive relatively little benefit from existing preferences.

²⁵ U.S. tariffs on petroleum are 5.25 cents per barrel for light crude oil, 10.5 cents per barrel for heavier grades of crude oil, and 52.5 cents per barrel for more refined products such as gasoline. Preferences (zero tariffs) are given to most developing countries (but not to most OPEC members), and to partners of free trade agreements. So the preference is small, but since oil is by far the biggest export from African LDCs to the United States, it plays a large part in the simulation results. But it is unlikely that African LDCs would suffer falls in aggregate petroleum exports in the short term. What is more likely to happen is that U.S. tariff reductions for other suppliers causes a redirection of petroleum exports since the direction of commodity trade tends to minimize transport costs plus taxes.

Table 6. LDCs by Region

Exporter	No Exclusions			Exclusion of Highest 3 Percent Tariff Lines			Tiered formula in agriculture		
	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined
Sub-Saharan Africa	0.64	-1.01	-0.15	0.17	-0.75	-0.27	0.83	-1.01	-0.04
South Asia	3.53	14.94	7.82	3.50	10.66	6.19	3.54	14.94	7.82
Haiti	1.63	-4.87	-4.61	1.63	-2.99	-2.81	1.64	-4.87	-4.61
Other LDCs	6.32	16.66	12.13	6.15	13.86	10.48	6.38	16.66	12.16

Source: authors' calculations. The tiered formula is based on the Harbinson proposal – 40 percent cut in tariffs under 20 percent, 50 percent cut in tariffs between 20 percent and 80 percent, and 60 percent for tariffs above 80 percent with a 100 percent cap.

Table 7. Developing Countries by Region

Exporter	No Exclusions			Exclusion of Highest 3 percent Tariff Lines			Tiered Formula in Agriculture		
	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined
Sub-Saharan Africa	0.99	-0.28	0.43	0.84	-0.21	0.38	1.12	-0.28	0.51
South Asia	4.04	6.14	4.93	3.45	5.27	4.22	4.27	6.14	5.06
Caribbean and Latin America	5.77	1.10	2.71	2.04	0.98	1.35	7.40	1.18	3.32
China	4.00	3.42	3.62	3.94	3.13	3.42	4.06	3.42	3.65
Mexico	0.79	-0.54	-0.48	0.77	-0.43	-0.38	0.80	-0.54	-0.48
Other developing countries	1.87	2.69	2.18	1.38	2.08	1.64	2.14	2.69	2.35

Source: authors' calculations. The tiered formula is based on the Harbinson proposal – 40 percent cut in tariffs under 20 percent, 50 percent cut in tariffs between 20 percent and 80 percent, and 60 percent for tariffs above 80 percent with a 100 percent cap.

Changing the value of the elasticity of substitution between varieties does not change the overall message. Changes in market access under alternative demand elasticity, by region, are presented in Table 8. The higher the demand elasticity, the larger the gains in market access. The change in import demand by the European Union and United States increases from 1.1 percent, when the elasticity of substitution is assumed to equal -3.5, to 4.6 percent when the elasticity of substitution is assumed to be -11. The effect of changing the elasticity of substitution is to proportionally alter the gains and losses, but in most cases it is the same countries that experience gains or losses.

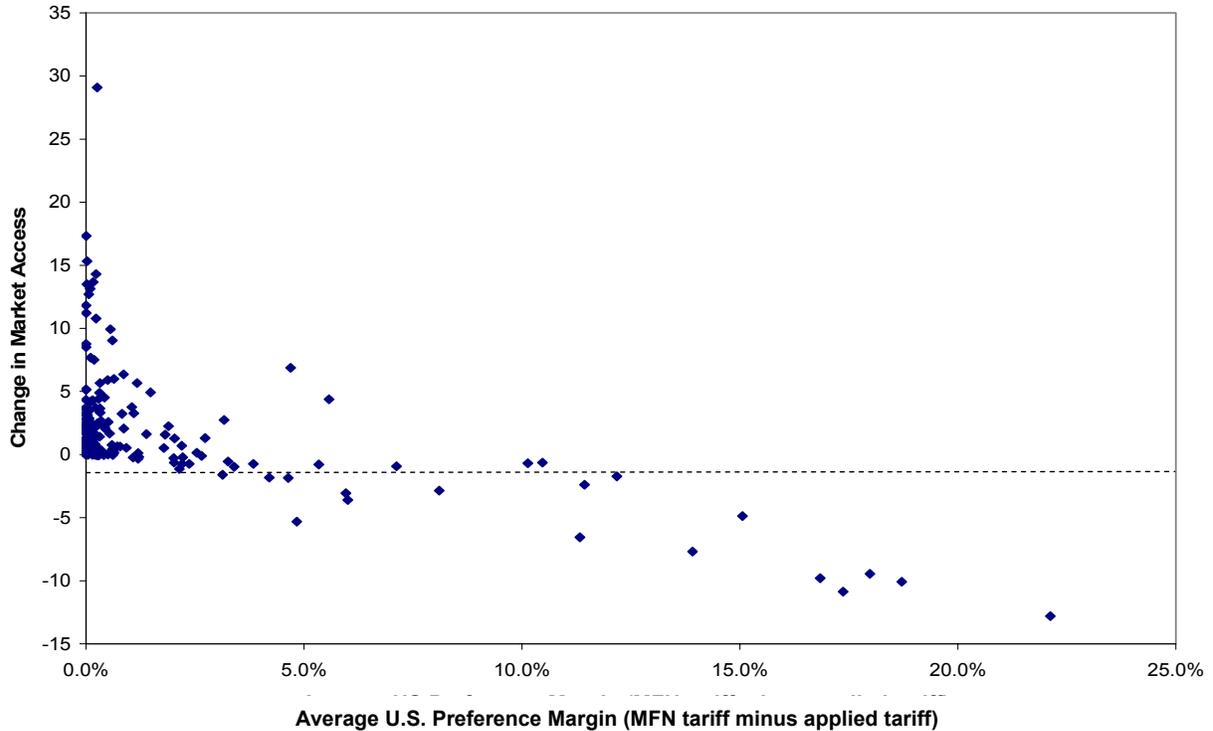
Table 8. Change in Market Access with Alternative Demand Elasticity Assumptions Under the Doha Round Assuming 40 percent Uniform Tariff Cut by Region

DEMAND ELASTICITY Exporter	No Exclusions								
	-3.5			-6.0			-11		
	Change in Import demand by:								
	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined
African LDCs	0.36	-0.49	-0.05	0.64	-1.01	-0.15	2.11	-2.05	0.13
Non-African LDCs	2.03	6.85	4.12	4.14	13.90	8.54	8.63	28.31	17.49
Other developing countries	1.36	0.90	1.10	2.84	1.86	2.28	6.10	3.91	4.83
Developed countries	1.44	0.78	1.01	2.97	1.59	1.98	6.26	3.34	4.39
All	1.39	0.84	1.06	2.89	1.73	2.14	6.15	3.64	4.62

Source: authors' calculations.

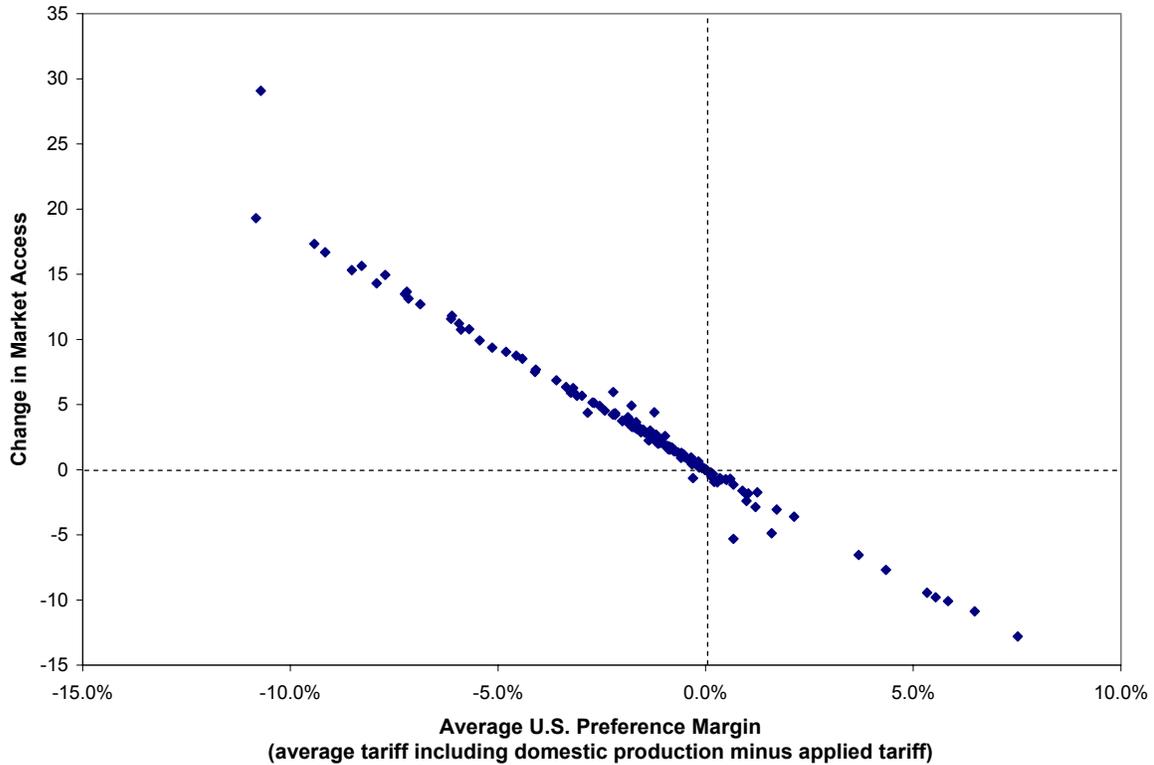
Whether a country loses market access following trade liberalization critically depends on how much of its exports currently benefit from existing preferences. The higher the current preference margin, the higher the loss from preference erosion, hence the less likely that the gains will outweigh the losses. Figure 1 plots the predicted change in U.S. market access following a 40 percent cut in tariffs with the tiered formula applied to agriculture for each country against the current average “preference margin”, defined as the difference between the average tariff rates actually paid on those countries exports to the United States and the MFN tariff rate applicable to those exports. The exporting country tends to lose market access from general tariff cuts whenever this average preference margin is 5 percent or above.

Figure 1. Average Preference Margin and Predicted Change in U.S. Market Access



An alternative way to calculate average preference margins is to take account of preferences relative to the domestic U.S. market. This gives an indication of the preferences that developing countries receive relative to all their competitors, which includes U.S. domestic producers. When domestic production is taken into account, it becomes clear that effective preferences are actually quite small and only a small number of countries enjoy positive preference margins. As can be seen from Figure 2, average preferences measures that take account of domestic production imply negative preference margins for many countries. Figure 2 clearly shows that countries with positive preference margins stand to lose market access from across the board tariff cuts as a result of preference erosion. In contrast, countries with negative preference margins gain because as tariffs fall the price of U.S. imports relative to domestic production also falls, making developing country exports more competitive.

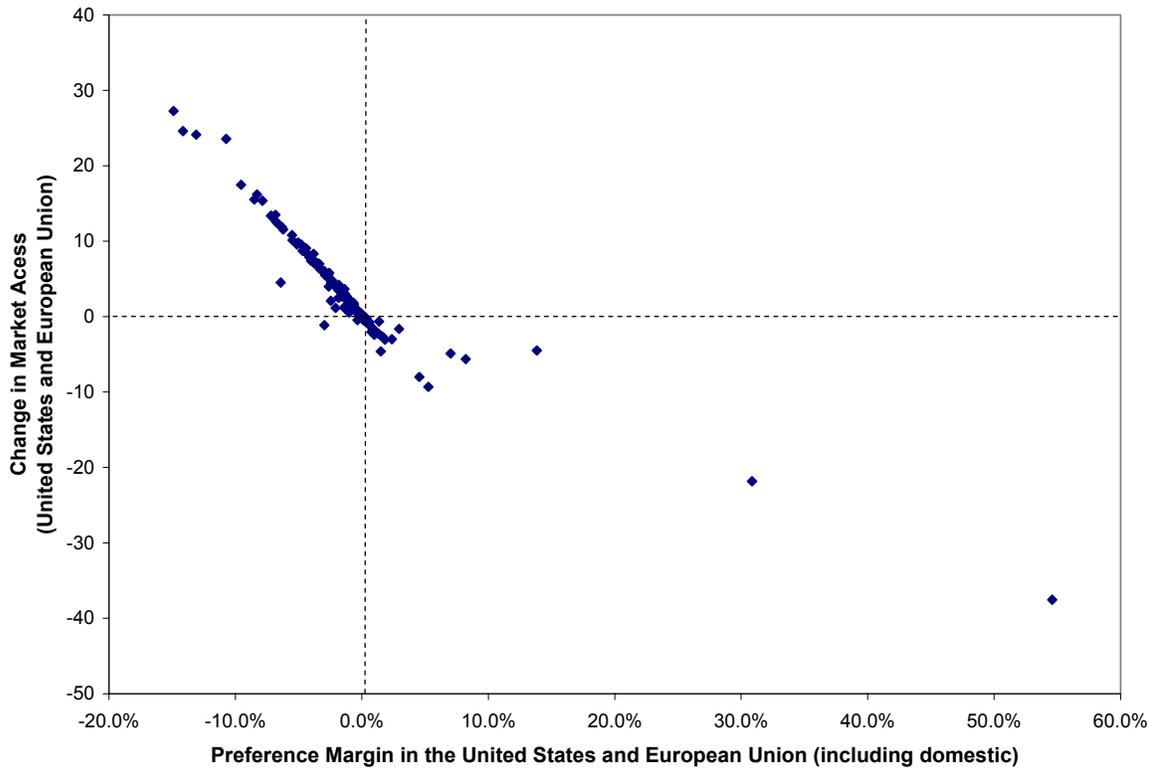
Figure 2. Change in Market Access and Average Preference Margin in the United States



Once changes in market access to the EU market are also included, Figure 3 shows some more pronounced market access gains, as well as large projected losses for some countries. Malawi, Zambia, Barbados, Guyana and Swaziland show substantial market access gains in agricultural products such as sugar, tobacco and rice once the EU market is included, whereas the simulations indicate either no gains or in some cases losses in market access to the United States. Gains in one market may offset losses in another. Argentina, Fiji, Mauritius and New Zealand are also projected to win substantial gains in access to EU markets, again driven by agricultural products such as corn, beef, sugar, lamb, fruit and dairy products. The simulations show that two small countries, Dominica and St Lucia, experience large losses in combined market access to the United States and European Union. Both these countries enjoy exceptionally high preference margins due to preferential arrangements for their banana exports to the European Union. Banana exports from Dominica to the European Union were US\$7.6m in 2003, equal to 37 percent of its total exports to the European Union and 32 percent of its total exports to the EU and U.S. markets - 99 percent of Dominica's banana exports to the European Union enter under preferential arrangements. These banana exports are reduced to US\$2.6 million following tariff cuts of 40 percent in the European Union. Even more extreme is St. Lucia, which exported bananas worth US\$23.7 million dollars to the European Union in 2003, equal to 89 percent of its aggregate exports to the European Union and 58 percent of its combined exports to the European Union and United

States, with 100 percent of its banana exports to the European Union entering under preferential arrangements. A 40 percent MFN tariff cut reduces its banana exports to the European Union to just \$8.1 million. In sum, those countries with the highest average preference margins in the United States and the European Union stand to lose the most market access through preference erosion, while those with low or moderate average preference margins are likely to gain market access.

Figure 3. Change in Market Access and Average Preference Margin in the United States and European Union



The breakdown of results by product groupings in Table 9 shows that the largest gains are likely to be in agriculture in the EU market and textiles in the U.S. market. The increase in market access to the EU market in agriculture for all countries is 13.05 percent; and the increase in the U.S. market in textiles and clothing is 8.6 percent. However, these are not uniformly distributed. African LDCs lose 9.6 percent in market access to the U.S. market in textile and clothing and 1.8 percent in the EU market, yet they experience a gain of 1.8 percent in agriculture in the combined U.S. and EU markets. The smallest gains for all countries are in minerals and other manufacturing categories. Exclusion of the highest 3 percent tariff lines reduces the magnitude of the gains, however, the relative rankings of the product groupings remains unchanged. A tiered formula in agriculture inflates the gains for all country groupings.

Table 9. Improved Market Access for Developing Countries Under the Doha Round
Assuming 40 Percent Uniform Tariff Cut in Agriculture and Textiles

Exporter	No exclusions			Exclusion of highest 3 percent tariff lines			Tiered formula in agriculture		
	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined	EU	U.S.	EU&U.S. Combined
Agriculture									
African LDCs	2.03	0.59	1.85	0.16	0.59	0.21	2.81	0.59	2.53
Non-African LDCs	4.91	0.01	2.84	3.94	0.01	2.28	5.30	0.01	3.06
Other developing countries	11.41	3.65	8.42	4.78	2.87	4.05	14.68	3.92	10.54
Developed countries	18.47	2.56	8.55	5.84	2.19	3.56	25.24	2.73	11.20
All countries	13.05	3.06	8.33	4.93	2.50	3.78	17.19	3.29	10.62
Minerals									
African LDCs	0.02	-0.03	-0.02	0.02	-0.03	-0.02			
Non-African LDCs	0.64	0.12	0.29	0.64	0.12	0.29			
Other developing countries	0.12	0.17	0.15	0.12	0.17	0.15			
Developed countries	0.05	0.22	0.16	0.05	0.22	0.16			
All countries	0.10	0.18	0.15	0.10	0.18	0.15			
Textile and clothing									
African LDCs	-1.78	-9.59	-7.14	-1.78	-7.14	-5.46			
Non-African LDCs	4.43	15.21	9.40	4.43	11.64	7.75			
Other developing countries	5.54	7.80	6.76	5.54	6.30	5.95			
Developed countries	7.93	10.90	9.94	7.93	7.58	7.69			
All countries	5.76	8.62	7.36	5.76	6.68	6.28			
Other manufacturing									
African LDCs	0.49	0.03	0.44	0.46	0.02	0.44			
Non-African LDCs	-0.55	1.01	-0.16	-0.55	1.07	-0.14			
Other developing countries	1.54	1.08	1.25	1.54	1.06	1.24			
Developed countries	2.32	1.37	1.71	2.31	1.36	1.70			
All countries	2.01	1.26	1.54	2.01	1.25	1.53			

Source: author's calculations. The tiered formula is based on the Harbinson proposal – 40 percent cut in tariffs under 20 percent, 50 percent cut in tariffs between 20 percent and 80 percent, and 60 percent for tariffs above 80 percent with a 100 percent cap.

IV. CONCLUSIONS

The following conclusions emerge from the analysis:

- Some developing countries have inferior market access to developed countries: average tariffs on non-African LDCs' exports to the United States are higher than those on developed countries (13.1 percent compared with 1.2 percent).
- Reducing MFN tariffs under the Doha Round will lead to improved market access for many developing countries to the U.S. and EU markets that will more than offset losses due to preference erosion. The small numbers of developing countries that are likely to lose market access as a result of multilateral tariff cuts are the ones that receive very large benefits under existing preference schemes.
- In order to maximize these net gains in market access, countries should minimize excluded tariff lines and opt for a tiered formula with higher-than-average tariff cuts in agriculture.

It is useful to point out that the Trade Integration Mechanism (TIM), approved by the Executive Board of the International Monetary Fund in April 2004, is now available to help those developing countries that may face temporary balance of payments shortfalls due to the erosion of tariff preferences or other shocks that may emanate from the process of multilateral trade liberalization.

Technical Information

The detailed steps involved in calculating the change in market access and average preference margins are as follows.

(1) Change in Market Access

Step 1: Calculate total U.S. imports for each product i in the base period 0 (year 2003).

Denote total imports in the base period $M_{0i} = \sum_j M_{0ijp}$, where M_{ijp} is U.S. imports of product i from country j that enters under tariff program p . This calculation is performed at the tariff-line level (10-digit level).

Step 2: Estimate total U.S. consumption for each product i .

Denote total consumption in the base period $C_{0i} = M_{0i} / m:c_i$, where $m:c_i$ is the estimated ratio of imports to consumption calculated from the OECD's STAN database of domestic production, imports and exports. The STAN database includes data for approximately 30 primary and secondary industries and is concorded to each tariff line.

Step 3: Calculate the new tariff rates t_{ijp} using existing tariff rates t_{0ijp} as the base rates.

The new tariff rates will include a 40 percent tariff cut as the benchmark. In the second set of simulations 3 percent of the highest tariff rates will be excluded; and in the third set of simulations a tiered formula will be applied to agriculture with no other exclusions.

Step 4: Estimate new U.S. imports of each product i from each country j under each import program p .

The utility function is assumed to be Cobb-Douglas, which implies an elasticity of substitution of one between different goods at the HS 10-digit level. Hence, a fixed proportion of income is spent on each good.

Within these 10-digit categories, countries produce different varieties. U.S. consumers allocate their demands across products i . The import quantity demanded for country j goods under program p is given by maximizing the utility function subject to the budget constraint

$$q_{0ijp} = p_{0ijp}^{1-\sigma} \left(1 + t_{0ijp}\right)^{-\sigma} P_i^{\sigma-1} Y_{0i} \quad (1)$$

where p_{0ijp} is the free-on-board price, t_{0ijp} is the tariff rate, P is the price index of all substitute varieties and C_{0i} is the expenditure on product i in period 0. Multiplying both sides by p gives the value of imports in period 0, M_{0ijp} . Analogously, the total quantity of imports demanded from each country can be written as follows:

$$M_{1ijp} = M_{0ijp} * \left(\frac{1+t_{1ijp}}{1+t_{0ijp}} \right)^{\sigma-1} * \left(\frac{C_{0i}}{\sum_j \sum_p M_{0ijp} * \left(\frac{1+t_{1ijp}}{1+t_{0ijp}} \right)^{\sigma-1} + C_{0i} - M_{0i}} \right) \quad (2)$$

after substituting in for the price index and incorporating price changes from period 0 to period 1 that arise from changes in tariffs. Note that $C_{0i} - M_{0i}$ is expenditure on domestically produced goods. The elasticity of substitution between different “varieties”, σ , is assumed to be 6. A “variety” is defined as the interaction of country j product and import program p .

Step 5: Calculate the change in “market access.”

The change in market access is defined as the change in U.S. demand for imports from each country as $\Delta MA_j = 100 * (\sum_{ip} M_{1ijp} / \sum_{ip} M_{0ijp} - 1)$.

It is assumed that the export elasticity is infinite, thus the exporting country does not change its export prices exclusive of tariffs.

Step 6: Repeat the process for EU imports, with some modifications. These modifications were necessary because the EU data on preference utilization, though detailed, is not as comprehensive as the U.S. data.

(i) Information on total imports in the base period, M_{0ij} for the EU is available, but not the imports under different preference programs, M_{0ijp} . Detailed EU preference utilization data were obtained from the European Union, indicating by 8-digit product and by exporting country the value of imports that were covered by a tariff preference and the value that actually entered under a preference. The exact preference scheme was not provided, only whether the applicable tariff under that preference was zero or positive. It is always assumed that trade entering under a preference always enters under the most favorable scheme. Thus M_{0ijp} is estimated from M_{0ij} using this utilization data.

(ii) The analysis assumes that the tariff reductions for sugar, bananas and rice for LDCs under the European Union’s “Everything But Arms” program has already been implemented to avoid counting these changes as gains or losses in market access arising from the Doha Round. This requires a prior adjustment of import values for sugar, bananas and rice in the base period using a formula equivalent to equation (2) above in Step 4.

(2) Average Preference Margin and Average Preference Margin Including Domestic Production

The “Average Preference Margin” enjoyed by country j in the U.S. (EU) is simply a weighted average difference between the tariffs paid on U.S. (EU) imports from country j

and the MFN tariff applicable to such imports, where the weights are given by country j 's trade with the U.S. (EU):

$$\frac{\sum_i \sum_p \left((t_{0iMFN} - t_{0ijp}) * M_{0ijp} \right)}{\sum_i \sum_p M_{0ijp}} \quad (3)$$

where t_{0iMFN} is the MFN tariff applicable to product i and all other variables are defined in the Change in Market Access section above.

The ‘‘Average Preference Margin Including Domestic Production’’ enjoyed by country j takes account of preferential access enjoyed by other producers and the zero tariff paid on U.S. output sold in the U.S. and EU output sold in the EU:

$$\frac{\sum_i \sum_p \left((t_{0i_AVERAGE} - t_{0ijp}) * M_{0ijp} \right)}{\sum_i \sum_p M_{0ijp}} \quad (4)$$

where $t_{0i_AVERAGE}$ is tariff revenue collected on U.S. (EU) imports of product i divided by U.S. (EU) consumption of product i :

$$t_{0i_AVERAGE} = \frac{\sum_j \sum_p (t_{0ijp} * M_{0ijp})}{C_{0i}} \quad (5)$$

APPENDIX

Table A1. Total Exports

Country/Region	Total Exports US\$ millions	Share to U.S. (percent)	Average U.S. Tariff	Share to EU-15 (percent)	Average EU Tariff
African LDCs					
Angola	9,326.90	48.31	0.00	13.79	0.04
Benin	304.1	0.22	0.46	14.87	1.01
Burkina Faso	218.6	0.43	1.45	23.30	1.59
Burundi	49.3	13.27	0.00	50.65	0.11
Cape Verde	23.6	25.22	1.11	71.75	0.33
Central African Republic	65.7	0.34	0.05	91.13	0.07
Chad	99.4	24.81	0.03	44.28	0.33
Comoros	37.7	10.90	0.05	69.05	0.94
Congo, Dem. Rep. of	1,026.30	17.86	0.01	76.76	0.06
Djibouti	83.2	0.76	2.87	6.34	1.23
Equatorial Guinea	2,770.70	34.75	0.01	36.07	0.02
Eritrea	6.6	1.26	1.21	36.05	0.92
Ethiopia	512.7	4.43	0.01	29.60	1.00
Gambia, The	5.1	0.79	1.67	67.60	1.79
Guinea	829.5	10.52	0.07	44.82	0.43
Guinea-Bissau	76.7	2.76	0.00	11.57	0.07
Lesotho	432.3	97.07	0.32	0.79	0.84
Liberia*	1,049.60	5.91	0.02	66.24	0.08
Madagascar	2,454.20	26.20	0.24	41.69	1.77
Malawi	457	12.72	1.57	35.30	4.40
Mali	229.4	1.15	0.40	28.22	0.28
Mauritania	598.5	0.16	0.02	61.89	0.19
Mozambique	985	0.94	0.59	77.40	2.89
Niger	209.1	4.56	0.57	43.89	0.08
Rwanda	50.4	0.13	0.00	8.56	0.13
Sao Tome and Principe	6.6	2.90	2.59	93.93	0.72
Senegal	1,151.20	0.70	0.29	29.80	0.73
Sierra Leone	215.1	3.13	2.53	81.07	0.47
Somalia	84.4	0.23	1.91	2.46	1.02
Sudan	2,480.60	0.12	0.00	9.22	0.81
Tanzania	1,218.40	0.93	0.40	52.91	0.46
Togo	494.6	2.11	0.10	24.34	0.17
Uganda	164.6	3.09	0.01	33.53	1.41
Zambia	727.8	1.77	0.01	17.98	8.72
Non-African LDCs					
Afghanistan, Islamic Republic of	211.3	29.69	0.10	11.87	2.00
Bangladesh	5,809.40	33.70	14.31	49.84	4.84
Bhutan	58.2	0.90	0.76	1.78	1.52
Cambodia	2,118.30	53.28	15.15	19.94	4.87

Table A1. Total Exports (continued)

Country/Region	Total Exports US\$ millions	Share to U.S. (percent)	Average U.S. Tariff	Share to EU-15 (percent)	Average EU Tariff
Haiti	376	90.81	2.03	3.60	1.20
Kiribati	27	7.37	0.03	1.86	7.47
Lao People's Democratic Republic*	306.2	1.45	33.07	48.53	4.52
Maldives*	113	32.28	9.00	15.60	3.69
Myanmar*	2,759.60	10.70	n.a.	15.43	10.07
Nepal	652.7	29.07	11.33	9.54	1.94
Samoa	87.1	13.04	0.36	5.73	0.67
Solomon Islands	123.2	1.17	0.05	2.86	0.16
Timor-Leste	6	2.42	0.00	42.28	1.08
Tuvalu	2.1	0.36	0.44	52.51	5.50
Vanuatu	85.8	1.11	0.00	4.55	0.17
Yemen, Republic of	3,779.30	1.91	0.08	2.05	1.51
Other developing countries					
Albania	447.1	0.51	4.03	93.32	6.43
Algeria*	24,600.00	19.91	0.12	59.07	0.15
Anguilla	7.1	19.14	0.15	68.10	0.68
Antigua and Barbuda	412.6	3.27	0.34	92.20	0.35
Argentina	29,600.00	10.60	1.15	19.70	8.48
Armenia	670.5	8.20	2.47	38.90	1.07
Aruba*	82.2	9.18	0.19	50.68	3.05
Azerbaijan*	2,591.70	2.46	0.62	65.65	0.10
Bahamas, The*	1,373.30	36.41	0.37	29.62	0.20
Bahrain	6,631.60	4.28	7.13	1.68	2.69
Barbados	249.8	14.43	0.14	14.88	14.25
Belarus*	9,945.60	1.03	2.53	22.91	2.14
Belize	202.8	56.33	0.59	28.32	13.02
Bermuda*	465.9	3.34	0.36	42.03	0.01
Bolivia	1,650.70	14.29	0.20	6.74	0.19
Bosnia and Herzegovina	1,244.90	1.01	1.80	64.89	5.34
Botswana	2,155.30	0.66	0.02	85.89	0.06
Brazil	73,100.00	23.13	1.80	24.82	5.26
British Indian Ocean Ter.	4.1	31.61	5.79	11.28	0.91
British Virgin Islands	384	9.53	1.55	38.98	0.07
Brunei Darussalam*	4,144.30	7.75	10.73	0.33	3.07
Bulgaria	7,540.20	4.47	5.25	56.53	2.17
Cameroon	2,245.80	7.53	0.07	63.82	2.31
Cayman Islands*	734.9	1.65	0.05	94.00	0.01
Chile*	20,100.00	17.78	0.44	24.32	2.14
China*	438,000.00	21.14	2.85	16.46	3.37

Table A1. Total Exports (continued)

Country/Region	Total Exports US\$ millions	Share to U.S. (percent)	Average U.S. Tariff	Share to EU-15 (percent)	Average EU Tariff
Christmas Island	20.95	1.82	2.48	1.62	2.22
Cocos (Keeling) Islands	2.2	12.80	2.42	3.11	1.63
Colombia	13,100.00	47.05	0.35	14.39	22.61
Congo, Rep. of	2,708.20	16.88	0.02	9.74	0.40
Cook Islands	8.5	27.23	0.29	2.01	4.26
Costa Rica	5,800.40	47.12	0.39	18.24	24.21
Cote d'Ivoire	5,493.40	7.09	0.01	54.89	1.64
Croatia	6,186.60	2.65	0.98	54.99	0.95
Cuba*	1,221.70	0.03	0.00	25.88	3.89
Dominica	39.3	6.32	0.60	24.92	0.06
Dominican Republic	5,308.10	85.87	1.14	7.48	7.98
Ecuador	6,038.50	40.60	0.24	17.18	48.77
Egypt	6,160.70	8.45	6.06	32.84	0.83
El Salvador	1,254.90	19.42	4.17	6.11	1.68
Falkland Island	153.6	3.38	0.00	89.18	0.34
Fiji	503	24.53	6.51	22.18	32.90
French Southern and Antarctic*	8.2	0.84	1.05	49.23	5.31
French Polynesia*	151.4	14.56	1.74	16.17	0.11
Gabon	319.9	2.21	0.00	40.26	0.13
Georgia	465.3	3.30	0.59	16.71	0.94
Ghana	2,324.30	2.91	0.06	54.04	0.27
Gibraltar	173.2	1.67	1.92	78.01	2.42
Greenland*	489.5	2.94	0.00	70.04	0.72
Grenada	38	29.00	0.02	34.37	0.51
Guam	n.a.				9.45
Guatemala	2,634.70	30.02	6.74	5.43	1.33
Guyana	472.1	19.91	0.07	33.85	28.24
Honduras	992.3	41.85	2.35	17.88	5.34
India	63,000.00	18.05	3.36	21.79	4.46
Indonesia	61,100.00	12.10	5.48	13.05	4.04
Iran, Islamic Republic of*	33,800.00	0.41	0.62	14.85	0.35
Iraq	8,942.70	54.94	0.13	18.74	0.35
Jamaica	1,631.50	32.12	0.64	31.16	2.60
Jordan	3,081.60	21.51	0.37	2.90	1.28
Kazakhstan	12,900.00	0.76	1.54	15.28	0.66
Kenya	2,551.10	1.60	0.36	27.78	0.83
Korea, Dem. People's Republic of	942.8	0.01	80.60	6.63	4.16
Kuwait*	20,200.00	12.28	0.29	10.17	0.32
Kyrgyz Republic	581.7	1.12	8.91	3.03	3.93
Lebanon	1,523.90	4.34	1.12	9.42	0.96
Libya*	14,600.00	2.10	0.18	84.56	0.25

Table A1. Total Exports (continued)

Country/Region	Total Exports US\$ millions	Share to U.S. (percent)	Average U.S. Tariff	Share to EU-15 (percent)	Average EU Tariff
Macao*	2,822.68	50.67	17.82	28.68	10.43
Macedonia, former Yugoslav Republic of	1,363.20	5.34	9.45	54.65	0.84
Malaysia*	105,000.00	19.58	0.84	12.11	1.67
Marshall Islands*	178.6	15.59	0.01	24.93	0.04
Mauritius	1,862.10	17.47	4.80	65.90	8.74
Mexico*	165,000.00	88.89	0.27	3.38	1.16
Micronesia, Federated States of*	85.7	18.04	n.a.	0.16	0.48
Moldova	790.3	4.26	13.81	23.35	4.69
Mongolia	615.9	23.21	14.99	7.26	3.63
Montserrat	1.8	34.30	3.77	7.90	1.85
Morocco	8,777.20	2.80	2.66	75.71	1.17
Namibia	1,303.70	2.70	0.21	29.87	0.56
Nauru*	30.8	1.00	1.34	3.25	1.51
Netherlands Antilles*	1,377.00	46.92	0.37	10.09	7.78
New Caledonia*	729	1.43	0.92	35.78	0.07
Nicaragua*	605.2	36.50	7.06	10.71	0.79
Nigeria	24,100.00	38.26	0.00	21.84	0.06
Niue	3.6	3.36	6.47	1.71	4.00
Norfolk Island	3	53.92	0.18	11.03	0.00
Northern Mariana Islands*	10.5	n.a.	n.a.	12.89	11.30
Oman	11,400.00	1.16	4.86	1.93	1.83
Pakistan	12,700.00	23.17	10.30	29.14	3.78
Palau*	16.8	10.91	0.64	0.37	5.40
Panama	798.7	52.03	0.14	23.21	51.25
Papua New Guinea	2,260.20	2.64	0.06	11.03	0.59
Paraguay	1,241.50	3.62	2.12	6.87	2.95
Peru	8,749.40	26.50	0.12	25.35	0.60
Philippines	36,200.00	20.07	4.05	16.25	1.41
Pitcairn	3.6	13.55	0.88	61.00	0.50
Qatar*	13,400.00	1.68	3.08	2.09	0.56
Romania	17,600.00	3.51	3.21	67.88	1.01
Russian Federation	134,000.00	2.30	0.63	25.92	0.79
Saint Helena	21.1	27.26	0.15	34.53	0.68
Saint Pierre and Miquelon*	4.8	56.08	0.02	21.26	3.16
Saudi Arabia*	89,000.00	21.95	0.28	15.27	0.46
Serbia and Montenegro	2,455.00	0.64	1.37	59.62	10.20
Seychelles	273.8	0.81	0.22	76.99	0.49
South Africa	31,600.00	12.15	0.19	35.57	1.41
Sri Lanka	4,867.80	36.45	13.39	29.35	6.46

Table A1. Total Exports (continued)

Country/Region	Total Exports US\$ millions	Share to U.S. (percent)	Average U.S. Tariff	Share to EU-15 (percent)	Average EU Tariff
St. Kitts and Nevis	48.3	78.48	0.04	17.23	10.52
St. Lucia	62.3	19.55	2.30	33.16	0.05
St. Vincent and the Grenadines	38.1	13.23	0.16	30.23	0.09
Suriname	550.6	26.84	0.01	36.69	2.57
Swaziland	599	28.96	0.62	21.19	16.39
Syrian Arab Republic*	5,730.70	3.70	1.76	57.07	1.42
Tajikistan*	559.3	1.38	9.28	18.11	4.09
Thailand	80,300.00	17.02	2.81	14.72	6.41
Tokelau	33.6	20.33	4.40	35.54	4.41
Tonga	30.6	49.28	0.04	4.81	30.19
Trinidad and Tobago	5,241.30	54.85	0.01	7.84	0.94
Tunisia	7,354.40	0.66	4.01	79.92	1.76
Turkey	47,300.00	7.94	5.17	51.82	2.02
Turkmenistan*	934.1	8.72	10.11	29.16	0.64
Turks and Caicos Islands	33.8	18.88	0.01	47.88	1.92
Ukraine*	20,900.00	1.48	1.48	19.27	2.86
United Arab Emirates*	47,100.00	2.57	4.09	8.40	1.44
Uruguay	2,198.00	11.40	11.77	22.91	13.62
Uzbekistan	1,904.00	4.60	3.03	15.77	0.85
Venezuela	25,000.00	44.35	0.15	12.56	1.15
Vietnam*	21,800.00	22.50	9.96	25.25	5.98
Wallis and Futura Islands	1.3	0.70	4.77	24.45	2.19
Zimbabwe	1,592.80	3.79	1.83	33.31	4.44
Developed countries					
Andorra	83.3	0.35	1.06	88.07	7.43
Australia	70,200.00	8.76	1.55	14.21	2.31
Austria	88,700.00	5.21	1.58	58.66	
Belgium	255,000.00	6.71	1.01	72.57	
Canada	272,000.00	85.78	0.04	5.09	3.28
Cyprus	922.9	1.92	1.42	56.30	
Czech Republic	48,700.00	2.44	1.49	69.83	
Denmark	64,600.00	5.71	0.95	60.60	
Estonia	5,622.50	2.33	1.28	58.25	
Faeroe Islands	595.5	2.16	0.08	79.02	2.80
Finland	52,500.00	7.90	0.71	51.39	
France	358,000.00	6.95	1.12	62.78	
Germany	749,000.00	9.17	1.67	54.23	
Greece	13,700.00	6.42	2.16	47.32	
Hong Kong SAR	229,000.00	18.24	8.51	13.68	3.66
Hungary	42,300.00	3.14	1.04	73.85	

Table A1. Total Exports (concluded)

Country/Region	Total Exports US\$ millions	Share to U.S. (percent)	Average U.S. Tariff	Share to EU-15 (percent)	Average EU Tariff
Iceland	2,380.50	9.45	0.34	72.07	1.14
Ireland	93,000.00	20.60	0.11	61.27	
Israel	31,800.00	38.04	0.10	26.50	1.22
Italy	300,000.00	8.27	3.23	54.19	
Japan	472,000.00	24.90	1.73	15.35	3.84
Korea, Republic of	196,000.00	19.55	2.24	14.10	3.48
Latvia	2,893.70	2.89	0.67	61.80	
Liechtenstein	n.a.	n.a.	1.94	n.a.	0.29
Lithuania	7,162.10	2.80	1.61	42.06	
Luxembourg	9,986.10	2.42	1.66	82.44	
Malta	2,467.10	14.46	1.07	44.28	
Monaco	362.7	n.a.	1.31	1.14	
Netherlands	227,000.00	5.31	0.93	72.03	
New Zealand	16,500.00	14.51	2.48	15.35	32.47
Norway	67,900.00	8.64	0.35	75.62	0.33
Poland	53,500.00	2.20	2.21	68.35	
Portugal	31,800.00	5.70	2.70	79.35	
San Marino	n.a.	n.a.	1.52	n.a.	3.81
Singapore	144,000.00	14.26	0.47	13.37	1.99
Slovak Republic	22,000.00	5.26	2.70	60.67	
Slovenia	12,800.00	3.64	1.77	58.41	
Spain	158,000.00	4.10	2.33	71.10	
Sweden	102,000.00	11.48	1.00	53.99	
Switzerland	101,000.00	11.30	1.52	59.40	0.98
Taiwan Province of China	151,000.00	17.67	2.41	12.51	1.85
United Kingdom	320,000.00	15.02	0.96	53.42	
United States	724,000.00			20.84	2.10

Note: an asterisk indicates a developing country/region that does not receive GSP from the U.S.

Table A2. EU and U.S. Preferential Trade Arrangements

(i) European Union Preferential Trade Arrangements used in Simulation

GSP rates
 GSP rates for LDC
 ACP rates
 Preference for European Economic Area
 Preference for Overseas Countries and Territories
 Preference for Countries Fighting Drug
 Preference for Albania
 Preference for Algeria
 Preference for Andorra
 Preference for Bosnia and Herzegovina
 Preference for Bulgaria
 Preference for Taiwan Province of China
 Preference for Croatia
 Preference for Cyprus
 Preference for Czech Republic
 Preference for Egypt
 Preference for Estonia
 Preference for Faroe Island
 Preference for West Bank and Gaza Strip
 Preference for Hong Kong SAR
 Preference for Hungary
 Preference for Iceland
 Preference for Israel
 Preference for Jordan
 Preference for Lebanon
 Preference for Latvia
 Preference for Lithuania
 Preference for Macedonia, former Yugoslav Republic of
 Preference for Malta
 Preference for Mexico
 Preference for Morocco
 Preference for Myanmar
 Preference for Norway
 Preference for Poland
 Preference for Romania
 Preference for Slovak Republic
 Preference for Slovenia
 Preference for South Africa
 Preference for Switzerland
 Preference for Syrian Arab Republic
 Preference for Tunisia
 Preference for Turkey
 Preference for Serbia and Montenegro

(ii) U.S. Preferential Trade Arrangements used in Simulation

GSP rates
 GSP rates for LDC
 Africa Growth and Opportunity Act (AGOA)
 Andean Trade Preference Act (ATPA)
 Andean Trade Promotion and Drug Eradication Act (ATPDEA)
 Caribbean Basin Initiative (CBI)
 Caribbean Basin Trade Partnership Act (CBTPA)
 Preference for Canada
 Preference for Chile
 Preference for Israel Special Rate (duty-free treatment)
 Preference for Jordan
 Preference for Mexico
 Preference for Singapore

Table A3. Change in Market Access Following a 40 Percent Tariff Cut
(Proxied by Change in Import Demand by European Union and United States)

Country/Region	Combined			Combined			Combined		
	EU	US	(EU+US)	EU	US	(EU+US)	EU	US	(EU+US)
	No exclusions			3 percent tariff lines excluded			tiered agricultural formula		
<u>African LDCs</u>									
Angola	0.04	-0.05	-0.03	0.04	-0.05	-0.03	0.04	-0.05	-0.03
Benin	1.43	0.42	1.39	1.35	0.42	1.31	1.69	0.42	1.64
Burkina Faso	2.22	2.06	2.22	0.30	2.06	0.33	2.99	2.06	2.98
Burundi	0.13	0.00	0.12	0.13	0.00	0.12	0.13	0.00	0.12
Cape Verde	-1.09	-10.86	-2.47	-1.10	-5.91	-1.78	-1.08	-10.86	-2.47
Central African Republic	0.06	-0.04	0.05	0.06	-0.04	0.05	0.06	-0.04	0.05
Chad	0.44	0.02	0.05	0.44	0.02	0.05	0.44	0.02	0.05
Comoros	1.38	0.05	0.81	1.38	0.05	0.81	1.38	0.05	0.81
Congo, Dem. Rep. of	0.08	-0.02	0.07	0.04	-0.02	0.03	0.09	-0.02	0.08
Djibouti	1.79	4.24	2.11	1.79	-0.03	1.54	1.79	4.24	2.11
Equatorial Guinea	-0.15	-0.02	-0.08	-0.15	-0.02	-0.08	-0.15	-0.02	-0.08
Eritrea	0.30	1.83	0.52	0.28	0.31	0.29	0.31	1.83	0.52
Ethiopia	1.22	-1.14	0.81	0.32	-0.20	0.23	1.58	-1.14	1.10
Gambia, The	1.94	1.44	1.92	1.94	1.44	1.92	1.94	1.44	1.92
Guinea	0.66	0.13	0.59	0.66	0.12	0.59	0.66	0.13	0.59
Guinea-Bissau	-1.70	-0.05	-0.45	-1.70	-0.05	-0.45	-1.70	-0.05	-0.45
Lesotho	0.32	-9.44	-9.31	0.40	-6.63	-6.53	0.29	-9.44	-9.31
Liberia*	0.12	0.03	0.11	0.12	0.03	0.11	0.12	0.03	0.11
Madagascar	0.44	-6.55	-2.67	-1.53	-5.51	-3.30	1.25	-6.55	-2.23
Malawi	6.53	-1.73	4.02	0.48	0.35	0.44	8.90	-1.73	5.67
Mali	0.25	0.54	0.27	0.25	0.54	0.27	0.25	0.54	0.27
Mauritania	-0.33	0.02	-0.32	-0.33	0.02	-0.32	-0.32	0.02	-0.32
Mozambique	2.51	-0.79	2.46	2.27	-0.40	2.23	2.61	-0.79	2.56
Niger	0.09	1.20	0.35	0.04	1.20	0.32	0.11	1.20	0.37
Rwanda	-0.27	0.00	-0.21	0.02	0.00	0.02	-0.35	0.00	-0.27
São Tomé and Príncipe	0.85	4.34	0.89	0.85	4.34	0.89	0.90	4.34	0.93
Senegal	-0.56	0.30	-0.55	-0.56	0.30	-0.55	-0.39	0.30	-0.38
Sierra Leone	0.60	2.31	0.74	0.60	0.65	0.60	0.60	2.31	0.74
Somalia	0.96	2.85	1.56	0.96	2.85	1.56	0.96	2.85	1.56
Sudan	0.96	0.00	0.95	0.32	0.00	0.31	1.16	0.00	1.15
Tanzania	-0.38	-0.74	-0.39	0.11	-0.58	0.09	-0.57	-0.74	-0.58
Togo	-0.72	0.15	-0.70	-0.76	0.15	-0.74	-0.69	0.15	-0.67
Uganda	1.61	-1.60	1.32	1.56	-1.44	1.29	1.63	-1.60	1.34
Zambia	12.91	-0.02	10.13	0.31	-0.01	0.24	17.94	-0.02	14.07
<u>Non African LDCs</u>									
Afghanistan, Islamic Republic of	1.92	0.16	1.40	1.85	0.15	1.35	1.95	0.16	1.42
Bangladesh	3.66	15.33	7.88	3.66	10.66	6.19	3.67	15.33	7.89
Bhutan	2.14	1.31	1.89	2.14	1.31	1.89	2.14	1.31	1.89
Cambodia	2.49	17.33	13.30	2.30	14.42	11.13	2.56	17.33	13.32

Table A3. Change in Market Access Following a 40 Percent Tariff Cut (continued)
(Proxied by Change in Import Demand by European Union and United States)

Country/Region	Combined			Combined			Combined		
	EU	US	(EU+US)	EU	US	(EU+US)	EU	US	(EU+US)
	3 percent tariff lines			3 percent tariff lines			3 percent tariff lines		
	No exclusions			excluded			tiered agricultural formula		
Haiti	1.63	-4.87	-4.61	1.63	-2.99	-2.81	1.64	-4.87	-4.61
Kiribati	13.70	0.04	3.46	13.70	0.04	3.46	17.77	0.04	4.45
Lao People's Democratic Republic*	2.69	-6.21	2.47	2.68	-5.94	2.47	2.70	-6.21	2.48
Maldives*	2.81	11.82	9.82	2.81	11.82	9.82	2.64	11.82	9.78
Myanmar*	13.49	n.a.	13.49	13.27	n.a.	13.27	13.58	n.a.	13.58
Nepal	-1.11	13.14	7.39	-2.20	11.83	6.16	-0.68	13.14	7.56
Samoa	-3.45	0.54	-0.96	-3.45	0.54	-0.96	-3.44	0.54	-0.96
Solomon Islands	-0.10	0.07	0.00	-0.10	0.07	0.00	-0.10	0.07	0.00
Timor-Leste	1.48	0.00	1.44	1.48	0.00	1.44	1.48	0.00	1.44
Tuvalu	5.05	0.79	4.92	5.05	0.79	4.92	5.05	0.79	4.92
Vanuatu	-0.51	-0.01	-0.32	-0.51	-0.01	-0.32	-0.51	-0.01	-0.32
Yemen, Republic of	0.84	0.12	0.57	0.80	0.11	0.55	0.81	0.12	0.55
<u>Other developing countries</u>									
Albania	9.74	2.88	9.55	9.71	2.39	9.51	10.28	2.88	10.08
Algeria*	0.26	0.18	0.23	0.25	0.18	0.22	0.27	0.18	0.23
Anguilla	0.58	0.14	0.25	0.58	0.14	0.25	0.58	0.14	0.25
Antigua and Barbuda	0.48	0.63	0.49	0.47	0.63	0.47	0.50	0.63	0.50
Argentina	12.20	2.49	8.67	3.76	2.20	3.19	15.51	2.59	10.81
Armenia	1.79	2.70	1.98	1.78	1.40	1.70	1.80	2.74	1.99
Aruba*	2.33	0.29	0.42	0.95	0.29	0.33	3.53	0.29	0.50
Azerbaijan*	0.14	1.05	0.17	0.14	1.01	0.17	0.16	1.05	0.18
Bahamas, The*	0.07	0.54	0.31	0.06	0.18	0.12	0.07	0.54	0.31
Bahrain	4.35	9.04	7.07	4.34	9.01	7.04	4.35	9.04	7.07
Barbados	20.44	0.12	12.54	0.47	0.14	0.34	28.39	0.11	17.41
Belarus*	3.17	2.91	3.11	3.05	2.42	2.92	3.21	2.91	3.15
Belize	-8.32	-0.71	-4.39	0.65	-0.22	0.20	-8.32	-0.93	-4.50
Bermuda*	0.01	0.71	0.03	0.01	0.04	0.01	0.01	0.95	0.03
Bolivia	-1.04	-1.86	-1.65	-0.11	-1.82	-1.38	-1.36	-1.86	-1.73
Bosnia and Herzegovina	7.83	1.62	7.74	6.89	1.08	6.81	8.50	1.63	8.40
Botswana	-0.36	-3.60	-0.49	-0.02	-1.54	-0.08	-0.54	-3.60	-0.67
Brazil	7.27	4.24	5.72	2.91	3.75	3.34	9.44	4.41	6.86
British Indian Ocean Ter.	-0.60	8.76	7.24	-0.60	1.38	1.01	-0.60	8.76	7.24
British Virgin Islands	0.10	1.55	0.21	0.10	1.10	0.18	0.10	1.55	0.21
Brunei Darussalam*	4.72	12.69	11.54	4.72	12.46	11.34	4.72	12.69	11.54
Bulgaria	1.48	5.67	1.94	-0.28	4.05	0.19	2.35	5.67	2.71
Cameroon	-5.74	0.06	-4.90	-0.11	0.04	-0.09	-7.23	0.06	-6.17
Cayman Islands*	0.01	0.08	0.01	0.01	0.08	0.01	0.01	0.08	0.01
Chile*	3.27	0.64	2.01	2.56	0.64	1.64	3.62	0.64	2.19
China*	4.00	3.42	3.62	3.94	3.13	3.42	4.06	3.42	3.65

Table A3. Change in Market Access Following a 40 Percent Tariff Cut (continued)
(Proxied by Change in Import Demand by European Union and United States)

Country/Region	Combined			Combined			Combined		
	EU	US	(EU+US)	EU	US	(EU+US)	EU	US	(EU+US)
	3 percent tariff lines			3 percent tariff lines			3 percent tariff lines		
	No exclusions			excluded			tiered agricultural formula		
Christmas Island	3.31	2.00	2.41	3.31	1.79	2.27	3.31	2.00	2.41
Cocos (Keeling) Islands	1.52	3.13	2.94	1.52	3.13	2.94	1.52	3.13	2.94
Colombia	3.00	-0.28	0.54	-0.07	-0.15	-0.13	3.80	-0.27	0.75
Congo, Rep. of	0.54	-0.03	0.14	0.05	-0.03	-0.01	0.74	-0.03	0.20
Cook Islands	1.28	0.47	0.58	0.85	0.47	0.53	1.39	0.47	0.58
Costa Rica	3.72	-0.95	1.15	0.45	-0.77	-0.22	4.59	-0.97	1.54
Côte d'Ivoire	-2.05	-0.01	-1.64	-0.06	-0.01	-0.05	-2.49	-0.01	-2.00
Croatia	-0.44	0.69	-0.34	-0.90	0.56	-0.76	-0.20	0.70	-0.12
Cuba*	5.48	0.00	5.48	3.24	0.00	3.24	6.55	0.00	6.55
Dominica	-24.99	0.76	-21.84	-0.88	0.76	-0.68	-31.38	0.76	-27.44
Dominican Republic	-5.20	-2.87	-3.04	1.16	-1.95	-1.71	-6.67	-2.86	-3.15
Ecuador	6.72	0.60	2.06	0.15	0.48	0.40	8.45	0.65	2.50
Egypt	0.45	7.68	2.32	0.41	6.89	2.10	0.50	7.68	2.36
El Salvador	1.67	-0.64	-0.48	1.53	0.15	0.25	1.72	-0.64	-0.47
Falkland Island	-2.53	0.00	-2.42	-2.66	0.00	-2.53	-2.50	0.00	-2.38
Fiji	49.69	7.51	24.12	-0.01	7.47	4.52	69.52	7.51	31.93
French Southern and Antarctic*	5.81	1.73	5.68	5.47	1.73	5.31	5.95	1.73	5.80
French Polynesia*	0.09	3.15	0.54	0.09	3.15	0.54	0.09	3.15	0.54
Gabon	-0.01	-0.05	-0.04	-0.01	-0.05	-0.04	-0.01	-0.05	-0.04
Georgia	2.16	0.53	1.83	2.16	0.53	1.83	2.22	0.53	1.88
Ghana	-0.24	-0.32	-0.25	-0.22	-0.32	-0.23	-0.28	-0.32	-0.29
Gibraltar	3.66	2.96	3.65	3.66	0.67	3.64	3.66	2.96	3.65
Greenland*	-1.15	0.00	-1.15	-1.15	0.00	-1.15	-1.31	0.00	-1.31
Grenada	-0.91	0.02	-0.67	0.51	0.02	0.39	-1.28	0.02	-0.95
Guam	12.28	n.a.	12.28	6.09	n.a.	6.09	14.41	n.a.	14.41
Guatemala	-0.18	4.38	3.98	0.21	4.28	3.93	-0.33	4.38	3.97
Guyana	43.12	-0.75	27.24	1.12	-0.14	0.66	59.72	-0.73	37.84
Honduras	1.87	-2.39	-2.04	1.33	-1.21	-1.00	1.98	-2.39	-2.03
India	5.83	3.76	4.78	5.06	3.23	4.13	6.11	3.76	4.92
Indonesia	5.10	5.90	5.49	5.10	3.57	4.34	5.13	5.90	5.51
Iran, Islamic Republic of*	0.40	1.26	0.41	0.40	1.16	0.41	0.43	1.30	0.44
Iraq	0.49	0.27	0.31	0.01	0.27	0.23	0.80	0.27	0.37
Jamaica	-1.87	-5.31	-3.01	-0.76	-5.04	-2.17	-1.99	-5.31	-3.08
Jordan	1.57	-9.79	-8.01	1.56	-6.77	-5.47	1.66	-9.79	-8.00
Kazakhstan	0.98	2.07	1.11	0.37	1.98	0.56	1.20	2.07	1.30
Kenya	0.52	-7.69	-1.80	0.35	-6.27	-1.52	0.59	-7.69	-1.75
Korea, Dem. People's Republic of	4.56	22.34	4.51	4.55	-2.72	4.54	4.56	-22.34	4.52
Kuwait*	0.35	0.46	0.41	0.35	0.44	0.41	0.35	0.46	0.41
Kyrgyz Republic	5.21	11.22	8.02	5.21	10.18	7.54	5.47	11.22	8.16
Lebanon	0.91	1.31	1.02	0.72	1.25	0.86	0.99	1.31	1.08

Table A3. Change in Market Access Following a 40 Percent Tariff Cut (continued)
(Proxied by Change in Import Demand by European Union and United States)

Country/Region	Combined			Combined			Combined		
	EU	US	(EU+US)	EU	US	(EU+US)	EU	US	(EU+US)
	No exclusions			3 percent tariff lines excluded			tiered agricultural formula		
Libya*	0.50	0.16	0.49	0.50	0.16	0.49	0.50	0.16	0.49
Macao SAR*	14.01	19.31	17.48	14.01	11.47	12.34	14.01	19.31	17.48
Macedonia, former Yugoslav Republic of	-1.50	10.77	-0.34	-1.25	7.19	-0.45	-1.59	10.78	-0.42
Malaysia*	2.15	1.11	1.47	2.14	0.95	1.37	2.16	1.11	1.48
Marshall Islands*	0.06	0.02	0.06	0.06	0.02	0.06	0.06	0.02	0.06
Mauritius	11.30	-0.71	9.53	-1.26	-0.46	-1.14	16.27	-0.69	13.77
Mexico*	0.79	-0.54	-0.48	0.77	-0.43	-0.38	0.80	-0.54	-0.48
Micronesia, Federated States of*	0.72	13.49	13.38	0.72	13.02	12.91	0.72	13.49	13.38
Moldova	7.32	15.64	8.31	7.22	14.26	8.06	7.49	15.64	8.46
Mongolia	4.33	16.69	15.52	4.33	13.43	12.57	4.33	16.69	15.52
Montserrat	2.37	5.13	3.61	-0.55	5.13	1.98	3.47	5.13	4.18
Morocco	-0.97	3.26	-0.65	-0.96	3.09	-0.67	-0.90	3.33	-0.59
Namibia	-1.86	-3.06	-2.19	-0.78	-2.92	-1.36	-2.33	-3.06	-2.53
Nauru*	1.04	2.23	1.22	1.04	2.23	1.22	1.04	2.23	1.22
Netherlands Antilles*	10.36	0.57	2.67	0.15	0.49	0.42	15.60	0.57	3.79
New Caledonia*	0.03	0.98	0.09	0.03	0.87	0.08	0.03	0.98	0.08
Nicaragua*	-0.39	6.87	6.32	0.19	7.33	6.80	-0.52	6.87	6.32
Nigeria	0.03	-0.05	-0.03	0.02	-0.05	-0.03	0.03	-0.05	-0.03
Niue	4.05	8.52	8.31	4.05	8.52	8.31	4.05	8.52	8.31
Norfolk Island	0.00	0.25	0.23	0.00	0.25	0.23	0.00	0.25	0.23
Northern Mariana Islands*	16.19	n.a.	16.19	16.19	n.a.	16.19	16.19	n.a.	16.19
Oman	2.02	6.00	4.53	2.02	5.33	4.10	2.06	6.00	4.54
Pakistan	2.41	13.67	7.57	0.98	12.97	6.47	2.91	13.67	7.84
Palau*	9.42	1.09	2.12	9.42	1.09	2.12	9.42	1.09	2.12
Panama	7.09	0.15	4.50	0.04	0.08	0.06	8.95	0.15	5.67
Papua New Guinea	0.08	0.11	0.09	0.08	0.11	0.08	0.22	0.11	0.21
Paraguay	4.33	4.78	4.40	0.34	4.28	0.88	5.96	4.92	5.82
Peru	0.34	-1.82	-0.95	0.12	-1.73	-0.99	0.41	-1.81	-0.91
Philippines	2.03	4.52	3.42	2.01	3.39	2.78	2.18	4.53	3.49
Pitcairn	0.54	1.28	0.71	0.54	1.28	0.71	0.54	1.28	0.71
Qatar*	0.79	3.74	1.59	0.79	3.68	1.58	0.79	3.74	1.59
Romania	-0.96	3.28	-0.69	-1.71	2.27	-1.46	-0.39	3.28	-0.16
Russian Federation	1.20	0.84	1.13	0.87	0.73	0.84	1.33	0.84	1.23
Saint Helena	0.75	0.23	0.51	0.75	0.22	0.50	0.74	0.23	0.49
Saint Pierre and Miquelon*	3.69	0.03	1.85	3.69	0.03	1.85	3.69	0.03	1.85
Saudi Arabia*	0.74	0.49	0.60	0.74	0.49	0.60	0.75	0.49	0.60
Serbia and Montenegro	16.20	2.48	15.35	8.90	2.44	8.50	19.48	2.48	18.43
Seychelles	-0.96	0.28	-0.93	-0.96	0.28	-0.93	-1.19	0.28	-1.16
South Africa	1.86	-0.18	1.31	1.82	-0.17	1.29	1.90	-0.18	1.34
Sri Lanka	8.67	14.31	11.85	8.64	10.43	9.65	8.69	14.31	11.86
St. Kitts and Nevis	8.97	-0.64	2.41	0.16	-0.64	-0.39	12.50	-0.64	3.53

Table A3. Change in Market Access Following a 40 Percent Tariff Cut (continued)
(Proxied by Change in Import Demand by European Union and United States)

Country/Region	Combined			Combined			Combined		
	EU	US	(EU+US)	EU	US	(EU+US)	EU	US	(EU+US)
	3 percent tariff lines			3 percent tariff lines			3 percent tariff lines		
	No exclusions			excluded			tiered agricultural formula		
St. Lucia	-58.73	1.58	-37.55	-0.04	1.31	0.43	-74.26	1.58	-47.63
St. Vincent and the Grenadines	-5.76	-0.73	-5.64	0.05	-0.73	0.03	-7.29	-0.73	-7.14
Suriname	3.63	0.01	2.15	1.35	0.01	0.80	4.47	0.01	2.64
Swaziland	23.52	10.08	-0.08	1.39	-4.80	-2.96	32.38	-10.07	2.56
Syrian Arab Republic*	1.64	2.32	1.69	-0.10	1.73	0.03	2.40	2.32	2.40
Tajikistan*	5.65	11.57	6.05	5.64	10.22	5.95	5.65	11.57	6.06
Thailand	9.24	3.23	5.69	6.54	2.58	4.20	11.15	3.23	6.48
Tokelau	6.27	5.67	5.98	6.27	4.88	5.60	6.27	5.67	5.98
Tonga	4.71	0.08	1.04	0.64	0.08	0.20	5.78	0.08	1.27
Trinidad and Tobago	-0.93	0.01	-0.06	0.52	0.01	0.05	-1.50	0.01	-0.10
Tunisia	-0.25	4.90	-0.10	-1.37	4.16	-1.20	0.14	4.90	0.28
Turkey	0.80	6.35	1.66	0.46	5.54	1.25	0.95	6.35	1.78
Turkmenistan*	0.78	14.96	4.28	0.78	14.92	4.27	0.78	14.96	4.28
Turks and Caicos Islands	-0.23	0.03	-0.15	-2.74	0.03	-1.86	0.59	0.03	0.41
Ukraine*	4.77	1.77	4.22	3.85	1.46	3.41	5.14	1.77	4.53
United Arab Emirates*	2.00	5.16	2.67	1.94	4.57	2.50	2.03	5.16	2.69
Uruguay	18.55	22.48	20.42	5.06	2.28	3.74	25.17	29.09	27.03
Uzbekistan	1.16	4.30	1.58	1.16	4.22	1.57	1.16	4.30	1.58
Venezuela	0.37	0.21	0.22	0.27	0.21	0.21	0.39	0.21	0.23
Vietnam*	7.34	10.76	9.05	7.32	8.05	7.69	7.36	10.76	9.07
Virgin Islands (U.S.)*	1.15	n.a.	1.15	1.12	n.a.	1.12	1.16	n.a.	1.15
Wallis and Futura Islands	1.72	6.28	1.69	1.68	6.28	1.69	1.75	6.28	1.69
Zimbabwe	7.68	2.25	6.99	6.54	2.23	5.99	8.14	2.25	7.39
Developed countries									
Andorra	10.91	0.92	10.79	5.56	0.92	5.51	12.94	0.92	12.80
Australia	3.33	2.51	2.97	1.79	2.36	2.04	4.12	2.54	3.43
Austria		2.56	2.56		2.53	2.53		2.56	2.56
Belgium		1.67	1.67		1.63	1.63		1.68	1.68
Canada	4.70	-0.22	0.07	1.86	-0.20	-0.08	6.45	-0.22	0.17
Cyprus		1.72	1.72		1.29	1.29		1.72	1.72
Czech Republic		2.60	2.60		2.27	2.27		2.68	2.68
Denmark		1.59	1.59		1.48	1.48		1.64	1.64
Estonia		1.76	1.76		1.56	1.56		1.83	1.83
Faeroe Islands	3.72	0.15	3.67	3.72	0.15	3.67	4.31	0.15	4.26
Finland		1.18	1.18		1.18	1.18		1.18	1.18
France		1.71	1.71		1.60	1.60		1.75	1.75
Germany		2.53	2.53		2.49	2.49		2.53	2.53
Greece		4.04	4.04		3.59	3.59		4.04	4.04

Table A3. Change in Market Access Following a 40 Percent Tariff Cut (concluded)
(Proxied by Change in Import Demand by European Union and United States)

Country/Region	Combined			Combined			Combined		
	EU	US	(EU+US)	EU	US	(EU+US)	EU	US	(EU+US)
	3 percent tariff lines								
	No exclusions			excluded			tiered agricultural formula		
Hong Kong SAR	5.01	9.37	7.07	4.97	6.94	5.90	5.03	9.37	7.08
Hungary		1.42	1.42		1.33	1.33		1.42	1.42
Iceland	-0.38	0.52	-0.27	-0.66	0.50	-0.51	-0.31	0.52	-0.20
Ireland		0.15	0.15		0.14	0.14		0.15	0.15
Israel	1.20	-0.23	0.28	1.14	-0.20	0.28	1.27	-0.22	0.31
Italy		4.20	4.20		3.93	3.93		4.21	4.21
Japan	4.90	2.74	3.52	4.87	2.74	3.51	4.91	2.74	3.53
Korea, Republic of	4.62	3.12	3.67	4.61	2.55	3.30	4.64	3.12	3.68
Latvia		1.09	1.09		1.04	1.04		1.09	1.09
Liechtenstein	-0.29	2.83	0.37	-0.29	2.83	0.36	-0.28	2.83	0.37
Lithuania		2.74	2.74		1.84	1.84		3.00	3.00
Luxembourg		2.79	2.79		2.36	2.36		2.79	2.79
Malta		1.57	1.57		1.01	1.01		1.57	1.57
Netherlands		1.70	1.70		1.67	1.67		1.70	1.70
New Zealand	42.84	5.12	24.19	5.70	3.11	4.42	61.27	5.97	33.92
Norway	0.11	0.56	0.17	0.09	0.56	0.14	0.15	0.56	0.20
Poland		3.57	3.57		2.85	2.85		3.65	3.65
Portugal		3.59	3.59		3.10	3.10		3.60	3.60
Singapore	2.15	0.43	1.30	2.07	0.37	1.23	2.19	0.43	1.32
Slovak Republic		3.52	3.52		3.34	3.34		3.52	3.52
Slovenia		2.49	2.49		2.34	2.34		2.49	2.49
Spain		3.70	3.70		3.59	3.59		3.70	3.70
Sweden		1.51	1.51		1.51	1.51		1.51	1.51
Switzerland	0.54	2.17	0.80	0.30	2.16	0.59	0.69	2.18	0.92
Taiwan Province of China	2.52	3.36	3.03	2.50	2.69	2.61	2.52	3.36	3.03
United Kingdom		1.45	1.45		1.40	1.40		1.45	1.45
United States	2.80			2.41			2.99		

Note: an asterisk indicates a developing country/region that does not receive GSP from the U.S.

REFERENCES

- Alexandraki, Katerina, and Hans Peter Lankes, 2004, "The Impact of Preference Erosion on Middle-Income Developing Countries," IMF Working Paper No. 04/169 (Washington: International Monetary Fund).
- Baldwin R. E., and T. Murray, 1977, "MFN Tariff Reductions and Developing Country Trade Benefits Under the GSP," *Economic Journal*, Vol. 87, pp. 30–46.
- Brenton, Paul, and Takako Ikezuki, 2004, "The Initial and Potential Impact of Preferential Access to the U.S. Market under the African Growth and Opportunity Act," World Bank Policy Research Working Paper No. 3262 (Washington: World Bank).
- Dean, Judith M., and John Wainio, 2005, "Quantifying the Value of U.S. Tariff Preferences," World Bank Discussion Paper, forthcoming.
- Devault, James, 1996, "Competitive Need Limits and the U.S. Generalized System of Preference," *Contemporary Economic Policy*, Vol. 14, pp. 58–66.
- European Commission, 2003a, *User's Guide to the European Union's Scheme of Generalised Tariff Preferences*, February 2003, available on the web at <http://europa.eu.int/comm/trade/issues/global/gsp/gspguide.htm>
- , 2003b, *Green Paper on the Future of Rules of Origin in Preferential Trade Arrangements*, Brussels (December), COM(2003) 787 final.
- Francois, Joseph, Bernard Hoekman, and Miriam Manchin, 2005, "Preference Erosion and Multilateral Trade Liberalization," CEPR Discussion Paper No. 5153 (London: Center for Economic Policy Research).
- Francois, Joseph, and Will Martin, 2003, "Formula Approaches for Market Access Negotiations," *World Economy*, Vol. 26, pp. 1–28.
- Hummels, David, 2001, "Toward a Geography of Trade Costs" (unpublished; Indiana: Krannert School of Management).
- MacPhee, Craig, and David I. Rosenbaum, 1989, "The Asymmetric Effects of Reversible Tariff Changes Under the United States GSP," *Southern Economic Journal*, Vol. 56, pp. 105–25.
- Mattoo, Aditya, Devesh Roy, and Arvind Subramanian, 2002, "The Africa Growth and Opportunity Act and Its Rules of Origin: Generosity Undermined," IMF Working Paper No. 02/158 (Washington: International Monetary Fund).

Ozden, Caglar, and Eric Reinhardt, 2003, "The Perversity of Preferences: The Generalized System of Preferences and Developing Country Trade Policies, 1976-2000," World Bank, Policy Research Working Paper Series No. 2955.

Romalis, John, 2005. "NAFTA's and CUSTA's Impact on International Trade;" NBER Working Papers Series No. 11059 (Cambridge, Massachusetts: National Bureau of Economic Research).

Sebastian, Jean, David Laborde and Will Martin, 2005, "Consequences of Alternative Formulas for Agricultural Tariff Cuts," Ch. 4 in (eds.) Kym Anderson and Will Martin, *Agricultural Trade Reform and the Doha Development Agenda*, (Washington: World Bank).

Subramanian, Arvind, 2003, "Financing of Losses from Preference Erosion," paper prepared by IMF staff for the World Trade Organization, WT/TF/COH/14/14, Geneva.

United Nations Conference on Trade and Development (UNCTAD), 2001, *Improving Market Access for Least Developed Countries* (unpublished; New York).

———, 2003, *Trade Preferences for LDCs: An Early Assessment of Benefits and Possible Improvements*, UNCTAD/ITCD/TSB/2003/8, New York and Geneva.

World Trade Organization, 2002, "Market Access: Unfinished Business Post Uruguay Round Inventory and Issues," available on the web at www.wto.org/english/res_e/booksp_e/special_study_6_e.pdf

———, 2003, "Negotiations on Agriculture: First Draft of Modalities for the Further Commitments," Geneva: World Trade Organization, TN/AG/W/1Rev.1. 19, March (The Harbinson Draft).

Yang, Yongzheng, 2005, "Africa in the Doha Round: Dealing with Preference Erosion and Beyond," IMF Policy Discussion Paper No. 05/8 (Washington: International Monetary Fund).