

## What's on the Table? The Doha Round as of August 2009

Matthew Adler, Claire Brunel, Gary Clyde Hufbauer, and Jeffrey J. Schott

### Abstract

The Doha Round is the longest-running trade liberalization negotiation in the postwar era. Despite its longevity, the end is not yet in sight as parties disagree on the depth of liberalization necessary in agriculture and nonagricultural market access (NAMA). This rift is prolonging the Round's completion and hindering the discussion of other important issues on the negotiating agenda, particularly services. To shed light on the debate concerning the benefits from Doha, this paper first estimates, using three metrics, the potential gains from liberalization in agriculture and NAMA resulting from the specific "modalities" set forth in papers drafted by the chairs of the Doha negotiating groups. Next, the study estimates the benefits that could result from sector initiatives in chemicals, electronic/electrical goods, and environmental goods that go beyond the tariff cuts outlined in the negotiating modalities. Finally, prospective gains from liberalization of services barriers and improvements in trade facilitation are also analyzed. Overall, we estimate that the boost to global exports from concluding the Doha Round could range between \$180 billion and \$520 billion annually. Likewise, the potential GDP gains are significant, between \$300 billion and \$700 billion annually, and well balanced between developed and developing countries.

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**Gary Clyde Hufbauer** is the Reginald Jones Senior Fellow at the Peterson Institute for International Economics. **Jeffrey J. Schott** is a senior fellow at the Peterson Institute for International Economics. **Matthew Adler** and **Claire Brunel** are research assistants at the Peterson Institute for International Economics.

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## INTRODUCTION

The Doha Round of multilateral trade negotiations, which began in November 2001, will soon mark its eighth birthday, making it the longest-running negotiation in the postwar era. And the end is not yet in sight. Members of the World Trade Organization (WTO) continue to differ on the depth of liberalization required in the areas of agriculture and nonagricultural market access (NAMA), thus hindering the discussion of other important issues on the negotiating agenda, particularly services. To date, the negotiating groups have elaborated general formulas for cutting tariffs and reducing agricultural subsidies but differ sharply on how countries could limit or exempt certain products from these “formula cuts.” Negotiations on services have barely progressed from the initial offers put on the table years ago, but talks on other issues are well advanced, including the agreement on trade facilitation measures and rules on the transparency of regional trading arrangements (already implemented on a provisional basis).

Doha participants have different assessments on what has been accomplished to date. Some see the glass mostly full, with the formulas providing the backbone of liberalization commitments. Others worry that “flexibilities” to exclude products from formula cuts will turn the backbone into a rubber hose and substantially water down the commercial value of a deal. To some, the prospective deal is significant; to others, the deal seems a close approximation of the status quo and not worth doing.

The Doha Round needs to be completed for two key reasons. The first is to implement the tariff and subsidy reforms embedded in the draft texts developed to date and pocket the gains already substantially agreed to. The second is to ensure the viability of the rules-based multilateral trading system. If multilateral solutions are put on hold, national governments—pressed by their domestic constituencies—will look elsewhere to resolve trade and investment problems, either through unilateral measures or through bilateral and regional trade pacts. Failure in the Doha Round would cause irreparable harm to the WTO’s credibility as a negotiating forum, which would, over time, undermine its valuable dispute settlement mechanism.

A failure scenario is especially worrisome given the frailty of the global recovery from the financial and economic crisis and the possibility that a double dip recession will deliver prolonged high unemployment, resulting in pressures for more protection. Aware of this possibility, leaders of the Group of 8 (G-8) and the Group of 5 (G-5) at the G-8 Summit in July 2009 committed to concluding the Doha Round in 2010, citing a successful Round as one means of reviving the global economy.<sup>1</sup> A few weeks later, member countries of the Asia Pacific Economic Cooperation (APEC) forum also pledged to complete the Round by that deadline.<sup>2</sup>

The key to completing the Doha Round is to achieve meaningful cuts in trade barriers in

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1. G-8 Summit, 2009, “Promoting the Global Agenda,” available at [www.g8italia2009.it](http://www.g8italia2009.it) (accessed on July 24, 2009).

2. “APEC Ministers Push to Wrap Up Doha 2010 Talks,” Agence France Presse, July 21, 2009.

agriculture, NAMA, and services and to restrain recourse by major trading nations—developed or developing—to the ample “flexibilities” allowed by the modalities. In other words, what counts is what the major trading countries agree to in their schedules on specific products and sectors in goods and services. Who are these countries? Overall, we consider participants in the G-20 summit process to have self-selected themselves for this leadership role in the Doha Round.

To shed light on the debate concerning the benefits from Doha, we first estimate the potential gains from the liberalization in agriculture and NAMA resulting from the specific terms of modalities in papers drafted by the chairs of the Doha negotiating groups. We calculate the gains from formula cuts in trade barriers using three metrics:

- **Reciprocity measure:** This metric calculates the change in revenue from tariff cuts in agriculture and NAMA and the revenue equivalent of concessions on nontariff barriers (NTBs), namely agricultural tariff quotas, domestic support, and export subsidies. Using this metric, concessions received are expressed in terms of tariffs and tariff equivalent costs *not* paid by exporting countries. Concessions given are expressed in terms of tariffs and tariff-equivalent barriers *forgone* by importing countries.
- **Trade gains:** This metric indicates the increased trade that results from the tariff cuts and tariff equivalent of concessions on NTBs calculated in the *reciprocity measure*. Trade gains are separately stated for exports and imports.
- **GDP gains:** This metric builds on the calculated *trade gains* by applying a GDP coefficient to increased exports and imports. It is important to remember that large exports and imports *both* contribute to higher GDP through lower consumer prices, more variety, greater productivity, and improved allocation of resources (Bradford, Grieco, and Hufbauer 2005).

We clearly indicate the three metrics in the section headings and italicize them throughout the text.

Next, we estimate the benefits that could result from sector initiatives in chemicals, information technology (IT) goods, and environmental goods that go beyond the liberalization that would result from the formula tariff cuts. We also calculate prospective gains from a 10 percent reduction by major trading nations in barriers to their imports of services. The 10 percent benchmark, which is arbitrary but optimistic, would yield large gains for both developed and developing countries. Finally, we estimate the benefits from enhanced trade facilitation measures, drawing on prior analyses by John Wilson, Catherine Mann, and Tsunehiro Otsuki (2005). In each of these sections, we calculate both *trade gains* and *GDP gains*.

Throughout the study, we consider that both exports *and* imports deliver *trade gains*. Politicians and unions often take a mercantilist approach to trade: Exports are good and imports are bad. However, imports can result in large gains for the buying nation as well. Imports benefit consumers in three

ways: They deliver lower prices, better quality, and greater variety. Consumers are not just individuals; industries are consumers as well, and they benefit from imports in the same ways. For example, greater variety allows industrial firms to “right size” their purchased inputs. Moreover, domestic firms learn from import competition: Often they boost their own productivity and improve the quality of their product lines. Leading exporting firms are often big importers.

Table 1 summarizes the *trade gains* we have calculated for the 22 countries in our sample. These countries account for about three-quarters of world merchandise trade and 88 percent of global GDP. Total gains from what is “on the table” in agriculture and NAMA would be an increase in exports of \$54 billion among the sample countries. Trade between these 22 countries (exports of the 22 countries to the sample) would increase by another \$40 billion from a 10 percent liberalization of services barriers and by a further \$50 billion from the three sector initiatives. In turn, the trade growth in table 1 (exports *and* imports) would yield *GDP gains* for the 22 countries of \$100 billion due to the modalities currently on the table in agriculture and NAMA (table 2). Bold new initiatives on liberalizing services and freeing trade in selective sectors would further increase GDP by an additional \$100 billion each. Improvements in trade facilitation could yield additional *GDP gains* of \$385 billion, if governments engage in wide-ranging policy and administrative reforms.

In sum, the Doha deal “on the table” would boost *global* GDP by \$114 billion; if modestly “topped up” with additional liberalization in services and manufactures, the value of the Doha package triples to \$341 billion.<sup>3</sup>

The United States would reap small trade gains in agriculture and NAMA (export and import gains of \$6 billion and \$14.3 billion, respectively). This result is not surprising since the United States already has free trade agreements or low barriers with many of the other 21 countries and explains why the deal on modalities has not attracted active support by US pro-trade constituencies. To acquire that support, the deal should be supplemented, particularly in services, which could add \$10.8 billion and \$3.5 billion, respectively, in export and import gains. In addition, “topping up” NAMA in several sectors could yield further gains (\$6.1 billion and \$5.5 billion, respectively, in exports and imports). Combined, we estimate US export gains of \$22.9 billion and US import gains of \$23.3 billion from a Doha deal with modest “top-ups.” The resulting *GDP gains* would be \$38.7 billion.

The European Union stands to gain more from agriculture and NAMA reforms because its current barriers are higher. The formula cuts produce EU export and import gains of \$9.2 billion and \$26.3 billion, respectively, generating *GDP gains* of \$35 billion—the largest gains incurred by any

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3. These numbers were calculated scaling up the GDP gains of the 22 countries. Since GDP gains for the 22 countries in agriculture and NAMA are \$100 billion, and these 22 countries account for 88 percent of global GDP, we estimate that global GDP gains will be  $(\$100 \text{ billion}/88)*100 = \$114 \text{ billion}$ .

of the six major trading nations. EU *trade gains* from services reform (\$10.8 billion and \$5.2 billion, respectively, in exports and imports) and from NAMA top-ups (\$10.4 billion and \$4.7 billion) are roughly comparable to the US results and would yield an additional \$15 billion in *GDP gains* each. It is interesting to note that the European Union would be one of the main beneficiaries of a sector agreement in environmental goods.

Japanese trade gains are most notable in NAMA, where exports will increase by \$6.7 billion and imports by \$2.5 billion, and in services, with exports increasing by \$2.7 billion and imports by \$3.5 billion. In the three “top-up” sectors, Japan has barely any import gains, but gains can be significant on the export side, notably a \$6.5 billion increase in electronics and electrical goods. The total *GDP gains* for Japan are smaller than those of the European Union and the United States in absolute numbers, but in relative terms, Japan is in line with the two other major nations (0.18 percent of GDP for formula tariff cuts, 0.09 percent for services, and 0.14 percent for NAMA “top-ups”).

As a result of liberalization undertaken in its WTO accession process, China has low tariff barriers in NAMA relative to other developing countries. Because its applied rates are already low, China could afford to cut them further without significantly changing its competitive position. China’s agriculture and NAMA *trade gains* are concentrated on the export side, with gains of \$14.3 billion, about twice as large as its import gains. Conversely, its gains from services reform are predominantly on the import side (\$14.3 billion in imports versus \$3.7 billion in exports). NAMA top-ups would yield greater balance between China’s export and import gains, if additional reforms are made in the electronic and electrical goods sectors. Combined, liberalization of goods and services would boost Chinese GDP by more than \$60 billion.

India’s *trade gains* from both the formula cuts and Doha top-ups are much more muted, with the notable exception of import gains on services (\$10.5 billion). Liberalization of services would generate an increase of more than \$22 billion (or 2 percent) to Indian GDP and account for about two-thirds of India’s *GDP gains* from an expanded Doha accord.

Brazil’s *trade gains* are most prominent in exports of agriculture (\$2 billion) and imports of services (\$2.8 billion) and electronics and electrical goods (\$3.9 billion). Formula cuts would boost Brazilian GDP by about \$9 billion; services reforms would yield benefits of a similar magnitude. Including NAMA top-ups, Brazil could see a GDP increase of more than \$33 billion (about 2.5 percent of GDP).

WTO members expect that the final deal should provide relatively larger benefits for developing countries if Doha is to meet its goal of being a “development round.” Overall, we find this to be the case.

In absolute numbers, *trade gains* in agriculture are larger for developed countries (\$7.6 billion and \$19.2 billion in exports and imports, respectively) than for developing countries (\$6.4 billion and \$1.4 billion). In NAMA, gains for the two country groups are of similar magnitude, but developing

countries gain more on the export side (\$22.8 billion for exports versus \$16.1 billion for imports), whereas developed countries gain more in imports (\$29.5 billion in imports versus \$17.6 billion in exports). Still, *GDP gains* from agriculture and NAMA formula cuts for developing countries amount to 0.30 percent of GDP (\$31 billion), almost double the percentage increase for developed countries (0.18 percent, \$68 billion).

In services, in a 10 percent liberalization scenario, the *trade gains* for developing countries are higher than for developed countries both in exports (\$27.9 billion and \$15 billion for developing and developed, respectively) and in imports (\$40.9 billion and \$14.8 billion, respectively). *GDP gains* for developing countries reach \$66 billion (0.66 percent of GDP) compared with \$34 billion for developed countries (0.09 percent of GDP).

In the three NAMA top-ups, the additional increase in trade from sector tariff cuts above the NAMA formula cuts is roughly equal for developing and developed countries on the export side, but developing countries gain more in imports. *GDP gains*, when all three sectors are liberalized, total \$71 billion for developing countries (0.69 percent) and \$32 billion for developed countries (0.08 percent).

As for trade facilitation (where the numbers are less rigorous), *trade gains* for developed countries exceed those for developing countries, both in exports and imports. However, this result is biased by the methodology,<sup>4</sup> and in percentage terms *GDP gains* for developing countries are greater. Developing countries might expect *GDP gains* of 1.48 percent (\$153 billion), while the GDP increase for developed countries might reach 0.61 percent (\$232 billion).

We suspect that table 1 and the numbers discussed throughout this introduction will prove disconcerting to many readers: For the 22 countries, import gains across the board are larger than export gains! This, however, is no cause for alarm; the disparity between import and export gains is created by our data methods—not by poor bargaining on the part of our sample countries. We only cover tariff data on imports by the 22 sample countries. This means, for example, that we cover imports by the United States (a sample country) from, say, Vietnam (not a sample country), but we do not include exports by the United States to Vietnam. Therefore, import gains are routinely larger than export gains. Throughout the rest of this paper we rely on these unbalanced calculations because they are the most accurate that our data methods can generate. In table 3, however, we display a modified version of table 1 with *rough* calculations of exports to the world by the 22 countries. When this rough adjustment is made, import and export gains for the 22 countries are far more equal.

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4. We use a conservative method that applied the OECD coefficient of increased trade due to trade facilitation improvements to all countries in the sample, including developing countries. The OECD coefficient, however, is lower than the estimated coefficient for developing countries.

Overall, we find the prospective results from what has already been done in the Doha Round to be significant but not sufficient to marshal the requisite political support to close the deal and ensure its ratification by member countries. We conclude that the “potential” exists for a good outcome in the Doha Round based on conservative assumptions as to how the major trading nations will use “flexibilities” in crafting their schedules of national commitments. In the text that follows, we summarize the potential aggregate gains and the resulting scorecard for five key players: the United States, the European Union, Brazil, India, and China.

This working paper does not include an assessment of prospective results from the negotiating group on rules. Some of this work has already been implemented on a provisional basis (regarding regional trading arrangements). Disciplines on fish subsidies remain a work in progress and should add to the value of the overall package. With respect to antidumping procedures, we believe that the negotiations will leave intact nearly all current practices and rulings by the Appellate Body.

## **AGRICULTURE AND NONAGRICULTURAL MARKET ACCESS (NAMA)**

### **Data and Methodology**

Our dataset, provided by the WTO, covers 22 countries, 7 developed and 15 developing.<sup>5</sup> In 2008 these countries accounted for 73 percent of world exports and 76 percent of world imports. Fourteen of the countries are G-20 summit participants.<sup>6</sup> These 14 account for 91 percent of G-20 exports to the world and 96 percent of G-20 imports from the world (table 4).

The dataset contains, for each of these countries, the bound, most favored nation (MFN) applied, and, where applicable, preferential duty rates in 2006 for all tariff lines of traded goods at the 2-digit level of the HS code.<sup>7</sup> Our methodology is detailed in appendix B. The tables give weighted averages of bound and applied tariff rates. However, trade-weighted averages miss an important reform contemplated in the Doha Round—namely downward harmonization of rates. Sharp reductions in tariff peaks are masked by aggregate numbers on bound or applied tariff rate cuts, but the reduction of peaks is especially important in agriculture. That is why negotiators worry about “special” and “sensitive” products, categories that encompass goods with peak tariffs that importing countries are very reluctant to cut.

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5. The 7 developed countries are: Australia, Canada, the European Union, Japan, Norway, Switzerland, and the United States. The 15 developing nations are: Argentina, Brazil, China, Colombia, India, Indonesia, the Republic of Korea, Malaysia, Mexico, Pakistan, the Philippines, South Africa, Taiwan, Thailand, and Turkey.

6. The countries in our sample that are also part of the G-20 are: Argentina, Australia, Brazil, Canada, China, the European Union, India, Indonesia, Japan, the Republic of Korea, Mexico, South Africa, Turkey, and the United States. The G-20 summit members should not be confused with the G-20 developing-country caucus that was created just prior to the Cancun WTO ministerial in 2003 and coordinates the agricultural trade positions of its members in Doha Round talks.

7. HS stands for the Harmonized Commodity Description and Coding System. The level of detail goes to 8 digits and for some countries to 10 digits.

## Results for Agriculture

The agricultural negotiations seek to eliminate export subsidies, sharply reduce tariffs and domestic farm subsidies, and expand tariff quotas. In this paper, we do not go into the details of the commitments for each product line but rather summarize the overall gains in agriculture for selected countries.

Table 5 shows the trade-weighted average bound and applied tariff rates, both pre- and post-Doha, for the sample group of all 22 countries and for 6 major trading nations that we will discuss in more detail: Brazil, China, India, the European Union, Japan, and the United States. For the group of all 22 countries, bound rates will be decreased from 25 to 18.2 percent. The US average pre-Doha bound rate is quite low, 3 percent, and will be reduced to 1.6 percent. The European Union has a higher average pre-Doha bound rate, 7.8 percent, but commits to a cut of almost half, bringing the post-Doha bound rate down to 4.2 percent. Among the leading developed countries, Japan has the highest average pre-Doha bound rate, 10.7 percent, which will be cut to 4.5 percent, a level similar to the EU post-Doha bound rate.

The largest cuts in percentage point terms come from the three developing countries. India has a particularly high average pre-Doha bound rate (167 percent), which will be reduced by 36.6 percentage points to 130.4 percent. This is by far the largest cut in average bound rates, but the post-Doha average is still remarkably high. Brazil commits to cut its average bound rate by 9.6 percentage points, from an initial level of 40.6 percent to a new level of 31 percent. These large cuts in bound rates for developing countries reflect high pre-Doha bound rates in agriculture and show the workings of the Swiss formula for cutting tariffs.<sup>8</sup>

Tables A1 and A2 in appendix A show details of the pre- and post-Doha bound rates and the cuts in percentage points, respectively, for bilateral trade between selected country groups and individual countries. Particularly steep reductions can be observed in the rates applied to imports of agricultural goods by most developing countries from least developed countries (LDCs) and from China.

Cuts in bound rates may not create new opportunities for trade because the new bound rates are still higher than the old applied rates. However, bound rates are important because they lock in liberalization and provide insurance against large doses of new protection in the future via increases in applied rates. Although this gain is not quantifiable, it is an important benefit of the Doha Round.

As a result of substantial unilateral liberalization over the past two decades, many developing countries impose tariffs at levels well below their WTO bound rates. Those countries have the right to raise such tariffs at any time without violating their obligations to other WTO members, and they value that flexibility. In effect, countries that apply tariffs below their bound rates can have recourse to a “free

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8. As detailed in appendix A, the Swiss formula applies larger percentage point cuts to high initial tariffs and smaller cuts to low initial tariffs.

safeguard,” i.e., a WTO-legal tariff increase equal to (or less than) the difference between the bound and applied rates. When the bound rate comes closer to (or even equal to) the applied rate, that reduces the scope of the “free safeguard” and gives greater policy security to the country’s trading partners.

Column 3 of table 5 shows the pre-Doha applied rates (again, trade-weighted averages). As noted above, applied rates are often well below WTO bound rates because of unilateral liberalization. The difference between bound and applied rates, in percentage points, measures the “water” in the tariff schedule. Brazil and India have particularly high water levels. In fact, water levels are usually quite high in agriculture for developing countries (see table A3 of appendix A for detail). China is an exception as it recently acceded to the WTO and generally bound its tariffs at or close to the levels negotiated in its bilateral protocols.<sup>9</sup>

Table A4 in appendix A presents the trade-weighted average applied tariff rates for the 22 countries in the sample for 2001, 2006, and post-Doha. Between the beginning of the Doha negotiations in November 2001 and the end of 2006, some countries engaged in unilateral liberalization and reduced their applied MFN rates, sometimes substantially. China, for example, lowered its trade-weighted average applied MFN rates on agriculture from 49 to 16 percent. Korea and Mexico also significantly decreased their trade-weighted average applied MFN rates on agriculture, from 79 to 14 percent and from 34 to 24 percent, respectively. In other words, key emerging countries have been liberalizing farm trade throughout the Doha Round talks. In fact, for some of those countries, the additional reduction from Doha commitments would be marginal compared with the unilateral liberalization they have already implemented over the past few years. A few countries, by contrast, raised their average trade-weighted applied MFN tariff rates in agriculture between 2001 and 2006 (e.g., Malaysia, Pakistan, and India).

We see no reason why countries that have unilaterally reduced tariffs should not receive credit in WTO negotiations if they accept a legal obligation to maintain or “lock-in” the reforms. In other words, a country should be able to claim a negotiating credit for any increase in imports that is reasonably attributable to its unilateral liberalization. Indeed, we proposed such a process at the start of the Uruguay Round! For example, a country that liberalized imports of a product category, and experienced a rise in imports in that category of \$500 million that can be reasonably attributed to the lower tariff, should be able to claim concessions of an equivalent amount in WTO negotiations (Hufbauer and Schott 1985).

Column 4 of table 5 shows prospective post-Doha applied rates. Applied rates are cut only when the pre-Doha applied rate of a specific tariff line exceeds the post-Doha bound rate for that tariff line. For the

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9. According to the July 2008 package on agriculture, recently acceded members (RAMs) will be granted additional time to implement their Doha commitments if those overlap with commitments to be undertaken according to the accession process. Very recently acceded countries, namely Macedonia, Saudi Arabia, Tonga, Vietnam, and Ukraine, and small low-income RAMs, namely Albania, Armenia, Georgia, Kyrgyzstan, Moldova, and Mongolia, will be exempt from tariff reductions beyond their accession commitments.

group of 22 countries, the average trade-weighted applied rate will be reduced from 7.6 to 5.3 percent. Japanese and EU applied rates in agriculture are high for developed countries, and their commitments for reducing applied rates in agriculture are significant (this is the case for imports from both developed and developing countries—see table A5 in appendix A). India will undergo much higher cuts in applied tariffs on agricultural imports than China or Brazil, because current Indian applied tariffs are much higher.

As for the United States, while US negotiators argue that the Doha Round must achieve “real market access,” meaning significant cuts in foreign applied tariffs and subsidies, in fact the United States has committed to very little reduction in its own applied rates on agricultural imports. At present, the United States would reduce its weighted average applied rate by just 0.6 percentage points in agricultural goods, which is comparable with the commitments of major developing countries such as Brazil and China. On the other hand, India would reduce its applied rates on agricultural imports by 4.5 percentage points. However, US peak tariffs would be cut substantially due to the harmonizing effect of the formula cuts. Moreover, the United States and the European Union also contribute large cuts in agricultural subsidies (discussed below).

The United States subsidizes its farmers who grow “field crops” (soybeans, wheat, corn, and cotton) and certain other products. The subsidies fall in two categories. The first covers payments to farmers, which can be either direct payments decoupled from production and price or payments that compensate for adverse price movements. The second category covers price support programs (mostly for dairy and sugar). When the relevant price falls below a certain level, the US Department of Agriculture buys excess production to bolster the price.

The US proposal in July 2008 offered to bring the ceiling for its overall trade-distorting domestic support (OTDS) from \$48 billion to \$15 billion.<sup>10</sup> Developing countries argued that the offer was insufficient since actual disbursements of subsidies are already well below \$15 billion owing to the general rise in commodity prices over recent years. However, the US proposal would constrain an increase in subsidies when prices fall. The proposal as it stands, or anything more stringent, will require significant changes in some US farm programs currently in force.<sup>11</sup> But since the greatest concessions are usually back-end loaded—i.e., implemented after a lengthy transition period—the current US farm bill would not have to be changed. Instead, in writing the next farm bill in 2012–2013, Congress would need to restructure US programs so that they remain consistent with the new WTO obligations.

Table A6 summarizes the prospective cuts in applied rates in percentage point terms. Neither developed- nor developing-country importers will appreciably decrease tariffs on LDC agricultural exports. Rates on LDC exports are already low across the board, except in a few developing-country

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10. In October 2005, the United States had proposed decreasing the OTDS ceiling from \$48 billion to \$22 billion.

11. Kimberly Ann Elliott, “Last Gasp for Doha,” CGD Global Development: Views from the Center, Center for Global Development, July 25, 2008.

importers such as Brazil and India. China's current applied rates are similar to those of Japan (9.6 and 10.4 percent, respectively), but China committed to Doha reductions that are much smaller, less than 1 percentage point compared with Japan's 6 percentage points.

Table 6 shows the bound and applied rates in agriculture, pre- and post-Doha, imposed by Brazil, China, and India on the imports of the 15 developing countries in the sample. Again, Indian bound and applied rates stand out as extremely high, and Indian bound rates undergo large cuts. Brazil has particularly low applied rates on agricultural imports from the 15 developing countries. This is in part explained by the presence of Argentina in the group of 15 developing countries. Argentina accounts for a large proportion of Brazilian agricultural imports from the group, and much of trade between Argentina and Brazil is already duty-free under the Mercosur (Southern Common Market).<sup>12</sup>

The final design of Doha "modalities" could affect which products are covered by prospective tariff cuts. One important example is the proposed Special Safeguard Mechanism (SSM), which allows developing countries flexibility to protect their rural communities by raising temporary tariffs on agricultural imports. According to one proposal, the SSM should cover all agricultural products imported by developing countries, with a single set of triggers, but differentiate between four country groups (developing, recently acceded, small and vulnerable, and least developed), and with a gradual phase-out.<sup>13</sup>

### *Reciprocity Measure*

Leaving aside these important design details, in the following tables, we try to determine the gains from the concessions already outlined, using a method called *reciprocity measure*. We first calculate the change in revenue from tariff cuts in agriculture and the revenue equivalent of concessions on tariff quotas, domestic support, and export subsidies. We then multiply tariff equivalents for all concessions by 2006 trade flows to "size up" the impact on the *reciprocity measure*. The general idea is that every billion dollars of *reciprocity measure* concessions have approximately the same impact on trade flows (see appendix B for more details). Table 7 summarizes the total *reciprocity measure* gains given and received by each country, in billions of dollars, distinguishing for agriculture between tariff cuts and concessions on nontariff barriers (NTBs), namely export subsidies, domestic support, and tariff rate quotas. Concessions given are tariff and tariff-equivalent revenues forgone on imports. Concessions received are reduced tariffs or tariff equivalents on exports.

These calculations suggest that 44 percent of developed-country *reciprocity measure* concessions (in both agriculture and NAMA) arise in the agricultural sector (both tariff cuts and other concessions). On

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12. However, there are notable exceptions to duty-free trade in Mercosur, and several of them are in agriculture.

13. Gary Hufbauer and Matthew Adler, "The Special Safeguard Mechanism: Possible Solutions to the Impasse," note prepared for the World Bank and presented in Geneva, October 28, 2008.

the other hand, only 9 percent of developing-country concessions are made in agriculture. Looking at the country breakdown for the major developed economies, roughly half of EU and Japanese concessions, but only 10 percent of US concessions, come from agriculture. Interestingly, however, the majority of US *reciprocity measure gains* received come from agriculture. For developing countries, Brazil and China concede little in agriculture, in terms of both the *reciprocity measure* value in dollars and the percent of total concessions. Indian concessions in agriculture represent 30 percent of total Indian concessions, but the *reciprocity measure* value is small, only \$200 million.

Table 7 shows that, in agriculture, apart from the European Union, all of the other major trading nations receive more gains from the liberalization of NTBs than from lower tariff rates, in *reciprocity measure* terms. The United States is the largest beneficiary of NTB liberalization in *reciprocity measure* terms (\$2.4 billion), followed by Brazil (\$1.6 billion). The European Union receives less than \$1 billion in NTB cuts but gains \$1.2 billion in tariff cuts, the largest gains of all six major trading nations.

In *reciprocity measure* terms, for concessions given from tariff cuts in agriculture, EU and Japanese concessions are significantly higher than others (more than \$2 billion compared with less than \$0.5 billion for the others). EU concessions in NTBs also dwarf those of the other five countries (over \$12 billion for the European Union, compared with \$1 billion or less for each of the others). Tables A7 through A9 in appendix A show that EU concessions are large in all three categories of NTBs: tariff rate quotas, export subsidies, and domestic support. However, the magnitude of the figures is biased by the methodology. To calculate the tariff rate equivalents of these concessions, the method uses outlays notified to the WTO over the last three years for which data are available, which, in the case of the European Union, were high. EU concessions are thus calculated on the basis of high outlay levels, which creates an upward bias in calculated concessions given. The European Union also has high trade flows in the products it subsidizes, another factor that contributes to a calculation of high concessions. Finally, after calculating the concessions in domestic support based on the modalities, the method checks to ensure that the total does not exceed the agreed OTDS limit. In the case of the European Union, the new total subsidies often exceeded the OTDS and needed to be cut further.

US agricultural concessions are larger in NTBs than in tariffs, in *reciprocity measure* terms. Nonetheless, US NTB concessions are still low (\$1 billion). This can be partly explained by the methodology. Due to high commodity prices in the past few years, US outlays to farmers have been limited. Concessions are calculated from a low base since they are calculated using the last three years of notified outlays.

The draft modalities propose the abolition of all export subsidies in agriculture. Aside from the European Union, the effects of eliminating export subsidies are limited (table A8 in appendix A). However, as previously discussed, despite the low impact of this measure, the lock-in effect is not negligible, and its advantages are especially evident in times of crisis.

Table A10 in appendix A gives a breakdown of the gains by partner. The *reciprocity measure gain* for US exports to the 22 countries in the sample is over \$3 billion. For the most part, that gain comes from concessions by the European Union (almost \$2 billion). In addition, the United States will gain \$1.4 billion on the import side. *Reciprocity measure* gains for Brazilian exports are over \$2 billion. Once again, the majority of the gains come from concessions by the European Union.

In terms of the shares of agricultural concessions, our calculations show that 93 percent will come from developed countries, while only 7 percent will originate from developing countries (table 8). Therefore, developed countries will do the heavy lifting. The distribution of the *reciprocity measure* gains is the opposite. Forty-eight percent of the gains in agriculture accrue to the developing countries in the sample and 37 percent to the developed countries in the sample.<sup>14</sup> Brazil, despite conceding roughly nothing in agriculture, receives 9 percent of the gains, meaning its exports will benefit from lower tariffs and NTBs in partner countries. Brazil benefits from the liberalization of others while keeping its own barriers up.

The breakdown by country shows that, among developed economies, the European Union makes the most total concessions, followed by the United States, and then Japan. EU concessions are particularly important in agriculture, which reflects the fact that the European Union has long maintained high tariffs in agriculture, its most sensitive sector. Despite a large share of concessions in agriculture (64 percent), the European Union does not capture a large portion of *reciprocity measure* gains (only 8 percent).

The United States, which makes 6 percent of total agricultural concessions, will receive 14 percent of total agricultural gains, in *reciprocity measure* terms. These figures include export subsidies, domestic support, and tariff quota expansions. As discussed above, US agricultural tariffs are low, but US domestic subsidies are high. Developing countries are particularly intent on obtaining US commitments to reduce those subsidies, but they have yet to achieve their goal. Farm support is a highly sensitive issue for the United States, and only large concessions in NAMA or services will generate the necessary political support in Congress to enact significant cuts in farm support.

### **Trade Gains**

Table 9 calculates the increase in trade owing to tariff cuts in agriculture, using the elasticity of trade to tariff cuts calculated in table A11 in appendix A. In other words, table 9 reflects the *trade gains* in agriculture that will result from reducing applied tariff rates by the amounts shown in table A6 in appendix A. Table 9 also calculates the increase in trade generated by cuts in tariff quotas, domestic support, or export subsidies, based on the tariff equivalents produced in the *reciprocity measure*.

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14. The remaining 15 percent of gains accrue to the rest of the world, since those countries also benefit from liberalization by the 22 countries in the sample.

Table A12 in appendix A gives bilateral detail of trade gains from tariff cuts and concessions in NTBs. The total increase in agricultural exports of the 22 countries in the sample to the other 21 countries is estimated at \$14 billion, 5.2 percent of 2006 agricultural exports. The majority of *trade gains* within the sample (exports of the 22 countries to the rest of the sample), an increase of 3.3 percent, is due to NTB concessions, and the remaining 2 percent is due to tariff cuts. Gains in agricultural exports to the group of 22 countries (not the world) due to tariff cuts amount to roughly 2.5 percent of exports each for the European Union, Japan, Brazil, and China.<sup>15</sup> The comparable figures for the United States and India are 1.3 and 1.1 percent, respectively.

Export gains from NTB concessions are more significant, except in the case of EU exports, which gain only 1.2 percent. Overall, EU agricultural exports to the other 21 countries will be boosted by around 4 percent, notably to Japan and India. Japanese exports will experience the sharpest rise from NTB concessions, 25 percent, but this represents an absolute increase in total agricultural exports for Japan of less than \$1 billion. The growth numbers for Japanese agricultural exports are very large but the absolute number is small because Japanese agricultural exports are low.

US exports of agricultural products due to NTB concessions will increase by roughly 4 percent to the group of 22 countries. Brazil will also benefit significantly from NTB concessions, with exports rising by 6 percent. In total, US agricultural exports will grow by around 5 percent. US exports to the European Union will witness the largest growth, 28 percent total, including almost 26 percent due to EU NTB concessions. US exports to India will notably increase by 6 percent.

The total increase in agricultural imports of the 22 countries of the sample from the world is \$20 billion, 6.2 percent of 2006 agricultural imports. EU concessions in NTBs will lead to an increase in EU agricultural imports of 16 percent. Cuts in EU agricultural tariffs will increase EU imports by an additional 2.7 percent. This large increase in EU imports from the world (nearly 19 percent) can be explained by high pre-Doha EU levels of protections, which kept imports low, and by large EU concessions in NTBs. EU NTB concessions will notably increase imports from India by almost 11 percent.

Japanese agricultural imports from the world will increase by 5.7 percent, mostly due to cuts in tariffs (4.7 percent) rather than in NTBs (1 percent). Japan will see greater import increases from the European Union, the United States, Brazil, and China.

The United States will experience a smaller increase in agricultural imports, 2.3 percent, with a majority (1.6 percent) because of concessions in NTBs. US agricultural imports will grow particularly from developing countries, a 4.3 percent increase from Brazil, 4.4 percent from China, and 2.9 percent

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15. Note that the calculations are not symmetrical: While import numbers have been calculated for imports from the world, the data did not allow us to calculate exports to the world, so the table reports exports to the group of 22 countries in the sample.

from India. Brazil, China, and India will see small import increases due to tariff cuts, below \$0.2 billion for each country, though this represents a significant percentage increase in agricultural imports for India (3.5 percent from the world, as much as 6 percent from developed countries, and almost 10 percent from Brazil), all from a low base.

## Results for NAMA

Nonagricultural market access (NAMA) products account for around 90 percent of world exports. They are the “big boy” in world merchandise trade.

Table 10 shows the pre- and post-Doha bound tariff rates (trade-weighted averages) in NAMA for the entire group of 22 countries and the 6 major trading nations. The group of 22 countries will cut its average bound rate from 8.6 to 3.7 percent. The United States and Japan have higher average levels of bound rates than the European Union. After the Swiss formula is applied, however, all three countries will have roughly similar average bound rates.

Among the developing countries, China commits to small cuts in its average NAMA bound tariffs because, as a recently acceded country to the WTO, China has significantly reduced its bound rates over the past few years. In fact, while the pre-Doha bound rate for China is only 4.1 percent, the comparable figures for Brazil and India are 30.3 and 30.4 percent, respectively. Brazil and India stand out for making substantial concessions in their average NAMA bound tariffs, reductions of roughly 18 percentage points each. These are evenly spread out between different trading partners (see tables A1 and A2 of appendix A for a breakdown by partner).

Tables A1 and A2 present bilateral detail of pre- and post-Doha bound rates, with the cuts in bound rates expressed in percentage points. Both the United States and Japan will make important reductions to their bound rates on NAMA imports from LDCs.

Column 3 of table 10 provides the weighted average of pre-Doha applied duties for NAMA goods. Applied rates in NAMA are cut according to the methodology in appendix B only if the current applied rate is higher than the post-Doha bound rate. The “water level” in NAMA is much lower than in agriculture (see table A3). Only Brazil and India maintain high water levels.

As in agriculture, applied rates are lower than bound rates because of unilateral trade liberalization in NAMA goods since 2001. In fact, table A4 shows that all of the 15 developing countries in the sample decreased their NAMA MFN rates between 2001 and 2006. Some countries that undertook particularly steep liberalization include India, whose MFN rate dropped from 21 to 8 percent, Pakistan from 20.9 to 12.8 percent, Taiwan from 3.5 to 1.6 percent, and China from 11.2 to 3.6 percent. Compared with other developing countries, China has relatively low tariff barriers to world NAMA imports (3.5 percent as a weighted average, table A5), as a result of the liberalization undertaken when it acceded

to the WTO in late 2001. Because its applied rates are already low, China could afford to cut its existing rates even further without significantly changing its competitive situation.

Column 4 of table 10 shows the post-Doha applied rates. On average, the group of 22 countries reduces its applied rate from 2.4 to 1.8 percent. The applied rates of each of the 6 major trading nations on NAMA imports are significantly lower than on agricultural imports. However, despite low trade-weighted averages, relatively high tariff peaks still persist on some tariff lines. The United States, the European Union, and Japan arrive at similar levels of applied rates after the cuts (0.7, 0.8, and 0.5 percent, respectively). Developing countries start at higher applied rates, but on a percentage point basis, all 6 major trading nations commit to comparable cuts in NAMA applied rates, with Brazil slightly ahead.

Table A6 in appendix A presents the cuts in applied rates broken down by partner. US NAMA exports will benefit from larger tariff cuts by Brazil and China. The United States will cut tariffs on NAMA imports from LDCs by 3 percentage points, much higher than on any other import category. China and Brazil, and to a lesser extent India, will cut tariffs on NAMA imports from the European Union, United States, and Japan more than on other imports.

Looking at South-South trade, the progress in lowering NAMA applied rates by Brazil, China, and India on imports from the 15 developing countries is quite small (table 11). The lack of progress on liberalizing South-South trade remains a major obstacle to achieving the goals of a development round.

### **Reciprocity Measure**

The *reciprocity measure* gains from liberalization of NAMA are calculated in table 7, and the breakdown by trading partner is shown in table A10 in appendix A. In terms of concessions given, China and Brazil stand out in NAMA, compared with their concessions in agriculture. In terms of concessions received, China will be by far the main beneficiary of NAMA liberalization (over \$12 billion in *reciprocity measure* terms, so \$12 billion less of tariffs to pay, or 29 percent of gains). The European Union and Japan will also reap significant gains (around \$7 billion and \$6 billion in *reciprocity measure* terms, or 17 and 15 percent, respectively). The United States reaps about 6 percent of NAMA gains, in *reciprocity measure* terms. The modest figure for the United States reflects the fact that several countries covered in the sample already have free trade agreements with the United States—namely, Australia, Canada, and Mexico.<sup>16</sup> Table A10 shows that developing countries will see the greatest *reciprocity measure gains* from the European Union and the United States, with China capturing more than \$4 billion from each.

As can be seen in table 8, it is in NAMA that developing countries account for the highest share of

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16. The European Union had agreements with Norway and Switzerland through the European Free Trade Association (EFTA) and with Mexico, Turkey, and South Africa, but the latter three are small trading partners of the European Union.

concessions (36 percent) and capture the highest share of gains (57 percent), in *reciprocity measure* terms. All three key emerging markets studied—China, India, and Brazil—make larger concessions in NAMA than in agriculture, although the numbers are roughly equal for India. India captures higher gains in NAMA than in agriculture.

### Trade Gains

NAMA *trade gains* for the group of 22 countries will be an increase in trade flows among the group (exports from the 22 to the rest of the group) of \$40 billion. Despite contributing only one-third of concessions, developing countries see an increase in NAMA imports equal to that of the developed countries, 0.7 percent (table 9 and appendix table A12). The increased exports by developing countries are mostly to the European Union and Japan. US export gains are small, but again, the United States has already liberalized trade with important countries in the sample. We estimate that LDCs will see a 3 percent increase in NAMA exports to the United States. Chinese NAMA exports will see sizeable increases to the European Union, Japan, the United States, and Brazil. Indian NAMA exports will grow by roughly 3 percent to the European Union and by 2 percent to the United States. The European Union, Japan, and the United States will all see significant increases in their exports to Brazil and China.

The statistical analysis in this paper does not cover NTBs in NAMA. Progress in cutting NTBs on NAMA goods will emerge largely out of the sector discussions. This is the main open issue in NAMA. Sector agreements would provide deeper cuts and reforms of NTBs, on a comprehensive or partial basis. At the Hong Kong ministerial in December 2005, the parties suggested that participation in sector agreements would be voluntary. Fourteen sectors are being considered for sector agreements.<sup>17</sup> In later sections of this paper, we analyze two of those sectors where progress would yield sizeable benefits: chemicals and electronic products. In addition, we study the environmental goods sector, which is being discussed in the negotiating group on rules and where topping up NAMA liberalization could also produce large gains.

### GDP Gains

Table 12 estimates the GDP impact of the trade gains. The calculations in table 12 are based on the trade gains in table 9 for agricultural tariff cuts, agricultural NTB concessions, and NAMA formula tariff cuts. Both imports and exports raise a country's GDP through a variety of channels, and so far as econometric evidence indicates, the positive impact of large imports is about the same as the positive impact from

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17. The 14 sectors are: automotive and related parts, bicycles and related parts, chemicals, electronics/electrical products, fish and fish products, forestry products, gems and jewelry products, raw materials, sports equipment, healthcare, pharmaceutical and medical devices, hand tools, toys, textiles, clothing and footwear, and industrial machinery.

an equivalent rise in exports. Hence the GDP metric reflects the gains from *both* increased exports and increased imports. The GDP calculations use an elasticity of trade openness to GDP of 0.2 for developed countries and 0.5 for developing countries.<sup>18</sup> For example, in the case of a country with a GDP of \$100, if trade goes from \$40 to \$50, trade openness rises from 0.4 to 0.5, a 25 percent increase. Then the elasticity implies that the GDP will increase by 5 percent ( $0.2 \times 0.25$ ) if it is a developed country or by 12.5 percent ( $0.5 \times 0.25$ ) if it is a developing country.

The *GDP impact* for the European Union is \$35 billion (0.21 percent), for the United States \$17 billion (0.12 percent), and for China \$20 billion (0.60 percent). For the United States and China, the gains come primarily from NAMA. The European Union, on the other hand, benefits equally from both. The weighted average of the percent increase in GDP for all 22 countries is 0.20 percent (0.06 percent from agriculture and 0.14 percent from NAMA). The total dollar gain calculated from the formula tariff cuts in agriculture and NAMA, and from NTB concessions, for all 22 countries in the study comes to about \$100 billion (\$30 billion from agriculture and \$69 billion from NAMA). Since the sample countries represent 88 percent of world GDP, we project the annual increase in *global* GDP from the formula tariff liberalization in agriculture and NAMA to be \$114 billion. This gain would be fully realized after a few years. This figure, however, is probably an underestimate as it does not include gains from the reduction of nontariff barriers in NAMA nor additional liberalization that could arise from sector negotiations and from scheduling deeper cuts in specific products. Also, it does not reflect the possible GDP gains from the liberalization of services trade or from trade facilitation, discussed later.

### Different Negotiating Scenarios

Tables 13 to 15 show the trade impact if a major emerging economy chooses a different negotiating scenario for NAMA tariff cuts (see appendix B for a description of the various scenarios). What comes out quite clearly is that—in the aggregate—a change in the negotiating scenario would have limited impact on the total trade gains from NAMA tariff cuts but could affect the distribution of tariff and NTB cuts for politically sensitive products.

### SERVICES

Of the three areas of market access negotiations, services could offer the largest gains for both developed and developing countries. How large remains unclear because services negotiations have barely begun, but recent empirical work indicates that the potential gains from meaningful liberalization of services trade barriers substantially outweigh those from merchandise trade liberalization.<sup>19</sup>

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18. The estimate for developed countries is taken from OECD (2003) and the estimate for developing countries from Cline (2004). The method for calculating GDP gains follows that of Bradford, Grieco, and Hufbauer (2005).

19. Brown, Kiyota, and Stern (2005) calculate that the removal of agriculture protection, manufacturing tariffs, and

In 2007, world services exports, as conventionally measured, were valued at roughly \$3.3 trillion; merchandise exports (i.e., agriculture and NAMA) were more than four times larger at \$13.6 trillion (WTO 2008a).<sup>20</sup> While some services are inherently nontradable, part of the imbalance between services and merchandise trade can be explained by the poor quality of data on services, which leads to the underreporting of services trade in official statistics, and another part by high barriers to services trade.

Despite the importance of services in modern economies, and despite the mandate to start new negotiations a decade ago to liberalize trade in services, WTO talks have not been fully engaged. To date, most WTO countries have not put offers on the table; some have submitted offers that would not even bind current practices. While there have been more than 100 offers for services liberalization in the Round, most can be classified as *pro forma* with limited value (Gootiiz and Mattoo 2009). Some developing countries have insisted that developed countries must offer to liberalize trade in temporary labor services (Mode 4) before developing countries issue counteroffers on other services sectors (WTO 2008b).

In large measure, services have been relegated to the second division of Doha negotiations for tactical reasons. WTO members agreed informally at the 2005 Hong Kong ministerial that negotiations on services would not go full-bore until decisions were made on modalities for liberalization of agriculture and NAMA.<sup>21</sup> This understanding was a huge mistake, indeed counterproductive, for developing countries. Instead of increasing their leverage to gain US and EU concessions on agriculture and NAMA, it effectively reduced domestic political support for the overall Doha deal and thus limited the scope for additional policy reform.

There are few useful precedents in terms of services negotiations. The Uruguay Round established a framework of rights and obligations in the General Agreement on Trade in Services (GATS) but little was achieved in liberalizing existing barriers. Sector agreements on basic telecommunications and financial services were concluded a few years after the Uruguay Round, and these reduced some barriers maintained by signatory countries. Simply put, the Doha Round is only the second time countries have negotiated services multilaterally. Moreover, many bilateral FTAs address services issues superficially or not at all (Martin and Mattoo 2009).

Services barriers are also opaque. Unlike merchandise trade barriers, they cannot be easily quantified. It is clear that regulations like licensing, permits, temporary visas, and nationality

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services barriers for the whole world would increase world welfare by \$53.9 billion, \$701.6 billion, and \$1,661.8 billion, respectively.

20. The conventional measures of services trade do not include services furnished locally by the foreign subsidiaries of multinational corporations, for example, by a US subsidiary of a Swiss re-insurance company (i.e., Mode 3 of the General Agreement on Trade in Services).

21. Contrary to popular belief, this procedural “agreement” is not included in the ministerial declaration.

requirements for corporate boards impede services trade, but by how much is unclear. Unlike agriculture or NAMA, WTO members cannot apply a Swiss formula or any other ready device to cut through the web of services trade restrictions. There appears to be no substitute for a detailed review of national laws and regulations. This process is burdensome, and in any event regulators are reluctant to tie their hands against future contingencies. As a practical matter, most WTO countries are not asked to engage in detailed services negotiations. The “free pass” for developing countries, so prevalent in the GATT era, is still available to most of them in the Doha services talks. However, middle income and successful emerging countries like Argentina, Brazil, China, India, Indonesia, and Thailand are expected to participate.

The current services liberalization offers do have some value: They lock in a portion of the unilateral liberalization that countries have undertaken on their own. And just as in agriculture and NAMA talks, making services trade barriers clear and certain has value to firms doing business.<sup>22</sup> Recent work by the World Bank shows that “applied” services trade barriers are far lower than “bound” services barriers under Uruguay Round commitments (see Gootiiz and Mattoo 2009). The authors construct an index of services barriers (table 16). On their 100 point scale, where higher numbers indicate greater levels of restrictions, they find that the actual level of world services barriers is an index of 21 out of 100, compared with an index of 48 for commitments bound in the Uruguay Round under the GATS.

Offers on the table in the Doha Round would eliminate some of the “water” between “bound” and “applied” services barriers, by bringing the overall “bound” index down to 42 out of 100. However, the fact remains that, as they stand now, Doha offers create *very little new market access* in services. Instead, they slightly lower the “bound” levels inherited at the end of the Uruguay Round. The offers by OECD countries come close to locking in “bound” levels to actual levels, but they still leave some “water”—the score for actual barriers is 15 out of 100, while the score for Doha offers is 19 out of 100. Current offers from developing countries do little to reduce the “water” between “bound” and “applied” barriers.

Without a more substantive result in the services negotiations, the Doha Round is unlikely to succeed; the deal would not be rich enough or attract sufficient political support in major trading nations to ensure ratification by national legislatures.

Table 17 displays estimates of the impact of a 10 percent reduction in the tariff equivalent of services barriers in the 22 countries. A 10 percent reduction in the tariff equivalent of services barriers—admittedly an optimistic scenario given the current negotiations but conservative in terms of scope of policy reform that could be undertaken by the major trading nations—could be achieved by various changes in policies across countries. For our purposes, we assume that these changes would be binding commitments in GATS schedules that actually lower the applied level of services barriers. The tariff

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22. Businesses routinely report that making barriers definitive has value; how much value is uncertain.

equivalents we use were econometrically estimated by Rosen (2009); simply put they were determined on a country level by estimating the shortfall between actual and expected imports of services.

We find that a 10 percent reduction in services barriers would increase exports by the sample countries to the rest of the sample by \$42.9 billion or 3 percent. Increases in US and EU services exports account for more than half of this amount—both would increase by an estimated \$10.8 billion each. Under the 10 percent scenario, world exports of services to the 21 countries (i.e., total imports from the world by the 21 countries) would increase by \$55.7 billion or over 3 percent. For all 21 countries, the estimated *GDP impact* of the *trade gains* (exports and imports) resulting from a 10 percent reduction in services barriers is \$100 billion (table 17). Bilateral trade relationships are explored in appendix C.

Of course, given the current offers, a 10 percent reduction or even a 5 percent reduction in barriers seems optimistic. Some efforts have been made to improve the current offers; a signaling exercise held during the July 2008 mini-ministerial at the WTO showed signs that countries might be willing to budge (Gootiiz and Mattoo 2009). However, the US services industry's initial reading from the July meeting was that no "meaningful new market access" would be created (Vastine 2008).

## CHEMICALS

The Chemical Tariffs Harmonization Agreement (CTHA), formulated in the Uruguay Round, serves as a starting point for Doha negotiators.<sup>23</sup> Most tariffs on chemical products for CTHA signatory countries are set at 0, 5.5, or 6.5 percent (WTO 2005). An initiative that broadens the CTHA to more countries and deepens liberalization could produce substantial gains. Currently, Canada, the European Union, Japan, Norway, Singapore, Switzerland, Taiwan, and the United States have participated in Doha Round discussions on a sector initiative for chemicals (WTO 2008c).

Chemicals account for more than 10 percent of total merchandise imports by the 22 countries (table 18).<sup>24</sup> Chemicals are also crucial to US trade, accounting for 17 percent of US merchandise exports (to the 21 partner countries) in 2007 and 9 percent of total US merchandise imports (from the world) in 2007.<sup>25</sup> EU trade also exhibits a concentration in chemicals: 21 percent of EU merchandise exports (to the 21 partner countries) and 9 percent of total EU merchandise imports in 2007 were in chemicals.<sup>26</sup>

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23. CTHA signatory countries include: Australia, Canada, Ecuador, the European Union, Hong Kong, Japan, Jordan, Korea, Mongolia, New Zealand, Norway, Panama, China, Qatar, Singapore, Switzerland, Taiwan, the United Arab Emirates, and the United States (METI 2009).

24. Chemical goods imports by the 22 countries from the world in 2007 were \$862.5 billion; total merchandise imports by the 22 countries from the world were \$8,308.3 billion.

25. US chemical goods exports in 2007 to the 21 partner countries were \$156.6 billion; merchandise exports to the 21 partner countries were \$935.1 billion. US chemical goods imports in 2007 from the world were \$179.3 billion; merchandise imports were \$2,017.1 billion.

26. EU chemical goods exports in 2007 to the 21 partner countries were \$219.8 billion; merchandise exports to the 21 partner countries were \$1,049.2 billion. EU chemical goods imports in 2007 from the world were \$179.2 billion;

In 2008 the average US applied tariff on chemical products was 2.1 percent, the average EU applied tariff was 2.6 percent, and the average Chinese applied tariff stood at 6.7 percent. The average chemical tariff across the 22 countries in 2008 was 3.3 percent. However, tariff peaks remain a problem, even in CTHA signatory countries.

Assuming no tariff cut flexibilities available to countries would be used on chemical goods, the tariff cuts outlined in the NAMA modalities would bring down the US tariff on chemicals to an average of 1.2 percent and lower the average tariff on chemicals in the 22 countries to 2.2 percent.<sup>27</sup> These cuts would increase world exports by \$15.4 billion or roughly 2 percent from the current level of chemicals trade. Total trade within the 22 countries would increase by \$12.3 billion with the increase in US and EU exports (\$2.5 billion and \$3.6 billion, respectively) accounting for half of the growth.<sup>28</sup>

What more could be achieved in sector negotiations? We calculate, at the HS 6-digit level, the impact of reducing all tariffs at or below 2.5 percent, after the modality cuts, to zero; all tariffs above 2.5 and equal to or below 5 percent, after the modality cuts, to a new tariff of 2.5 percent; and all tariffs above 5 percent, after the modality cuts, to a new tariff of 5 percent. We estimate that this scenario would increase world exports of chemicals to the 22 countries by \$30.8 billion, twice the impact from the modality tariff cuts alone. The *trade gains* from this sector agreement would be an increase of \$25.1 billion (3 percent) in exports just among the 22 countries, which is also about twice the impact from the modality cuts. Nearly half the sector increase can be accounted for by increased US and EU exports (\$4.6 billion and \$6.9 billion, respectively); or, looking at the trade flows from the opposing direction, by increased US and Chinese imports (\$4.6 billion and \$8 billion, respectively). The US export gain in chemicals (\$4.6 billion) represents a 0.5 percent increase in US merchandise exports (to the 21 other countries); the import gains (\$4.6 billion) represent a 0.2 percent increase in total US merchandise imports. For the group of 22 countries, the estimated *GDP gain* resulting from the trade increase attributable to a sector initiative in chemicals is \$26.6 billion. Bilateral trade and tariff relationships are detailed in appendix D.

## INFORMATION TECHNOLOGY AND ELECTRONIC/ELECTRICAL GOODS

In 1996, at a ministerial conference of the WTO—i.e., *not* during a multilateral trade round—29 WTO members agreed to the Information Technology Agreement (ITA). The ITA committed

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merchandise imports were \$1,954.0 billion.

27. We assume that if countries are going to participate in certain sector negotiations (e.g., chemicals, electronics/electrical, or environmental goods), they are not going to utilize any of their tariff cut flexibilities in those sectors. In reality, countries might exclude some sensitive products from sector negotiations and use their tariff cut flexibilities on those same products.

28. The modality impacts described here do not correspond with the impacts for all NAMA products because of different elasticities and the use of tariff cut flexibilities. Specifically, the price elasticity used here is  $-2.09$ , while the earlier calculations used an elasticity of  $-1.19$ . Also, in the full NAMA calculations we assume tariff cut flexibilities are utilized on some chemical products; in the sector calculation, we assume no flexibilities are utilized.

signatory countries to reduce tariffs to zero or near-zero in computers, software, telecom equipment, semiconductors, semiconductor manufacturing equipment, and scientific instruments by January 2000. The ITA is considered to be a “remarkably successful agreement” (Mann and Liu 2009). The agreement has grown to over 70 members, including the United States, the European Union (27), Japan, India, Korea, Taiwan, and China (which joined in 2003 as part of its WTO accession). Notable nonsignatories include Brazil, Mexico, and South Africa (WTO 2009a).

The Doha Round could supplement that ITA by expanding the country coverage and deepening the tariff liberalization under the current agreement. Because of the potential large boost to world trade, expanded product coverage in the ITA is another possible outcome, even though product coverage has been a contentious issue since the beginning of the ITA.<sup>29</sup> One proposal by Dreyer and Hindley (2008) to expand the products covered by the ITA would almost double the amount of world trade covered by the ITA. World exports of current ITA goods in 2007 to the 22 countries used in this study were \$1,127 billion; world exports (to the 22 countries) under Dreyer and Hindley’s (2008) product list were \$2,028 billion.<sup>30</sup>

While the Dreyer and Hindley proposal seems unlikely, a sector deal that goes beyond IT products already has been discussed in the Doha Round. Rather than pursuing an IT-only sector initiative, WTO negotiators have actually devised a broader electronics/electrical goods sector initiative, which largely encompasses the ITA and many new IT products. The proposed product list for the electronics/electrical goods sector initiative covers roughly 50 percent more world trade than the ITA.<sup>31</sup> The proposed product list for the electronics/electrical goods sector initiative does exclude some of the products that would be most contentious in ITA talks—most notably televisions—yet it is still a step forward from the ITA. Currently, Hong Kong, Japan, Korea, Singapore, Thailand, and the United States have participated in the electronics/electrical goods sector initiative (WTO 2008c). On a related note, an agreement might be negotiated on “digital goods” to facilitate electronic commerce, the electronic delivery of services, and exports of information and communication technology (ICT) products. This is a promising possibility, one that we do not explore in this paper.

The ITA is a unique agreement because the product list is not entirely made up of explicitly listed Harmonized System (HS) tariff lines. Realizing that product coverage would be an issue, negotiators included a “positive list” of IT products according to their functionality so that new products, regardless

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29. A recent WTO dispute settlement case brought by the United States and Japan (among others) against the European Union concerns whether televisions with multifunctionality (i.e., IT and non-IT functions) should be covered by the agreement (European Commission 2008).

30. Dreyer and Hindley’s (2008) proposal is to include an entire HS 4-digit category (with a few exceptions) if at least one HS 6-digit tariff line under the HS 4-digit category is currently included in the ITA.

31. Recent world exports of electronic/electrical goods (as defined by the WTO December 2008 NAMA modalities) to the 22 countries used in this study were \$1,688 billion, while recent world exports to the 22 countries of ITA goods (as defined by the US ITA schedule and Finger 2007) were \$1,127 billion.

of where they were included in a tariff schedule, could be covered. Many new products have thus been covered, but leaving product coverage open to interpretation, has, in the end, created as much contention (by giving a basis for litigation) as it has prevented. The positive list approach means ITA coverage might not be exactly the same from one country to the next. For our calculations we assume that any product included in the US ITA schedule or by Finger (2007) is an ITA good for all countries. By taking this approach, we assume resolution of one of the outstanding issues with the ITA, namely product convergence, as well as the issues of country coverage and further tariff liberalization.

Like all NAMA products, ITA goods would be subject to the Swiss formula modality tariff cuts. In other words, even without sector agreement, there would be some liberalization of ITA trade. Assuming no flexibilities are utilized, tariff cuts under the Swiss formula would bring the average applied tariff in the 22 countries on ITA goods down to 0.9 percent from the current 1.1 percent (table 19). These cuts would increase exports by the 22 sample countries to each other by \$5.8 billion. Chinese ITA imports would increase by \$1.9 billion or just over 1 percent. World exports of ITA goods (i.e., imports by the 22 countries) would increase by \$6 billion from the modality tariff cuts.<sup>32</sup>

An additional sector initiative in ITA goods, which brings tariffs in the 22 countries down from their current level (an average of 1.1 percent) to zero, would spur substantially more trade. Trade within the 22 countries would increase by \$27.9 billion, with an increase in Chinese imports of \$8.5 billion accounting for about a third of the total increase (table 19). US gains would be modest, a \$3.3 billion gain in exports and a \$1.5 billion gain in imports. The additional gain in world exports to the 22 countries would be \$23.3 billion or a 0.3 percent increase in world merchandise exports. The estimated *GDP gains* for the 22 countries of the ITA goods sector initiative is \$43.2 billion.

Gains under a sector initiative in electronics/electrical goods would be still larger. Free trade in electronics/electrical goods would increase world exports to the 22 countries by an additional \$35.4 billion above the increase from the modality tariff cuts (table 20)—this is \$12.2 billion more than the increase under an ITA-only sector initiative. Among the 22 countries, Chinese imports again dominate the increase in trade. Under the electronics/electrical goods sector initiative, Chinese imports would increase by an estimated \$14.9 billion. Chinese exports would increase by \$8.6 billion. US total *trade gains* would almost double those from the ITA-only sector initiative: US exports would increase by \$4.4 billion and imports by \$4 billion. For the group of 22 countries, the estimated *GDP gains* based on the trade gains of the sector initiative in electronics/electrical goods is \$66 billion, which is \$22.8 billion more than the ITA goods sector initiative alone. Bilateral trade and tariff relationships under the ITA-only and electronics/electrical goods sector initiatives are detailed in appendix E.

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32. The modality impacts described here do not correspond with the impacts for all NAMA products because of different elasticities and the use of tariff cut flexibilities. Specifically, the price elasticity used here is  $-2.01$ , while the earlier calculations used an elasticity of  $-1.19$ . Also, in the full NAMA calculations we assume tariff cut flexibilities are utilized on some ITA products; in the sector calculation we assume no flexibilities are utilized.

## ENVIRONMENTAL GOODS

The Doha Declarations call for “the reduction or, as appropriate, elimination of tariff and nontariff barriers to environmental goods and services.” Tariffs on environmental goods will be reduced to some extent under the NAMA formula cuts: Additional liberalization could arise from a *sui generis* sector initiative. To estimate this “additionality” we limit our assessment to the potential trade growth that would result from eliminating tariffs on environmental goods entering bilateral trade between the 22 countries in our study (the same countries used in the agriculture and NAMA analysis). While liberalization of nontariff barriers and services barriers—if pursued—would generate substantial gains, we have focused our attention on the area where substantial progress seems most likely, namely merchandise trade.<sup>33</sup>

Liberalization in environmental goods is more than just a “feel-good” proposition. In 2007 total imports by the 22 countries of environmental goods were \$135.6 billion or roughly 1.6 percent of all merchandise imports. For the United States, close to 2 percent of both merchandise exports and imports are contained in the 45 tariff lines identified by the World Bank as environmental goods (table F1).<sup>34</sup> Considering the United States exported and imported products in roughly 5,000 tariff lines in 2007, the large amount of trade in the few environmental tariff lines is quite exceptional (UNCTAD TRAINS Database, 2009).

Negotiations on environmental goods have taken place at the tariff line level rather than the product level—i.e., 6-digit codes rather than 8- or 10-digit codes. Under any given tariff line (6-digit codes) there could be scores of products (8- or 10-digit codes). The likely outcome in the environmental goods negotiations is that all products under an environmental tariff line will be accorded special treatment, whether or not all of the products are “environmentally friendly.”<sup>35</sup> We follow this approach in our calculations.

In terms of product inclusion, a recent unofficial proposal by the Japanese delegation could drastically raise the stakes for the environmental goods negotiations. The proposal seeks to include environmentally friendly automobiles (e.g., hybrid cars) in the negotiations (Japan 2009). Details are sketchy at the point, but depending on what types of cars are included it could vastly increase the amount of trade covered by the negotiations. We do not include environment-friendly automobiles in our calculations.

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33. Kirkpatrick (2006) reviews the environmental services negotiations and finds limited progress. Political tensions are the biggest hurdle for all services liberalization; environmental services liberalization is no different.

34. In 2007 US exports of environmental goods (to the 21 partner countries) were \$17 billion; US environmental goods imports from the world were \$33.7 billion. All US merchandise exports (to the 21 partner countries) in 2007 were \$935.1 billion; total US merchandise imports were \$2,017.1 billion (table 20).

35. Tariffs are internationally consistent only at the HS 6-digit level; “overinclusiveness”—i.e., including all products under an environmental tariff line—has been adopted to avoid contentious disagreements over product definitions. The United States supports overinclusiveness in negotiating environmental goods (Howse and Bork 2006).

We first estimate the impact of the NAMA modality tariff cuts. The Swiss formula with a coefficient of 20 for developing countries and 8 for developed countries is applied to the simple average of 2008 bound product-level tariffs at the tariff line level. If the resulting new bound tariff is lower than the 2008 applied tariff there is a tariff reduction—i.e., new market access. To calculate the impact of the tariff cuts—the applied tariffs before the modality reductions minus the applied tariffs after the reductions—we multiply the tariff cut expressed in percentage points by the same price elasticity of imports, namely  $-2.10$ , for every bilateral trade relationship.<sup>36</sup> One minus the resulting figure (expressed as a percent) is then multiplied by current trade to estimate new trade after the tariff cut.<sup>37</sup> Actual tariff cuts in environmental goods from the modality discussions are minimal. For example, for the United States, EU tariffs on environmental goods drop from 2.5 to 1.8 percent and Chinese tariffs drop from 9.3 to 6.1 percent (table F2). The modest tariff cuts produce modest *trade gains*; world exports of environmental goods will increase by only \$1.5 billion (or 1 percent) after the modality tariff cuts. The modality cuts will increase US exports (to the 21 other countries) by \$ 0.1 billion and US imports (from the world) by \$0.3 billion (table 21).<sup>38</sup>

Under a sector initiative in environmental goods, since tariffs would drop to zero, the gains from such an initiative would be much larger than the modality tariff cuts. We estimate the impact of complete tariff elimination on environmental goods for the 22 countries. The calculation procedure is identical to that for the modality tariff cuts, just with larger tariff reductions. The result of a sector initiative would be an additional \$6.3 billion increase in world exports of environmental goods. Therefore, in total, the increase in world exports of environmental goods to the 22 countries could reach close to \$8 billion from the modality and sector tariff cuts combined. A trade increase of this size would increase total world trade by roughly one-tenth of one percent (0.1 percent). Free trade in environmental goods would increase trade within the 22 countries by an additional \$4.5 billion above the increase from the modality tariff cuts alone. Together, the sector and modality tariff cuts would increase US exports (to the 21 other countries) by \$0.6 billion and US imports (from the world) by \$0.6 billion; this amounts to a 3.5 and 1.8 percent increase, respectively, above current levels of US environmental goods trade. *Trade gains* associated with free trade in environmental goods would yield *GDP gains* of \$11 billion for the group of 22 countries. Bilateral trade and tariff relationships are detailed in appendix F.

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36. This elasticity is calculated as the simple average of all environmental good observations in Kee et al. (2004). See table F1 for a list of environmental goods.

37. For example, if imports of environmental goods totaled \$100 with a 10 percent tariff, and then the tariff is removed, new trade would be:  $\$100 * (1 - (10 * -2.10) / 100) = \$121$ .

38. The modality impacts described here do not correspond with the impacts for all NAMA products because of different elasticities and the use of tariff cut flexibilities. Specifically, the price elasticity used here is  $-2.10$ , while the earlier calculations used an elasticity of  $-1.19$ . Also, in the full NAMA calculations we assume tariff cut flexibilities are utilized on some environmental products; in the sector calculation we assume no flexibilities are utilized.

## TRADE FACILITATION

Trade facilitation was added to the Doha Round agenda in 2004, three years after the start of the Round in 2001. Despite the late start, it has become one of the more successful aspects of the Round. To date, WTO members have put forward over 70 new provisions on the issue (see table 22). A representative from the Global Express Association—an organization representing private express delivery companies (e.g., DHL, FedEx, and UPS)—partially attributes the success to “a growing recognition on the part of developing countries that trade facilitation is not a zero sum proposition” (Simpson 2009). Negotiations have been so positive that some WTO members—including the European Union—have expressed an interest in a separate plurilateral agreement on trade facilitation should the Doha Round ultimately fail (Simpson 2009).

The trade facilitation negotiations have a narrow scope. Only three GATT articles are affected: Article V, on freedom of transit (of particular interest to landlocked countries); Article VIII, on limiting border fees and formalities; and Article X, on making trade regulations transparent (Eglin 2008). These articles, especially Article VIII, cover a wide range of topics that may constrict trade but are not tariffs, quotas, or other formal barriers. Proposals thus far range from the use of international standards on customs documents, to limits on import and export fees, to the online publication of customs procedures and policies. Table 22 contains a list of proposed provisions currently included in the trade facilitation negotiations.

Most consumers in the developed world regard trade facilitation and customs procedures as third-tier issues. But even in the United States, which has some of the best practices in the world according to a recent World Bank study, trade facilitation costs can be significant. To export a standard cargo container, with contents valued at \$20,000, from the United States, it costs around \$990, almost 5 percent of the shipment value. The cost of importing a standard container into the United States is higher, around \$1,245, or an additional 6 percent of the value (World Bank 2009). These costs are official charges (i.e., not including any bribes) incurred from completing all necessary documents, plus inland transportation, customs clearance and inspection, and port handling. The additional 5 to 6 percent ad valorem costs exceed the average ad valorem tariffs that US exports and imports face, and they tell only half the trade facilitation story. US exports face an additional cost when they arrive in the destination country, and US imports face costs in the originating country. While additional trade costs can never go to zero—even the top performing country, Singapore, adds costs, of \$456 and \$439, respectively, to each container exported and imported—the possible gains from improved trade facilitation are clearly large.

Wilson, Mann, and Otsuki (2005) take on the heroic task of estimating the potential gains in trade of manufactured goods from improved trade facilitation among a group of 75 countries. The authors look at the impact of a modestly optimistic scenario for improved trade facilitation: Any country whose trade

facilitation policies fall below the global average in one of four areas would (with productive negotiations) be brought up halfway to the global average in that area.<sup>39</sup> The four trade facilitation areas covered by Wilson, Mann, and Otsuki (2005) are port efficiency, customs environment, own regulatory environment, and service-sector infrastructure (effective use of information technology). The authors argue that these four sectors, and the data used to analyze them in the different countries, map directly into the trade facilitation agenda in the Doha Round. They argue that port efficiency, which is measured by the efficacy of air and sea port facilities and inland waterways, is related to GATT Article V; customs environment, measured by hidden import barriers and the extent of bribery, is relevant to GATT Article VIII; regulatory environment, measured by transparency of government policies and corruption control, is relevant to GATT Article X; and services infrastructure, which is measured by the efficacy of internet access, is related broadly to trade in services in the trade facilitation agenda (Wilson, Mann, and Otsuki 2005).

The simulation results of Wilson, Mann, and Otsuki (2005) are shown in table A13 of appendix A. Their estimates of increased trade due to improvements in trade facilitation are very large for some regions. For example, exports might rise as much as 40 percent for South Asia. We chose to interpret the underlying coefficients in a conservative manner: We apply the OECD trade effect, which is the lowest, to all countries in our sample. As a result, our calculations of the payoff from trade facilitation for developing countries are much lower than the figures estimated by Wilson, Mann, and Otsuki.

Table 23 shows the *trade gains* for selected countries and the total for the sample. Imports from the world will increase by \$340 billion, mostly imports by the United States, the European Union, and China. Exports to the group of 22 countries will rise by \$115 billion, including almost \$30 billion more from the European Union and \$20 billion more from the United States. *GDP gains* will total \$385 billion for the 22 countries. The positive *GDP impact* reaches almost \$100 billion for the United States and the European Union. In terms of percentage of GDP, however, the major developing nations reap the most benefits, between 1.2 and 1.6 percent.

These numbers should be taken with a tablespoon of salt as this method is less rigorous than methods used in other sections of this paper. However, the broad thrust should not be dismissed. Trade facilitation is key to boosting global commerce and the gains would be very large, especially for developing countries.

## CONCLUSION

The Doha Round has limped along since its inception. Nearing its eighth birthday, the Round is now older than its immediate predecessor, the Uruguay Round, which lasted what seemed at the time like a marathon (7 years, 7 months) from inception to signing. Owing to its longevity, the Doha Round has

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39. For example, if the global average was an index score of 50 and a country had a score of 20, that country would be brought up to a score of 35 for the purpose of the simulation.

often been pronounced a victim of terminal illness, but this diagnosis seems premature. Our analysis reveals large potential gains from proposals now on the table, and when gains are at hand, interested parties will continue to talk. Moreover, we expect that current proposals in key areas, namely service-sector agreements and trade facilitation, will improve as negotiations draw to a close.

Our analysis examines gains from different topics that are at varying levels of completeness and certainty in the Doha Round talks. The tariff and subsidy cuts in agriculture and NAMA are written into the current negotiating modalities; the gains in these areas are thus the foundation of a Doha Round liberalization package. The gains from the sector negotiations in chemicals, electronics/electrical goods, and environmental goods are less certain. Agreements in these sectors will likely emerge in some form; however, the country participation, product coverage, and depth of liberalization in each sector are uncertain. We assume, for the purpose of our calculations, optimistic but plausible scenarios for each of the sectors.

The services negotiations, perhaps the lynchpin of the Round, currently do not establish new market access. Our calculations of potential gains in services are thus based on a dose of wishful thinking, recognizing that, unless the current offers for liberalizing services barriers are improved, the Doha Round will probably not reach a successful conclusion. The trade facilitation negotiations have been among the most productive in the Round. Our estimated gains from improved trade facilitation, however, are not directly tied to the negotiations. Thus, our calculations of gains could just as easily be underestimates as overestimates, depending on the success of the negotiations and implementation of the results.

For agricultural products, the tariff cuts prescribed by the current negotiating modalities create new market access. US and EU applied tariffs would be almost halved (1.3 percent down to 0.7 percent for the United States and 6 percent down to 3.4 percent for the European Union). Developing-country applied tariffs decline slightly; this is actually a significant accomplishment given the high levels of “water” between bound and applied agricultural tariffs in most developing countries. Agricultural tariff cuts contemplated in the Round, along with new caps on tariff rate quotas, export subsidies, and domestic subsidies, would increase world exports (in the tables, this corresponds to imports from the world by the 22 countries) by \$20.5 billion and boost annual world GDP by \$29.9 billion (GDP gains are calculated based on export *and* import gains for each country).

On the whole, tariffs on NAMA products are low. Pre-Doha average applied tariffs in the European Union, Japan, and the United States are all less than 2 percent. Average applied tariffs are less than 8 percent in Brazil, India, and China. Low initial applied tariffs make the task of creating new market access in NAMA more challenging—the average applied tariff cut in our sample is only 0.6 percentage points (from an average tariff of 2.4 percent to a level of 1.8 percent). Since NAMA trade is so vast, however, the trade gains are also large, despite the small tariff cuts. In total, we estimate annual world exports will increase \$45.6 billion from the NAMA concessions and boost annual world GDP by

\$69.4 billion. Moreover, any reduction in bound tariff levels, even if bound rates remain above applied rates, reduces the risk of backsliding into protectionist policies.

In services, recent research by Gootiiz and Mattoo (2009) finds that current proposals would create no new market access. The proposals are a small step forward from Uruguay Round commitments, but far more work needs to be done to produce real gains. The July 2008 “signaling exercise” gave some indication that countries would be willing to liberalize further, but substantive new offers have yet to be submitted. We estimate that the possible gains from meaningful liberalization of services barriers are large. A 10 percent reduction in the tariff equivalent of applied services barriers would increase annual world exports by an estimated \$56 billion and boost annual world GDP by an estimated \$100 billion.

The potential trade and GDP gains from the sector agreements outweigh the gains from the NAMA modality concessions. The gains from sector agreements are *above and beyond* the NAMA formula cuts. We estimate the impact of free trade in electronics/electrical goods and in environmental goods across the 22 countries used in the study. We estimate the impact of *freer* trade in chemicals across the same countries. A sector agreement in chemicals would increase world exports by \$15.4 billion. An electronics/electrical goods sector agreement would boost world exports by \$35.4 billion, and an environmental goods sector agreement would boost world exports by \$6.3 billion. All told, we estimate the three sector agreements would increase annual world exports by \$57.1 billion and annual world GDP by \$103.6 billion.

Trade facilitation negotiations have been championed as one of the most successful subjects in the Doha Round. Over 70 provisions on topics ranging from publication standards to new restrictions on fees connected to importation and exportation have been put forward. These negotiations might go forward even if the Doha Round flops. Quantifying the possible gains from each of the roughly 70 proposals is at best difficult, so we turn to an estimate of potential gains from a modestly optimistic trade facilitation improvement scenario made by Wilson, Mann, and Otsuki (2005). Drawing from the work of these authors, we use conservative coefficients to calculate that world exports could increase by \$340 billion if underperforming countries are brought up to the global average in four key areas of trade facilitation (port efficiency, customs environment, own regulatory environment, and service-sector infrastructure). These trade gains would increase annual world GDP by roughly \$385 billion annually.

Our findings contradict the critics who argue that the world should trash the Doha Round because the payoff is too small. World export gains already on the table (i.e., agriculture and NAMA) are over \$65 billion annually, and world export gains on the table and in the oven (i.e., agriculture, NAMA, and sectors) are over \$120 billion. World export gains from improved trade facilitation could double the impact of the Round; however, this bonus depends on the depth of commitments and implementation. The services negotiations, another potential source of large export gains, are struggling, but the potential gains in other areas could inspire key countries to improve their offers.

All told we estimate that the Doha Round could yield potential annual world GDP gains of between \$300 billion and as much as \$700 billion. While this figure represents optimistic thinking on our part, it is not a “pie-in-the-sky” number. It may take a decade to reach this figure once negotiations are concluded, because concessions will be implemented gradually and trade facilitation measures will take time to become routine. But, the scenarios used in this paper to calculate this figure are not straightforward. Bringing countries up to the current global average in trade facilitation will be hard work, but new rules on trade facilitation can speed up the process. A 10 percent reduction in applied services barriers will take long hours at the negotiating table but might be achieved with the right combination of “sticks and carrots.” Many countries are anxious to complete sector agreements, which we estimate to deliver large trade and GDP gains; others will have to be pulled in through hard bargaining. Finally, we estimate that roughly \$100 billion in annual world GDP gains can come just from the agriculture and NAMA negotiations. These gains are written into the negotiating modalities and thus are the most certain portion of our projected Doha outcome.

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**Table 1 Total gains in trade** (billions of dollars)

Country/region	"On the table"				Potential gains from services, sectorals, and trade facilitation										
	Agriculture		Nonagricultural market access		Services <sup>b</sup>		Chemicals <sup>c</sup>		Electronics and electrical goods <sup>d</sup>		Environmental goods <sup>e</sup>		Trade facilitation		
	From tariff and nontariff barrier <sup>a</sup> cuts		From tariff cuts		From 10 percent liberalization		From sector initiative		From sector initiative		From sector initiative		From Wilson, Mann, and Otsuki, (2005)		
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	
All 22 countries	20.5	14.1	45.6	40.3	55.7	42.9	15.4	12.8	35.4	33.5	6.3	4.5	340.0	115.7	
European Union	15.3	1.7	11.0	7.5	5.2	10.8	1.4	3.3	3.0	5.7	0.3	1.4	69.9	29.5	
Japan	2.4	0.5	2.5	6.7	3.5	2.7	0.2	2.2	0.0	6.5	0.0	0.9	20.7	13.7	
United States	1.6	3.3	12.7	2.7	3.5	10.8	2.3	2.1	2.6	3.4	0.6	0.6	93.3	19.0	
Brazil	0.0	2.0	1.0	0.3	2.8	0.7	1.0	0.1	3.9	0.1	0.5	0.0	4.4	1.6	
China	0.2	1.1	6.7	13.2	14.3	3.7	4.5	1.3	11.3	6.7	1.7	0.7	40.2	16.0	
India	0.2	0.3	0.7	1.4	10.5	0.7	0.8	0.3	1.7	0.2	0.8	0.1	5.9	1.2	

- a. Consist of tariff rate quotas, export subsidies, and domestic support.
- b. Only 21 countries are included in the services calculations; Taiwan is excluded.
- c. Applied tariffs on all chemicals (as defined by the WTO 2008c) are reduced to 0, 2.5, or 5 percent in this simulation.
- d. Applied tariffs on all electronics and electrical goods (as defined by the WTO 2008c) are reduced to zero in this calculation.
- e. Applied tariffs on all environmental goods (as defined by the World Bank 2007) are reduced to zero in this calculation.

Note: Trade gains from agricultural nontariff barriers are calculated using a prorata impact of the trade gains of agricultural tariff cuts. The trade gains reflect each country's increased imports from the world and increased exports to the other 21 countries in the sample. The asymmetry is due to methodology. Agricultural trade calculations reflect both tariff and nontariff barrier cuts. Nonagricultural market access trade calculations reflect only tariff cuts.

Source: Authors' calculations.

**Table 2 Impact of trade gains on GDP**

Country/region	"On the table" in agriculture and NAMA		Potential gains from a 10 percent reduction in services barriers		Potential gains from sectorals		Potential gains from improvements in trade facilitation	
	GDP impact (percent)	GDP impact (billions of dollars)	GDP impact (percent)	GDP impact (billions of dollars)	GDP impact (percent)	GDP impact (billions of dollars)	GDP impact (percent)	GDP impact (billions of dollars)
European Union	0.21	35.07	0.09	15.77	0.09	14.94	0.59	98.32
Japan	0.18	7.84	0.09	3.97	0.14	6.36	0.51	22.30
United States	0.12	16.94	0.09	11.97	0.07	9.74	0.68	94.03
Brazil	0.66	8.94	0.70	9.48	1.12	15.02	1.19	16.05
China	0.60	19.64	0.51	16.72	0.74	24.34	1.59	52.20
India	0.42	4.75	1.97	22.40	0.67	7.67	1.26	14.29
Total	0.20	99.26	0.21	100.38	0.21	103.62	0.79	385.08

NAMA = nonagricultural market access

Notes: GDP impacts in dollars are calculated based on 2007 GDP data and trade impacts shown in table 1. Taiwan is excluded from services calculations. GDP impacts are calculated using the methodology of Bradford, Grieco, and Hufbauer (2003, 73, footnote 14). GDP impacts use a trade increase based on total trade (merchandise and services), except in the case of Taiwan where only merchandise trade is available.

Source: Authors' calculations.

**Table 3 Total gains in trade, with exports to the world (billions of dollars)**

Country/region	"On the table"				Potential gains from services, sectorals and trade facilitation										
	Agriculture		Nonagricultural market access		Services <sup>b</sup>		Chemicals <sup>c</sup>		Electronic and electrical goods <sup>d</sup>		Environmental goods <sup>e</sup>		Trade facilitation		
	From tariff and non-tariff barrier <sup>a</sup> cuts		From tariff cuts		From 10 percent liberalization		From sector initiative		From sector initiative		From sector initiative		From Wilson, Mann, and Otsuki, (2005)		
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	
All 22 countries	20.5	17.1	45.6	50.6	55.7	60.7	15.4	15.8	35.4	49.2	6.3	5.9	340.0	115.7	
European Union	15.3	2.8	11.0	10.6	5.2	18.4	1.4	4.7	3.0	8.8	0.3	2.1	69.9	29.5	
Japan	2.4	0.5	2.5	7.5	3.5	4.0	0.2	2.3	0.0	7.8	0.0	1.0	20.7	13.7	
United States	1.6	3.8	12.7	3.8	3.5	13.7	2.3	2.4	2.6	4.9	0.6	0.8	93.3	19.0	
Brazil	0.0	2.3	1.0	0.4	2.8	0.8	1.0	0.1	3.9	0.2	0.5	0.0	4.4	1.6	
China	0.2	1.3	6.7	15.6	14.3	4.8	4.5	1.6	11.3	12.0	1.7	0.9	40.2	16.0	
India	0.2	0.4	0.7	1.6	10.5	2.6	0.8	0.4	1.7	0.2	0.8	0.1	5.9	1.2	

a. Consist of tariff rate quotas, export subsidies, and domestic support.

b. Only 21 countries are included in the services calculations; Taiwan is excluded.

c. Applied tariffs on all chemicals (as defined by the WTO 2008c) are reduced to 0, 2.5, or 5 percent in this simulation.

d. Applied tariffs on all electronics and electrical goods (as defined by the WTO 2008c) are reduced to zero in this calculation.

e. Applied tariffs on all environmental goods (as defined by the World Bank 2007) are reduced to zero in this calculation.

Note: Imports are taken from table 1. Trade facilitation exports are also taken from table 1. All other exports are calculated by adding the corresponding export results from table 1 to an estimate of gains in exports to nonsample countries in each category. This estimate is made by assuming all nonsample countries have pre- and post-Doha applied tariffs equal to the average of the 22 sample countries displayed in tables 5, 10, 17, 18, 20, and 21. A partial equilibrium method, which follows the method used in tables 17 to 21, is used to determine the impact of the tariff cuts on exports of the 22 countries. The elasticities for the calculations are the same as those employed throughout the paper. Trade gains from agricultural NTBs are calculated using a pro-rata impact of the trade gains of agricultural tariff cuts. Agricultural trade calculations reflect both tariff and nontariff barrier cuts. NAMA trade calculations reflect only tariff cuts.

Source: Authors' calculations.

**Table 4 Comparison between sample and G-20 countries, 2008** (billions of dollars)

Sample group	Exports to world	Imports from world	G-20	Exports to world	Imports from world
<b>Countries that are in both the sample group and G-20</b>					
Argentina	69.8	53.2	Argentina	69.8	53.2
Australia	185.7	211.0	Australia	185.7	211.0
Brazil	199.8	185.3	Brazil	199.8	185.3
Canada	457.3	448.9	Canada	457.3	448.9
China	1,484.1	1,190.0	China	1,484.1	1,190.0
European Union	1,986.3	2,296.5	European Union	1,986.3	2,296.5
India	187.4	300.5	India	187.4	300.5
Indonesia	155.1	137.6	Indonesia	155.1	137.6
Japan	783.1	761.8	Japan	783.1	761.8
Korea	417.5	435.0	Korea	417.5	435.0
Mexico	269.7	304.2	Mexico	269.7	304.2
South Africa	82.4	104.3	South Africa	82.4	104.3
Turkey	132.3	202.0	Turkey	132.3	202.0
United States	1,300.2	2,166.0	United States	1,300.2	2,166.0
<i>Subtotal</i>	<i>7,710.5</i>	<i>8,796.5</i>	<i>Subtotal</i>	<i>7,710.5</i>	<i>8,796.5</i>
<b>Other members</b>					
Colombia	38.7	41.4	France*	606.6	706.7
Malaysia	217.4	187.2	Germany*	1,465.2	1,204.8
Norway	168.0	89.1	Italy*	539.9	556.3
Pakistan	21.8	46.3	Russia	464.0	276.0
Philippines	64.6	76.9	Saudi Arabia	280.2	110.7
Switzerland	189.5	228.4	United Kingdom*	459.9	2,166.0
Taiwan	233.0	229.4			
Thailand	173.2	178.5			
<i>Total trade of sample group</i>	<i>8,816.7</i>	<i>9,873.6</i>	<i>Total trade of G-20</i>	<i>8,454.7</i>	<i>9,183.1</i>
<i>Total trade of sample group as a share of world trade (percent)</i>	<i>72.5</i>	<i>76.2</i>	<i>Total trade of G-20 as a share of world trade (percent)</i>	<i>69.5</i>	<i>70.9</i>
<i>Subtotal as a share of total trade of sample group (percent)</i>	<i>87.5</i>	<i>89.1</i>	<i>Subtotal as a share of total trade of G-20 (percent)</i>	<i>91.2</i>	<i>95.8</i>

\* = These individual member states of the European Union are listed in this table since they are part of the G-20, but their trade numbers are not added to the total since EU trade numbers are already included.

Source: IMF, *Direction of Trade Statistics* June 2009, for all countries except Taiwan; UN Comtrade Database via WITS (2009) for Taiwan.

**Table 5 Tariffs in agriculture** (percent)

Country/region	Bound		Applied	
	Pre-Doha	Post-Doha	Pre-Doha	Post-Doha
All 22 countries	25.0	18.2	7.6	5.3
European Union	7.8	4.2	6.0	3.4
Japan	10.7	4.5	10.4	4.5
United States	3.0	1.6	1.3	0.7
Brazil	40.6	31.0	4.1	3.9
China	16.1	14.7	9.6	8.9
India	167.0	130.4	60.2	55.7

Source: Authors' calculations.

**Table 6 Bound and applied tariff rates in agriculture imposed by Brazil, China, and India on imports from the group of 15 developing countries in the sample** (percent)

Country	Bound		Applied	
	Pre-Doha	Post-Doha	Pre-Doha	Post-Doha
Brazil	44.2	35.2	1.4	1.4
China	11.8	10.9	8.4	7.9
India	206.2	169.8	75.5	70.8

Source: Authors' calculations.

**Table 7 Gains in agriculture and NAMA expressed in terms of the reciprocity measure** (billions of dollars)

Country/region	Agriculture						NAMA	
	Total cuts		Tariff cuts		Nontariff barrier cuts <sup>a</sup>		Tariff cuts only	
	Given	Received	Given	Received	Given	Received	Given	Received
All 22 members	22.7	15.9	7.4	5.9	15.3	9.9	42.4	37.6
Developed (7)	21.1	8.5	5.9	3.4	15.2	5.1	26.9	16.4
Developing (15)	1.6	7.4	1.5	2.6	0.1	4.8	15.5	21.2
European Union	14.5	1.8	2.1	1.2	12.4	0.6	10.0	7.1
Japan	3.0	0.5	2.5	0.0	0.5	0.5	2.3	6.2
United States	1.4	3.2	0.4	0.8	1.0	2.4	11.7	2.5
Brazil	0.0	2.1	0.0	0.6	0.0	1.6	1.0	0.2
China	0.2	1.1	0.2	0.5	0.0	0.6	6.1	12.2
India	0.2	0.3	0.2	0.1	0.0	0.2	0.5	1.3

NAMA = nonagricultural market access

a. Consist of tariff rate quotas, export subsidies, and domestic support.

Source: Authors' calculations.

**Table 8 Share of concessions given and received (measured by reciprocity measure) by developed and developing countries (percent)**

Country/sector	Concessions given		Concessions received	
	Developed (7)	Developing (15)	Developed (7)	Developing (15)
All countries				
Agriculture	93	7	37	48
NAMA	64	36	39	57
<i>Total</i>	74	26	38	54
European Union				
Agriculture	63.9		8.0	
NAMA	23.5		16.6	
<i>Total</i>	37.6		13.6	
Japan				
Agriculture	13.3		2.3	
NAMA	5.5		14.7	
<i>Total</i>	8.2		10.4	
United States				
Agriculture	6.2		13.9	
NAMA	27.5		5.8	
<i>Total</i>	20.1		8.6	
Brazil				
Agriculture		0.0		9.4
NAMA		2.4		0.6
<i>Total</i>		1.5		3.6
China				
Agriculture		0.9		4.6
NAMA		14.5		28.7
<i>Total</i>		9.7		20.3
India				
Agriculture		1.0		1.3
NAMA		1.1		3.1
<i>Total</i>		1.1		2.5

NAMA = nonagricultural market access

Source: Authors' calculations.

**Table 9 Calculated increase in trade due to tariff cuts and nontariff barrier cuts**

Country/region	Agriculture												Nonagricultural market access			
	Total cuts				Tariff cuts				Nontariff barrier cuts <sup>a</sup>				Tariff cuts only			
	Imports		Exports		Imports		Exports		Imports		Exports		Imports		Exports	
	Billions of dollars	Percent	Billions of dollars	Percent	Billions of dollars	Percent	Billions of dollars	Percent	Billions of dollars	Percent	Billions of dollars	Percent	Billions of dollars	Percent	Billions of dollars	Percent
All 22 countries	20.5	6.2	14.1	5.2	6.7	2.0	5.3	2.0	13.8	4.2	8.8	3.3	45.6	0.7	40.3	1.6
Developed (7)	19.2	8.5	7.6	5.0	5.4	2.4	3.0	2.0	13.8	6.1	4.6	3.0	29.5	0.7	17.6	0.6
Developing (15)	1.4	1.3	6.4	5.6	1.3	1.2	2.2	2.0	0.1	0.1	4.2	3.7	16.1	0.7	22.8	1.0
European Union	15.3	18.7	1.7	3.8	2.2	2.7	1.1	2.5	13.1	16.0	0.6	1.2	11.0	0.8	7.5	0.8
Japan	2.4	5.7	0.5	27.3	2.0	4.7	0.0	2.4	0.4	1.0	0.5	24.9	2.5	0.5	6.7	1.2
United States	1.6	2.3	3.3	5.2	0.5	0.7	0.8	1.3	1.1	1.6	2.5	3.9	12.7	0.7	2.7	0.4
Brazil	0.0	0.2	2.0	8.3	0.0	0.2	0.5	2.2	0.0	0.0	1.5	6.1	1.0	1.2	0.3	0.3
China	0.2	0.6	1.1	6.5	0.2	0.6	0.5	2.8	0.0	0.0	0.6	3.7	6.7	1.0	13.2	1.5
India	0.2	3.5	0.3	4.8	0.2	3.5	0.1	1.1	0.0	0.0	0.2	3.8	0.7	0.1	1.4	1.9

a. Consist of tariff rate quotas, export subsidies, and domestic support.

Notes: Trade gains from agricultural nontariff barriers are calculated using a pro-rata impact of the trade gains of agricultural tariff cuts.

Agricultural trade calculations reflect both tariff and nontariff barrier cuts. Nonagricultural market access (NAMA) trade calculations reflect only tariff cuts.

Source: Authors' calculations.

**Table 10 Tariffs in nonagricultural market access (NAMA) (percent)**

Country/region	Bound		Applied	
	Pre-Doha	Post-Doha	Pre-Doha	Post-Doha
All 22 countries	8.6	3.7	2.4	1.8
European Union	2.4	1.2	1.5	0.8
Japan	5.7	1.9	0.9	0.5
United States	4.2	1.6	1.4	0.7
Brazil	30.3	12.4	7.0	5.9
China	4.1	2.9	3.5	2.6
India	30.4	11.8	7.8	7.7

Source: Authors' calculations.

**Table 11 Bound and applied tariff rates in NAMA imposed by Brazil, China, and India on imports from the group of 15 developing countries in the sample (percent)**

Country	Bound		Applied	
	Pre-Doha	Post-Doha	Pre-Doha	Post-Doha
Brazil	32.2	13.1	7.5	6.3
China	3.7	2.6	3.0	2.3
India	29.0	11.2	7.9	7.8

NAMA = nonagricultural market access

Source: Authors' calculations.

**Table 12 GDP impacts of trade gains in agriculture and NAMA, using OECD-Cline coefficients**

Country/region	Percent	Billions of dollars
Developed (7)		
Agriculture	0.06	25
NAMA	0.11	43
<i>Total</i>	0.18	68
Developing (15)		
Agriculture	0.05	5
NAMA	0.25	26
<i>Total</i>	0.30	31
European Union		
Agriculture	0.10	17
NAMA	0.11	18
<i>Total</i>	0.21	35
Japan		
Agriculture	0.04	2
NAMA	0.14	6
<i>Total</i>	0.18	8
United States		
Agriculture	0.03	4
NAMA	0.09	13
<i>Total</i>	0.12	17
Brazil		
Agriculture	0.41	5
NAMA	0.26	3
<i>Total</i>	0.66	9
China		
Agriculture	0.04	1
NAMA	0.56	18
<i>Total</i>	0.60	20
India		
Agriculture	0.08	1
NAMA	0.33	4
<i>Total</i>	0.42	5
All 22 countries		
Agriculture	0.06	30
NAMA	0.14	69
<i>Total</i>	0.20	99

NAMA = nonagricultural market access

Sources: OECD (2003); Cline (2004).

**Table 13 Trade effects of China choosing various NAMA flexibility options** (billions of dollars)

Country	China-20 half cut		China-20 no cut	
	Change in exports	Change in imports	Change in exports	Change in imports
Australia	0.90	1.12	0.90	1.12
Canada	0.31	1.57	0.31	1.57
European Union	8.63	13.24	8.62	13.24
Japan	6.71	4.51	6.71	4.51
Norway	0.11	0.28	0.09	0.28
Switzerland	0.43	1.03	0.43	1.03
United States	3.52	13.15	3.47	13.15
Argentina	0.27	0.24	0.27	0.24
Brazil	0.79	1.05	0.79	1.05
China	13.63	6.92	13.63	6.65
Colombia	0.10	0.24	0.10	0.24
India	1.46	0.67	1.46	0.67
Indonesia	1.08	0.08	1.05	0.08
Korea	2.75	1.32	2.75	1.32
Malaysia	0.48	1.45	0.43	1.45
Mexico	0.17	1.67	0.17	1.67
Pakistan	0.51	0.58	0.51	0.58
Philippines	0.42	0.05	0.42	0.05
South Africa	0.22	0.74	0.22	0.74
Taiwan	1.77	1.12	1.78	1.12
Thailand	1.11	1.01	1.06	1.01
Turkey	0.25	0.20	0.25	0.20
<i>Total</i>	45.60	52.22	45.41	51.95

  

	China-22 no cut		China-22 half cut	
	Change in exports	Change in imports	Change in exports	Change in imports
Australia	0.90	1.12	0.90	1.12
Canada	0.31	1.57	0.31	1.57
European Union	8.53	13.24	8.55	13.24
Japan	6.60	4.51	6.62	4.51
Norway	0.09	0.28	0.11	0.28
Switzerland	0.42	1.03	0.42	1.03
United States	3.44	13.15	3.49	13.15
Argentina	0.27	0.24	0.27	0.24
Brazil	0.79	1.05	0.79	1.05
China	13.63	6.26	13.63	6.57
Colombia	0.10	0.24	0.10	0.24
India	1.46	0.67	1.46	0.67
Indonesia	1.05	0.08	1.08	0.08
Korea	2.70	1.32	2.70	1.32

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**Table 13 Trade effects of China choosing various NAMA flexibility options** (billions of dollars) *(continued)*

Country	China-22 no cut		China-22 half cut	
	Change in exports	Change in imports	Change in exports	Change in imports
Malaysia	0.43	1.45	0.47	1.45
Mexico	0.17	1.67	0.17	1.67
Pakistan	0.51	0.58	0.51	0.58
Philippines	0.41	0.05	0.42	0.05
South Africa	0.22	0.74	0.22	0.74
Taiwan	1.74	1.12	1.74	1.12
Thailand	1.05	1.01	1.10	1.01
Turkey	0.25	0.20	0.25	0.20
<i>Total</i>	45.05	51.56	45.28	51.87

NAMA = nonagricultural market access

Source: Authors' calculations.

**Table 14 Trade effects of Brazil choosing various NAMA flexibility options** (billions of dollars)

Country	Brazil-20 half cut		Brazil-20 no cut	
	Change in exports	Change in imports	Change in export	Change in imports
Australia	0.90	1.12	0.90	1.12
Canada	0.31	1.57	0.32	1.57
European Union	8.63	13.24	8.69	13.24
Japan	6.71	4.51	6.73	4.51
Norway	0.11	0.28	0.11	0.28
Switzerland	0.43	1.03	0.43	1.03
United States	3.52	13.15	3.56	13.15
Argentina	0.27	0.24	0.27	0.24
Brazil	0.79	1.05	0.79	1.21
China	13.63	6.92	13.65	6.92
Colombia	0.10	0.24	0.10	0.24
India	1.46	0.67	1.46	0.67
Indonesia	1.08	0.08	1.08	0.08
Korea	2.75	1.32	2.75	1.32
Malaysia	0.48	1.45	0.48	1.45
Mexico	0.17	1.67	0.17	1.67
Pakistan	0.51	0.58	0.51	0.58
Philippines	0.42	0.05	0.42	0.05
South Africa	0.22	0.74	0.23	0.74
Taiwan	1.77	1.12	1.77	1.12
Thailand	1.11	1.01	1.11	1.01
Turkey	0.25	0.20	0.26	0.20
<i>Total</i>	45.60	52.22	45.77	52.39
	Brazil-22 no cut		Brazil-22 half cut	
	Change in exports	Change in imports	Change in exports	Change in imports
Australia	0.90	1.12	0.90	1.12
Canada	0.31	1.57	0.31	1.57
European Union	8.62	13.24	8.58	13.24
Japan	6.71	4.51	6.70	4.51
Norway	0.11	0.28	0.11	0.28
Switzerland	0.42	1.03	0.42	1.03
United States	3.52	13.15	3.49	13.15
Argentina	0.27	0.24	0.27	0.24
Brazil	0.79	1.00	0.79	0.92
China	13.62	6.92	13.61	6.92
Colombia	0.10	0.24	0.10	0.24
India	1.46	0.67	1.46	0.67
Indonesia	1.08	0.08	1.08	0.08
Korea	2.74	1.32	2.74	1.32
Malaysia	0.47	1.45	0.47	1.45

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**Table 14 Trade effects of Brazil choosing various NAMA flexibility options** (billions of dollars) (*continued*)

Country	Brazil-22 no cut		Brazil-22 half cut	
	Change in exports	Change in imports	Change in exports	Change in imports
Mexico	0.17	1.67	0.17	1.67
Pakistan	0.51	0.58	0.51	0.58
Philippines	0.42	0.05	0.42	0.05
South Africa	0.22	0.74	0.22	0.74
Taiwan	1.77	1.12	1.77	1.12
Thailand	1.11	1.01	1.11	1.01
Turkey	0.25	0.20	0.25	0.20
<i>Total</i>	45.56	52.18	45.48	52.09

NAMA = nonagricultural market access

Source: Authors' calculations.

**Table 15 Trade effects of India choosing various NAMA flexibility options** (billions of dollars)

Country	India-22 no cut		India-22 half cut	
	Change in exports	Change in imports	Change in exports	Change in imports
Australia	0.90	1.12	0.90	1.12
Canada	0.31	1.57	0.31	1.57
European Union	8.51	13.24	8.63	13.24
Japan	6.67	4.51	6.71	4.51
Norway	0.10	0.28	0.11	0.28
Switzerland	0.42	1.03	0.43	1.03
United States	3.48	13.15	3.52	13.15
Argentina	0.27	0.24	0.27	0.24
Brazil	0.79	1.05	0.79	1.05
China	13.59	6.92	13.63	6.92
Colombia	0.10	0.24	0.10	0.24
India	1.46	0.36	1.46	0.67
Indonesia	1.08	0.08	1.08	0.08
Korea	2.74	1.32	2.75	1.32
Malaysia	0.47	1.45	0.48	1.45
Mexico	0.17	1.67	0.17	1.67
Pakistan	0.51	0.58	0.51	0.58
Philippines	0.42	0.05	0.42	0.05
South Africa	0.22	0.74	0.22	0.74
Taiwan	1.77	1.12	1.77	1.12
Thailand	1.11	1.01	1.11	1.01
Turkey	0.25	0.20	0.25	0.20
<i>Total</i>	45.32	51.91	45.60	52.22

NAMA = nonagricultural market access

Note: "20 half cut" and "20 no cut" simulations were not conducted for India.

Source: Authors' calculations.

**Table 16 Restrictiveness indexes for services policies: Uruguay Round commitments, current Doha Round offers, and applied levels**

<b>Region</b>	<b>Overall</b>	<b>Financial</b>	<b>Telecom</b>	<b>Retail</b>	<b>Maritime</b>	<b>Professional</b>
<b>Uruguay Round commitments</b>						
South Asia	84	67	38	100	100	100
East Asia	63	40	57	79	57	76
Middle East	58	38	28	70	65	81
Africa	70	34	71	83	89	93
Latin America	65	62	39	61	96	75
OECD	28	14	9	15	85	56
Eastern Europe	21	19	10	0	64	47
World	48	33	30	46	82	70
<b>Doha offers</b>						
South Asia	68	48	33	83	80	87
East Asia	61	40	57	75	50	74
Middle East	54	38	25	60	55	81
Africa	70	33	69	83	89	92
Latin America	59	61	31	56	80	66
OECD	19	13	9	9	20	41
Eastern Europe	15	14	10	0	13	38
World	42	31	28	41	48	61
<b>Applied levels</b>						
South Asia	36	24	25	33	33	58
East Asia	37	33	32	25	35	59
Middle East	37	38	10	25	29	64
Africa	17	7	17	4	4	47
Latin America	17	13	6	3	13	44
OECD	15	3	9	9	8	41
Eastern Europe	11	5	0	0	8	37
World	21	13	13	11	15	47

OECD = Organization for Economic Cooperation and Development

0 = completely open; 100 = completely closed

Source: Gootiiz and Mattoo (2009).

**Table 17 Impact of services trade negotiations<sup>a</sup>** (trade in billions of US dollars; tariffs in percent)

Country/region	Applied tariff equivalent <sup>b</sup> (percent)			Current trade <sup>c</sup> (billions of dollars)			Increase after Doha offers <sup>d</sup> (billions of dollars)			Increase after 10 percent cut <sup>e</sup> (billions of dollars)			Impact of only sectoral (billions of dollars)		
	Initial	Doha offer	10 percent cut	Exports to 20 partners	Imports from world	Total	Exports to 20 partners	Imports from world	Total	Exports to 20 partners	Imports from world	Total	Exports to 20 partners	Imports from world	Total
European Union <sup>f</sup>	6.7	6.7	6.0	421.3	567.1	988.4	0	0	0	10.8	5.2	16.0	10.8	5.2	16.0
Japan	16.8	16.8	15.1	81.9	150.5	232.4	0	0	0	2.7	3.5	6.1	2.7	3.5	6.1
United States <sup>g</sup>	6.7	6.7	6.0	394.2	378.4	772.6	0	0	0	10.8	3.5	14.3	10.8	3.5	14.3
Brazil	55.5	55.5	50.0	19.0	37.2	56.2	0	0	0	0.7	2.8	3.5	0.7	2.8	3.5
China	80.8	80.8	72.7	84.8	129.3	214.1	0	0	0	3.7	14.3	18.0	3.7	14.3	18.0
India	98.5	98.5	88.6	24.8	77.6	102.4	0	0	0	0.7	10.5	11.1	0.7	10.5	11.1
Other 15	22.4	22.4	20.2	370.4	437.2	807.6	0	0	0	13.6	15.9	29.5	13.6	15.9	29.5
All 21	21.3	21.3	19.1	1396.4	1777.3		0	0		42.9	55.7		42.9	55.7	

**Memorandum: GDP impact of new services trade**

Country/region	Billions of dollars	
	Billions of dollars	Percent
European Union <sup>f</sup>	15.8	0.09
Japan	4.0	0.09
United States <sup>g</sup>	12.0	0.09
Brazil	9.5	0.70
China	16.7	0.51
India	22.4	1.97
Other 15	20.1	0.27
All 21	100.4	0.21

a. The 21 countries included are Argentina, Australia, Brazil, Canada, China, Colombia, the European Union, India, Indonesia, Japan, Korea, Malaysia, Mexico, Norway, Pakistan, Philippines, South Africa, Switzerland, Thailand, Turkey, and the United States.

b. Tariff equivalents provided from Rosen (2009). "Other 15" and "All 21" tariff equivalents are weighted averages (by total services imports).

c. Where bilateral services trade data was available from UNSD (2009), OECD (2009), or BEA (2009) 2007 bilateral data was used. Where bilateral data was not available a bilateral services trade flow was estimated by multiplying total services imports by the relevant proportion of bilateral merchandise trade from 2007.

d. Gootiiz and Mattoo (2009) find "no new market access" in the current Doha services trade offers. We assume that trade will not increase if the offers are implemented as they now stand.

e. An import price elasticity of  $-1.37$  is applied here for every bilateral trade flow. This elasticity is the simple average of the general instrumental variable estimate of the elasticity of US service exports ( $-1.12$ ) and the elasticity of US service imports ( $-1.62$ ) from Marquez (2005).

f. Measured as the weighted average of service tariff equivalents for Belgium, France, Germany, Italy, Netherlands, and the United Kingdom, using 2008 US exports to each country as weights.

g. Set equal to the EU tariff equivalent. Rosen (2009) assumes a US tariff equivalent of service barriers of zero.

Sources: Applied tariff equivalents: Rosen (2009); Trade: BEA (2009), UNSD (2009), OECD (2009), UN Comtrade Database via WITS (2009); Elasticity: Marquez (2005); authors' calculations.

**Table 18 Impact of sector initiatives in chemicals<sup>a</sup>** (trade in billions of US dollars; tariffs in percent)

Country	Average applied tariff <sup>b</sup> (percent)			Current trade <sup>d</sup> (billions of dollars)			Increase after modality cuts <sup>c</sup> (billions of dollars)			Increase after sectoral cuts <sup>e</sup> (billions of dollars)			Impact of only sectoral (billions of dollars)		
	Initial	Modality	Sectoral	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total
European Union	2.6	1.5	1.0	219.8	179.2	399.0	3.6	2.9	6.5	6.9	4.3	11.2	3.3	1.4	4.7
Japan	1.7	0.8	0.4	74.0	50.3	124.2	2.0	0.8	2.8	4.1	1.0	5.2	2.2	0.2	2.4
United States	2.1	1.2	0.6	156.6	179.3	335.9	2.5	2.3	4.8	4.6	4.6	9.1	2.1	2.3	4.4
Brazil	8.0	5.9	3.3	8.7	21.7	30.4	0.0	0.8	0.8	0.1	1.8	1.9	0.1	1.0	1.1
China	6.7	4.9	3.0	68.1	111.3	179.4	1.2	3.6	4.7	2.5	8.0	10.5	1.3	4.5	5.8
India	8.7	7.0	4.7	14.1	17.7	31.8	0.2	0.5	0.7	0.5	1.3	1.8	0.3	0.8	1.1
Other 16	3.2	2.3	1.4	208.6	303.2	511.7	2.8	4.6	7.4	6.4	9.8	16.1	3.6	5.2	8.7
All 22 <sup>b</sup>	3.3	2.2	1.3	749.9	862.5		12.3	15.4		25.1	30.8		12.8	15.4	

  

Memorandum: GDP impact of new chemicals trade			Memorandum: Current total merchandise trade (billions of dollars)			
Country	Billions of dollars	Percent	Country	Exports to 21 partners	Imports from world	Total
European Union	4.7	0.03	European Union	1,049.2	1,954.0	3,003.2
Japan	1.5	0.04	Japan	628.0	622.2	1,250.2
United States	3.7	0.03	United States	935.1	2,017.1	2,952.2
Brazil	2.9	0.22	Brazil	135.5	120.6	256.2
China	5.4	0.16	China	1,097.6	956.0	2,053.6
India	2.3	0.20	India	104.4	218.6	323.1
Other 16	6.1	0.08	Other 16	2,322.2	2,419.7	4,741.9
All 22	26.6	0.05	All 22	6,272.0	8,308.3	

a. All HS 6-digit traded tariff lines in HS codes 28 through 39 are included. The chapter headings are as follows: HS 28 - Inorganic chemicals; HS 29 - Organic chemicals; HS 30 - Pharmaceutical products; HS 31 - Fertilizers; HS 32 - Tanning or dyeing extracts; HS 33 - Essential oils; HS 34 - Soap, lubricating preparations, candles, etc.; HS 35 - Albuminoid substances, modified starches, glues; HS 36 - Explosives; HS 37 - Photographic or cinematographic goods; HS 38 - Miscellaneous chemical products; HS 39 - Plastics and articles thereof.

b. The 22 countries included are: Argentina, Australia, Brazil, Canada, China, Colombia, the European Union, India, Indonesia, Japan, Korea, Malaysia, Mexico, Norway, Pakistan, Philippines, South Africa, Switzerland, Taiwan, Thailand, Turkey, and the United States.

c. Listed tariff rates are the weighted average (weighted by bilateral imports) of the simple average of applied HS 6-digit tariffs on all traded chemical goods in each bilateral relationship.

d. Trade data from the following years and bilateral pairs are used: Norway - all countries (2008); Pakistan - all countries (2008); Thailand - all countries (2006); Indonesia - India, Malaysia, Mexico, Pakistan, Philippines and Taiwan (2005); Indonesia - all other countries (2007); Mexico - Brazil, India, Indonesia, Malaysia, Pakistan, Philippines and Taiwan (2006); Mexico - all other countries (2007); All other bilateral relationships (2007).

e. An import price elasticity of -2.09 is applied here for every product and bilateral trade flow. This elasticity is the simple average of all chemical goods observations in Kee et al. (2004).

Sources: UN Comtrade Database via WITS (2009), UNCTAD TRAINS Database via WITS (2009), Kee et al. (2004), and authors' calculations.

**Table 19 Impact of sector initiatives in Information Technology Agreement (ITA) goods<sup>a</sup>** (trade in billions of US dollars; tariffs in percent)

Country	Average applied tariff <sup>c</sup> (percent)			Current trade <sup>d</sup> (billions of dollars)			Increase after modality cuts <sup>e</sup> (billions of dollars)			Increase after sectoral cuts <sup>e</sup> (billions of dollars)			Impact of only sectoral (billions of dollars)		
	Initial	Modality	Sectoral	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total
European Union	0.4	0.3	0.0	166.4	211.3	377.7	1.0	0.9	1.8	5.2	2.1	7.3	4.3	1.2	5.5
Japan	0.0	0.0	0.0	181.8	67.0	248.9	1.6	0.0	1.6	6.3	0.0	6.4	4.8	0.0	4.8
United States	0.6	0.4	0.0	157.3	195.1	352.4	0.7	0.5	1.2	3.3	1.5	4.8	2.6	1.0	3.6
Brazil	9.9	8.8	0.0	2.7	16.8	19.5	0.0	0.3	0.3	0.0	3.5	3.6	0.0	3.3	3.3
China	1.7	1.2	0.0	218.0	193.4	411.3	0.5	1.9	2.4	2.8	8.7	11.5	2.3	6.8	9.1
India	3.4	2.8	0.0	4.1	21.2	25.2	0.0	0.2	0.3	0.1	1.4	1.5	0.1	1.1	1.2
Other 16	1.6	1.3	0.0	321.2	422.3	743.5	2.1	2.2	4.3	10.0	12.0	22.0	7.9	9.8	17.8
All 22 <sup>b</sup>	1.1	0.9	0.0	1,051.4	1,127.1		5.8	6.0		27.9	29.2		22.1	23.2	

  

Memorandum: GDP impact of new ITA goods trade			Memorandum: Current total merchandise trade (billions of dollars)			
Country	Billions of dollars	Percent	Country	Exports to 21 partners	Imports from the world	Total
European Union	5.4	0.03	European Union	1,049.2	1,954.0	3,003.2
Japan	3.1	0.07	Japan	628.0	622.2	1,250.2
United States	3.0	0.02	United States	935.1	2,017.1	2,952.2
Brazil	8.8	0.66	Brazil	135.5	120.6	256.2
China	8.5	0.26	China	1,097.6	956.0	2,053.6
India	2.5	0.22	India	104.4	218.6	323.1
Other 16	11.9	0.15	Other 16	2,322.2	2,419.7	4,741.9
All 22	43.2	0.09	All 22	6,272.0	8,308.3	

a. See table E1 for product list. Calculations are made using all traded tariff lines listed in table E1 at the HS 6-digit level.  
 b. See notes at table 18.  
 c. Listed tariff rates are the weighted average (weighted by bilateral imports) of the simple average of applied HS 6-digit tariffs on all traded ITA goods in each bilateral relationship.  
 d. See notes at table 18.  
 e. An import price elasticity of -2.01 is applied here for every product and bilateral trade flow. This elasticity is the simple average of all existing and new IT goods observations in Kee et al. (2004).  
 Sources: UN Comtrade Database via WITS (2009), UNCTAD TRAINS Database via WITS (2009), Kee et al. (2004), and authors' calculations.

**Table 20 Impact of sector initiatives in electronic and electrical goods<sup>a</sup>** (trade in billions of US dollars; tariffs in percent)

Country	Average applied tariff <sup>b</sup> (percent)			Current trade <sup>d</sup> (billions of dollars)			Increase after modality cuts <sup>e</sup> (billions of dollars)			Increase after sectoral cuts <sup>e</sup> (billions of dollars)			Impact of only sectoral (billions of dollars)		
	Initial	Modality	Sectoral	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total
European Union	0.9	0.6	0.0	175.8	342.0	517.8	1.3	1.7	3.0	7.0	4.7	11.7	5.7	3.0	8.6
Japan	0.0	0.0	0.0	197.6	109.5	307.1	2.3	0.0	2.3	8.8	0.0	8.8	6.5	0.0	6.5
United States	1.0	0.6	0.0	198.2	350.9	549.1	0.9	1.4	2.3	4.4	4.0	8.4	3.4	2.6	6.1
Brazil	11.2	9.1	0.0	5.9	22.8	28.7	0.0	0.5	0.5	0.1	4.4	4.5	0.1	3.9	4.0
China	6.6	4.6	0.0	393.7	306.9	700.6	1.9	3.6	5.5	8.6	14.9	23.5	6.7	11.3	18.0
India	6.4	5.7	0.0	5.4	28.9	34.3	0.0	0.4	0.5	0.2	2.1	2.3	0.2	1.7	1.8
Other 16	2.8	2.3	0.0	584.0	526.7	1,110.7	3.1	2.3	5.4	14.0	15.3	29.3	10.9	13.0	23.9
All 22 <sup>b</sup>	2.3	1.8	0.0	1,560.7	1,687.7		9.6	9.9		43.1	45.4		33.5	35.4	

  

Memorandum: GDP impact of new electronics trade			Memorandum: Current total merchandise trade (billions of dollars)			
Country	Billions of dollars	Percent	Country	Exports to 21 partners	Imports from world	Total
European Union	8.5	0.05	European Union	1,049.2	1,954.0	3,003.2
Japan	4.2	0.10	Japan	628.0	622.2	1,250.2
United States	5.1	0.04	United States	935.1	2,017.1	2,952.2
Brazil	10.7	0.80	Brazil	135.5	120.6	256.2
China	16.7	0.51	China	1,097.6	956.0	2,053.6
India	3.7	0.33	India	104.4	218.6	323.1
Other 16	17.0	0.22	Other 16	2,322.2	2,419.7	4,741.9
All 22	66.0	0.14	All 22	6,272.0	8,308.3	

a. See table E6 for product list. Calculations are made using all traded tariff lines listed in table E6 at the HS 6-digit level.

b. See notes at table 18.

c. Listed tariff rates are the weighted average (weighted by bilateral imports) of the simple average of applied HS 6-digit tariffs on all traded electronic and electrical goods in each bilateral relationship.

d. See notes at table 18.

e. An import price elasticity of -2.01 is applied here for every product and bilateral trade flow. This elasticity is the simple average of all electronic and electrical goods in Kee et al. (2004).

Sources: UN Comtrade Database via WITS (2009), UNCTAD TRAINS Database via WITS (2009), Kee et al. (2004), and authors' calculations.

**Table 21 Impact of sectoral initiatives in environmental goods<sup>a</sup>** (trade in billions of US dollars; tariffs in percent)

Country	Average applied tariff <sup>c</sup> (percent)			Current trade <sup>d</sup> (billions of dollars)			Increase after modality cuts <sup>e</sup> (billions of dollars)			Increase after sectoral cuts <sup>e</sup> (billions of dollars)			Impact of only sectoral (billions of dollars)		
	Initial	Modality	Sectoral	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total	Exports to 21 partners	Imports from world	Total
European Union	1.6	1.2	0.0	26.4	23.7	50.2	0.3	0.1	0.4	1.7	0.4	2.1	1.4	0.3	1.8
Japan	0.3	0.2	0.0	15.8	6.5	22.3	0.3	0.0	0.3	1.2	0.0	1.2	0.9	0.0	0.9
United States	1.2	0.8	0.0	17.0	33.7	50.7	0.1	0.3	0.4	0.7	0.9	1.6	0.6	0.6	1.2
Brazil	11.7	9.8	0.0	0.4	2.3	2.7	0.0	0.1	0.1	0.0	0.5	0.6	0.0	0.5	0.5
China	9.0	6.0	0.0	18.0	18.9	36.9	0.1	0.6	0.7	0.9	2.3	3.1	0.7	1.7	2.4
India	8.5	8.2	0.0	1.3	5.0	6.3	0.0	0.0	0.0	0.1	0.8	0.9	0.1	0.8	0.8
Other 16	4.0	3.3	0.0	26.3	45.4	71.7	0.2	0.4	0.6	0.9	2.8	3.7	0.7	2.4	3.2
All 22 <sup>b</sup>	3.3	2.5	0.0	105.2	135.6		1.0	1.5		5.5	7.8		4.5	6.3	

  

Memorandum: GDP impact of new environmental goods trade			Memorandum: Current total merchandise trade (billions of dollars)			
Country	Billions of dollars	Percent	Country	Exports to 21 Partners	Imports from world	Total
European Union	1.7	0.01	European Union	1,049.2	1,954.0	3,003.2
Japan	0.6	0.01	Japan	628.0	622.2	1,250.2
United States	1.0	0.01	United States	935.1	2,017.1	2,952.2
Brazil	1.3	0.10	Brazil	135.5	120.6	256.2
China	2.2	0.07	China	1,097.6	956.0	2,053.6
India	1.7	0.15	India	104.4	218.6	323.1
Other 16	2.4	0.03	Other 16	2,322.2	2,419.7	4,741.9
All 22	11.0	0.02	All 22	6,272.0	8,308.3	

a. See table F1 for product list. Calculations are made using all traded tariff lines listed in table F1 at the HS 6-digit level.  
 b. See notes at table 18.  
 c. Listed tariff rates are the weighted average (weighted by bilateral imports) of the simple average of applied HS 6-digit tariffs on all traded environmental goods in each bilateral relationship.  
 d. See notes at table 18.  
 e. An import price elasticity of -2.10 is applied here for every product and bilateral trade flow. This elasticity is the simple average of all environmental goods observations in Kee et al. (2004).  
 Sources: UN Comtrade Database via WITS (2009), UNCTAD TRAINS Database via WITS (2009), Kee et al. (2004), and authors' calculations.

**Table 22 Brief summary of Doha Round trade facilitation proposals**

<b>Sector</b>	<b>Description</b>	<b>Proposing members</b>
Cross cutting	Small economies/developing countries may use institutions under regional trade agreements or customs unions to aid in the implementation of new trade facilitation measures.	Barbados, Cuba, Fiji, Papua New Guinea, Solomon Islands
Publication	Members shall publish all rules pertaining to import and export procedures, duties, classification rules, prohibitions, fees, penalties, and appeal procedures.	Hong Kong, Japan, Mongolia, Norway, Switzerland, Turkey
Internet publication	Members shall publish and update a full description of their customs procedures and make available the forms and documents required for importation and exportation on the Internet.	United States
	Members shall publish and update a description of import/export and transit procedures and all required forms thereof on the internet. Whenever practical the language of publication should be one of the official languages of the WTO.	Hong Kong, Japan, Mongolia, Norway, Switzerland, Turkey
Enquiry points	Members shall ensure that enquiry points regarding trade procedures exist. If fees exist for enquiries they shall not exceed the cost of service.	Hong Kong, Japan, Mongolia, Norway, Switzerland, Turkey
	Small economies/developing countries who are party to regional agreements may establish regional enquiry points.	Barbados, Cuba, Fiji, Papua New Guinea, Solomon Islands
Comment period	Except in urgent circumstances, members shall provide information to interested parties on new trade facilitation policies with a reasonable period of time to comment.	Hong Kong, Japan, Mongolia, Switzerland
	Members shall allow for a certain, predetermined number of days between publication and implementation of new customs procedures.	Turkey
Consults	Members shall hold regular consultations between border agencies and traders within their territories.	Hong Kong, Japan, Mongolia, Switzerland
Advance rulings	A member shall issue an advance ruling to an applicant submitting a request regarding a good's classification, customs valuation, and the application of duties or quotas.	Australia, Canada, Turkey, United States
Appeals	Each member shall provide that any person to whom customs or other border agency issues a decision has the right to an administrative appeal and a judicial appeal of the decision.	Japan, Mongolia
	There shall be a mechanism for an appeal of adverse findings of inspection authorities at the import points of a customs union.	India
Import alerts	Import warnings and any resulting prohibitions must be applied uniformly across the issuing country, a warning may only be issued after positive evidence, and warnings and prohibitions may not be maintained once the situation is resolved.	India
Goods detention	When imported goods are detained for inspection by customs, information regarding the detention shall be provided to the importer or agent promptly.	India
Test procedure	In the event that an import is found to be contaminated or otherwise not compliant, members shall grant a second confirmatory test of the import upon request.	India
Import/export fees	Import and export fees shall only be imposed for services provided in direct connection with the specific importation or exportation; not exceed the approximate cost of the services; not be calculated on an ad valorem basis; and not be imposed with respect to consular services and equivalent measures.	European Union, Korea, Switzerland

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**Table 22 Brief summary of Doha Round trade facilitation proposals (continued)**

<b>Sector</b>	<b>Description</b>	<b>Proposing members</b>
Pre-arrival	Members shall maintain or introduce pre-arrival processing for imports. Where applicable, members shall draw on international standards as a basis for pre-arrival processing.	Hong Kong, Japan, Korea, Mongolia, Switzerland
	Declaration procedures for vessels shall be applied prior to the vessels' arrival, or as rapidly as not to unduly delay the vessel and its cargo. Members will also provide for advance electronic lodging of documents and for pre-arrival processing of such documents.	European Union
Return of goods	Members shall have procedures authorizing an importer to remove goods from customs' control prior to the final determination of customs duties, taxes, and fees when these are not determined at or prior to arrival.	Canada, Switzerland
Risk assessment	A customs union shall generally apply a harmonized risk-management system across the entire customs union.	India
	For the purpose of risk management members shall concentrate examinations on higher risk goods, thereby facilitating the movement of lower-risk goods.	Taiwan, Korea, Switzerland
	Members shall apply risk-management techniques with the purpose to reduce physical inspections on goods. Members shall concentrate physical inspections on high-risk goods.	China
Postclearance audit	Members shall conduct postclearance audits on the account books, vouchers, commercial documents, customs declaration forms, and other related information of trading enterprises.	China, Indonesia, Korea
Average time	Members shall measure and publish their own average time for the release of goods in a consistent manner on a periodic basis. Members shall try to reduce average release time.	Korea, Japan
Authorized traders	Members shall apply further simplified import and export formalities for certain authorized traders.	European Union, Mongolia
	Norms for authorized trader status shall be applied uniformly by all member states of a customs union.	India
Expedited shipments	Each member shall adopt or maintain customs procedures allowing for expedited shipments while maintaining customs control and selection.	United States
Consular transactions	A member shall not require a consular transaction, including any related fee or charge, in connection with the importation of any good.	Uganda, United States
Border agencies	Members shall ensure that their authorities and agencies involved in border and other import and export controls cooperate and coordinate their procedures.	Canada, Norway
	Transshipped goods may be declared, by the relevant party, at the port or place of destination for customs evaluation at that location.	European Union
Periodic review	Each member shall make periodic reviews of its policies, taking into account new business practices, techniques, technologies, international best practices, and outside input.	Hong Kong, Switzerland
Reducing requirements	Members shall minimize the incidence and complexity of import and export formalities and decrease and simplify import and export documentation requirements.	Hong Kong, Switzerland
	Members shall ensure that documentation requirements are no more administratively burdensome or trade restrictive than necessary to achieve their legitimate objectives.	Mongolia, Norway, Switzerland

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**Table 22 Brief summary of Doha Round trade facilitation proposals (continued)**

<b>Sector</b>	<b>Description</b>	<b>Proposing members</b>
International standards	Members shall use relevant international standards or parts thereof as a basis for their laws, regulations, and administrative procedures that lay down requirements for formalities and procedures in connection with importation, exportation, or transit.	Mongolia, Norway, Switzerland
Available information	Customs and other border agencies shall require only those documents necessary to permit control of the operation and to ensure that all requirements relating to the application of relevant laws have been complied with.	Hong Kong, Korea, Switzerland
Single window	Members shall maintain or establish a "single window" where documentation and/or data requirements for exportation, importation, and transit are submitted one time only.	Korea, Singapore, Thailand
Preshipment	Members shall not require the use of preshipment inspections or their equivalent.	European Union, Taiwan
	Members shall not require the provision of shipping notes and associated documents as a condition for the import, unloading or transshipment of cargos.	European Union
Customs brokers	Members shall not require the use of customs brokers.	European Union, Mongolia, Taiwan, Switzerland
Customs unions	For border clearance of goods, member states of a customs union shall adopt the same border procedures.	India
	All documentation requirements relating to import clearance shall be uniform for all member states of a customs union.	India
Returned goods	In case of rejection of a food consignment on account of failure to meet certain standards, an option shall first be given to the exporter to return the rejected goods to the exporter.	India
Scope of goods transit	Definition of traffic in transit: Goods shall be deemed to be in transit across the territory of a member when the passage across such territory is only a portion of a complete journey beginning and ending beyond the frontier of the member whose territory the traffic passes.	Macedonia, Mongolia, Switzerland, Swaziland
	Consignments that are being transhipped shall not be subject to transit procedures	European Union
Freedom of transit	There shall be nondiscriminatory freedom of transit through the territory of each member via the routes most convenient for international transit.	Macedonia, Mongolia, Switzerland, Swaziland
Regulations on freedom of transit	All regulation imposed by a member on traffic in transit to or from the territories of other members shall be reasonable, having regard to the conditions of the traffic.	Macedonia, Mongolia, Switzerland, Swaziland
	Traffic in transit shall not be subject to any restrictions unless a member takes a measure to fulfill one of the objectives laid down in GATT Articles XX and XXI.	Cuba, Georgia, Moldova, Paraguay, Turkey
	Members shall not apply discriminatory measures to goods in transit, or to vessels or other means of transport of other members, for non-commercial reasons.	Cuba
	With respect to traffic charges, each member shall accord to traffic in transit to or from the territory of any member treatment no less favorable than that accorded to its own traffic or the treatment afforded to traffic from the most-favored nation, whichever is more favorable.	Macedonia, Mongolia, Switzerland, Swaziland

*(continued on next page)*

**Table 22 Brief summary of Doha Round trade facilitation proposals (continued)**

Sector	Description	Proposing members
Fees and charges on transit	Members shall publish promptly information on transit charges.	Macedonia, Mongolia, Switzerland, Swaziland
	Each member shall periodically review its charges to ensure that they are in line with WTO commitments and with a view to reducing their number and diversity, where appropriate.	Macedonia, Mongolia, Switzerland, Swaziland
	Members shall exempt traffic in transit from customs duties and from all transit duties and other fees and charges imposed in respect of transit, except for charges like road tolls.	Macedonia, Mongolia, Switzerland, Swaziland
	Members shall accord to traffic in transit to or from the territory of any Member, treatment no less favorable than that accorded to domestic traffic, under like conditions, within the territory of that member.	Cuba, Georgia, Moldova, Paraguay, Turkey
Documents for goods transit	Each member shall publish all transit formalities and documentation requirements, and regional transit agreements or arrangements.	Macedonia, Mongolia, Switzerland, Swaziland
	Each member shall periodically review its transit formalities and documentation requirements to ensure that they are in line with WTO commitments.	Macedonia, Mongolia, Switzerland, Swaziland
	Any member may require that traffic in transit through its territory be entered at the proper customs office without prejudice to the other commitments on transit.	Macedonia, Mongolia, Switzerland, Swaziland
Bonded transport regime	Where a member requires a guarantee to avoid inland diversion of goods in transit, any person required to provide security shall be allowed to choose any form of security provided that it is acceptable to the customs and other border authorities.	Macedonia, Mongolia, Switzerland, Swaziland
Regional transit agreements	Members shall promote bilateral and regional transit agreements or arrangements with a view to reducing trade barriers and enhancing freedom of transit.	Macedonia, Mongolia, Switzerland, Swaziland
Transit cooperation	Members shall ensure cooperation and coordination between all concerned authorities and agencies in their territory to facilitate traffic in transit.	Macedonia, Mongolia, Switzerland, Swaziland
	Members shall provide opportunities for interested traders or their representatives to comment on the transit regime and its operation.	Macedonia, Mongolia, Switzerland, Swaziland
Customs cooperation	Members shall, upon request, exchange information and documents on matters such as Harmonized System (HS) classification, description, quantity, country of origin, and valuation of goods in identified cases of import or export where there is reason to doubt the truth or accuracy of a declaration filed by the importer or exporter.	India, South Africa, Sri Lanka
	Members may seek assistance from other members in accordance with the following requirements: A member shall seek to obtain and review the relevant and necessary documentation from the importer respecting the declared value of goods and shall conduct a verification before it requests assistance from another member; and if the member has reasonable grounds to doubt the truth or accuracy of supporting documentation it may request assistance from the exporting member on mutually agreed terms consistent with the requirements of this proposal. However, a member shall not require an original or copy of export declarations issued by the authorities of the exporting member as a requirement for importation.	Canada

*(continued on next page)*

**Table 22 Brief summary of Doha Round trade facilitation proposals (continued)**

Sector	Description	Proposing members
Implementation of trade facilitation	Cross-cutting measure containing provisions on the following: capacity self-assessment, notification procedures, entry into force of the agreement, special and differential treatment, formulation of capacity building plans, notification of capacity building plans, timing of implementation of commitments, verification of capacity acquisition, notification of capacity acquisition, full implementation of the agreement, technical assistance, cooperation and coordination in implementation, technical assistance in capacity building.	A group of 23 members; prominent members include the European Union, Japan, Mexico, Canada, and Switzerland
	Cross-cutting measure containing provisions on the following: special and differential treatment, the establishment of the WTO's Trade Facilitation Technical Assistance and Capacity-Building Support Unit (TFTACBSU), capacity self-assessment, notification procedures, formulation of capacity building plans, preparations and notifications of capacity building plans, entry into force of the agreement, applicability of the agreement, implementation of capacity building plans, verification of capacity acquisition, developed member obligations relating to technical assistance and capacity building, cooperation and coordination in implementation.	Core Group of Developing Countries on Trade Facilitation
	Cross-cutting measures containing provisions on the following: linking technical assistance and capacity building to trade facilitation, needs assessments before the trade facilitation agreement, needs assessments after the trade facilitation agreement, special and differential treatment in levels of commitments, exceptions for least developed countries, early warning mechanisms and dispute settlement.	Core Group of Developing Countries; African, Caribbean, and Pacific Group; African Group; Least Developed Countries Group
	Members and the WTO, within its competence, shall provide technical and financial assistance, on mutually agreed terms, to small economies/developing countries to support the establishment, modification, and maintenance of these national and regional enquiry points.	Barbados, Cuba, Fiji, Papua New Guinea, Solomon Islands
	A Committee on Trade Facilitation is hereby established. The committee shall be open for participation by all members. The committee shall elect its own chairman. The committee shall meet as needed and envisaged by the relevant provisions of the agreement, but no less than once a year.	Guatemala, Honduras, Hong Kong, Nicaragua, Norway, Taiwan, Switzerland
	In order to facilitate the process of domestic coordination of trade facilitation needs, priorities, and implementation, members shall establish a national committee or a similar mechanism on trade facilitation with the objective of assisting in the implementation of the Agreement on Trade Facilitation.	Honduras, Norway, Switzerland

Note: In the interest of brevity, proposals have been shortened and paraphrased in several instances. The official proposals should be consulted for actual text.

Source: WTO (2009c).

**Table 23 Trade and GDP gains from trade facilitation improvements**

<b>Country/region</b>	<b>Trade gains</b>		<b>GDP gains</b>	
	<b>Imports</b> (billions of dollars)	<b>Exports</b> (billions of dollars)	<b>Percent</b>	<b>Billions of dollars</b>
European Union	70.0	29.5	0.6	98.3
Japan	20.7	13.7	0.5	22.3
United States	93.3	19.0	0.7	94.0
Brazil	4.4	1.6	1.2	16.1
China	40.2	16.0	1.6	52.2
India	5.9	1.2	1.3	14.3
Total	340.0	115.0	0.8	385.1

Notes: Imports are imports from the world and exports are exports to the 22 countries in the sample. Trade gains are calculated using coefficients from Wilson, Mann, and Otsuki (2005). GDP gains are calculated using OECD-Cline coefficients.

Source: Authors' calculations.

**APPENDIX A ADDITIONAL TABLES**

**Table A1 Weighted average of bound duties pre- and post-Doha (percent)**

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Pre-Doha bound rates										
All 22 countries											
Agriculture	25.0	23.0	30.2	18.7	42.7	20.7	21.4	28.4	21.1	41.1	34.9
NAMA	8.6	8.5	7.2	13.8	12.5	9.0	7.7	10.6	10.7	6.9	7.7
Total	9.4	9.2	8.3	14.0	14.1	9.5	7.7	12.0	13.1	7.6	9.8
Developed (7)											
Agriculture	8.4	8.5	8.1	8.8	6.1	12.7	4.8	4.5	8.4	7.4	4.0
NAMA	3.9	2.9	3.9	8.2	14.1	2.5	3.1	2.8	2.8	3.6	5.3
Total	4.2	3.2	4.1	8.3	13.8	3.1	3.1	2.9	4.2	3.7	5.2
Developing (15)											
Agriculture	60.5	49.2	77.3	63.7	81.0	46.0	29.9	53.2	49.9	134.9	72.3
NAMA	17.0	17.7	14.2	22.2	9.6	19.2	11.7	21.0	22.2	19.2	13.3
Total	18.9	19.2	17.3	23.2	14.8	20.0	11.8	24.0	27.3	22.0	19.8
European Union											
Agriculture	7.8	5.7	7.2	10.4	4.7	...	7.2	4.0	6.7	7.0	5.3
NAMA	2.4	1.8	3.5	2.4	7.2	...	3.4	1.5	1.8	3.5	5.1
Total	2.7	2.0	3.8	3.4	7.0	...	3.4	1.6	3.6	3.5	5.1
Japan											
Agriculture	10.7	9.1	13.9	8.3	1.0	8.3	...	3.6	9.0	9.5	1.6
NAMA	5.7	1.5	2.9	14.7	31.7	1.7	...	1.0	1.0	3.2	7.6
Total	6.1	2.6	3.5	14.7	29.3	2.4	...	1.5	3.5	3.5	7.0
United States											
Agriculture	3.0	2.3	3.8	3.5	4.0	1.6	3.1	...	3.8	2.7	1.5
NAMA	4.2	2.7	3.9	9.5	18.0	1.6	1.7	...	3.9	3.0	4.6
Total	4.1	2.6	3.9	9.2	17.9	1.6	1.7	...	3.9	3.0	4.4
Brazil											
Agriculture	40.6	32.9	44.1	41.2	53.0	32.5	14.6	34.9	...	33.5	33.9
NAMA	30.3	28.9	32.2	30.7	34.8	29.6	31.6	28.8	...	32.6	32.2
Total	30.8	29.1	33.1	31.3	35.2	29.7	31.5	28.9	...	32.6	32.3
China											
Agriculture	16.1	17.9	11.8	21.9	36.2	12.8	18.2	17.1	6.2	...	30.6
NAMA	4.1	5.4	3.7	1.7	0.2	6.5	5.5	4.5	1.3	...	2.7
Total	4.6	5.9	4.0	2.2	1.9	6.7	5.6	6.0	2.8	...	5.6
India											
Agriculture	167.0	77.4	206.2	110.1	105.9	104.8	106.9	70.0	113.0	103.0	...
NAMA	30.4	30.8	29.0	31.6	31.7	30.2	32.8	22.9	34.1	26.7	...
Total	32.3	31.1	36.3	31.9	42.6	30.4	32.9	23.4	51.3	27.1	...

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**Table A1 Weighted average of bound duties pre- and post-Doha (percent) (continued)**

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Post-Doha bound rates										
All 22 countries											
Agriculture	18.2	16.2	23.1	12.8	30.9	12.1	16.3	22.2	15.2	32.4	28.6
NAMA	3.7	3.8	3.2	5.1	4.3	4.1	3.8	4.6	4.9	3.0	3.5
<i>Total</i>	4.4	4.5	4.2	5.5	5.7	4.5	3.9	6.1	7.3	3.6	5.4
Developed (7)											
Agriculture	3.9	3.6	3.9	4.5	2.9	5.2	2.3	2.1	4.4	3.6	1.9
NAMA	1.6	1.4	1.7	2.6	4.3	1.3	1.6	1.5	1.3	1.6	2.4
<i>Total</i>	1.7	1.5	1.8	2.7	4.2	1.5	1.6	1.5	2.1	1.7	2.3
Developing (15)											
Agriculture	48.7	38.9	63.9	50.1	60.1	33.9	23.6	43.1	39.8	112.6	61.0
NAMA	7.5	7.9	6.4	9.0	4.2	8.7	5.8	8.9	10.2	8.1	6.1
<i>Total</i>	9.2	9.4	9.2	10.0	8.2	9.5	5.8	12.1	15.6	10.6	12.1
European Union											
Agriculture	4.2	2.8	3.9	5.7	2.5	...	3.4	2.0	3.9	3.5	2.5
NAMA	1.2	1.1	1.7	1.1	3.0	...	1.8	0.9	1.0	1.8	2.5
<i>Total</i>	1.4	1.1	1.9	1.7	2.9	...	1.8	1.0	2.1	1.8	2.5
Japan											
Agriculture	4.5	3.9	5.7	3.5	0.6	4.0	...	1.7	4.2	4.6	0.8
NAMA	1.9	0.7	1.2	4.3	4.4	0.9	...	0.5	0.4	1.5	2.5
<i>Total</i>	2.1	1.2	1.5	4.2	4.1	1.2	...	0.7	1.6	1.7	2.3
United States											
Agriculture	1.6	1.2	2.0	1.7	2.0	0.8	1.5	...	1.8	1.3	0.8
NAMA	1.6	1.3	1.6	2.8	5.3	1.0	1.2	...	1.6	1.4	2.1
<i>Total</i>	1.6	1.3	1.6	2.8	5.2	1.0	1.2	...	1.6	1.4	2.0
Brazil											
Agriculture	31.0	21.9	35.2	32.4	35.8	21.9	9.0	22.0	...	20.8	21.8
NAMA	12.4	12.2	13.1	11.9	12.7	12.4	13.2	12.1	...	13.9	12.5
<i>Total</i>	13.2	12.4	14.9	12.9	13.2	12.8	13.2	12.3	...	13.9	12.7
China											
Agriculture	14.7	16.1	10.9	19.7	32.6	11.1	14.7	15.5	6.0	...	27.7
NAMA	2.9	3.7	2.6	1.3	0.2	4.4	3.8	3.2	1.0	...	2.0
<i>Total</i>	3.4	4.2	3.0	1.7	1.7	4.5	3.8	4.7	2.4	...	4.7
India											
Agriculture	130.4	47.3	169.8	70.1	62.9	66.3	60.9	43.1	61.6	59.0	...
NAMA	11.8	11.6	11.2	12.5	12.9	11.5	13.1	9.0	12.7	10.4	...
<i>Total</i>	13.4	11.8	17.8	12.7	20.2	11.7	13.1	9.4	23.3	10.7	...

... = not applicable

NAMA = nonagricultural market access

LDCs = least developed countries

Note: Rows are tariffs applied to imports; columns are tariffs applied to exports.

Source: Author's calculations.

**Table A2 Cuts in bound tariffs** (percentage points)

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
All 22 countries											
Agriculture	6.8	6.8	7.2	6.0	11.8	8.6	5.1	6.2	5.9	8.7	6.3
NAMA	4.9	4.6	4.0	8.6	8.2	4.8	3.9	5.9	5.8	3.9	4.2
<i>Total</i>	5.0	4.7	4.2	8.5	8.4	5.0	3.9	5.9	5.8	4.0	4.4
Developed (7)											
Agriculture	4.5	4.8	4.2	4.3	3.2	7.5	2.5	2.4	4.0	3.8	2.2
NAMA	2.3	1.5	2.2	5.6	9.9	1.3	1.4	1.3	1.5	2.0	2.9
<i>Total</i>	2.4	1.7	2.3	5.5	9.6	1.6	1.4	1.4	2.2	2.0	2.9
Developing (15)											
Agriculture	11.8	10.3	13.4	13.6	20.9	12.1	6.4	10.1	10.1	22.3	11.3
NAMA	9.6	9.8	7.8	13.2	5.4	10.5	5.9	12.1	12.0	11.1	7.2
<i>Total</i>	9.7	9.8	8.1	13.2	6.5	10.5	5.9	11.9	11.7	11.3	7.7
European Union											
Agriculture	3.6	2.9	3.3	4.8	2.3	...	3.8	2.0	2.8	3.6	2.8
NAMA	1.2	0.8	1.8	1.2	4.2	...	1.5	0.5	0.8	1.7	2.6
<i>Total</i>	1.3	0.8	1.9	1.7	4.0	...	1.5	0.6	1.5	1.8	2.6
Japan											
Agriculture	6.2	5.3	8.2	4.9	0.4	4.3	...	1.9	4.8	4.9	0.8
NAMA	3.8	0.8	1.7	10.5	27.2	0.9	...	0.5	0.6	1.7	5.1
<i>Total</i>	4.0	1.5	2.0	10.4	25.2	1.2	...	0.7	1.9	1.8	4.7
United States											
Agriculture	1.5	1.1	1.8	1.8	2.0	0.8	1.5	...	2.0	1.4	0.8
NAMA	2.5	1.4	2.3	6.6	12.8	0.6	0.5	...	2.3	1.6	2.5
<i>Total</i>	2.5	1.4	2.3	6.4	12.7	0.6	0.5	...	2.3	1.6	2.4
Brazil											
Agriculture	9.6	11.0	9.0	8.8	17.3	10.6	5.6	12.9	...	12.7	12.1
NAMA	18.0	16.8	19.1	18.9	22.2	17.2	18.4	16.6	...	18.7	19.7
<i>Total</i>	17.6	16.6	18.3	18.4	22.1	16.9	18.4	16.5	...	18.7	19.6
China											
Agriculture	1.5	1.8	0.9	2.2	3.6	1.7	3.4	1.6	0.3	...	3.0
NAMA	1.2	1.7	1.0	0.4	0.1	2.1	1.7	1.3	0.3	...	0.7
<i>Total</i>	1.2	1.7	1.0	0.4	0.2	2.1	1.7	1.4	0.3	...	0.9
India											
Agriculture	36.6	30.1	36.5	40.0	43.0	38.6	46.1	26.9	51.4	44.0	...
NAMA	18.6	19.2	17.7	19.1	18.9	18.6	19.7	13.9	21.4	16.3	...
<i>Total</i>	18.8	19.2	18.5	19.2	22.4	18.7	19.8	14.1	28.0	16.5	...

... = not applicable

NAMA = nonagricultural market access

LDCs = least developed countries

Note: Rows are cuts on tariffs applied to imports; columns are cuts on tariffs applied to exports.

Source: Authors' calculations.

**Table A3 Bound versus applied “water levels,” pre- and post-Doha (percentage points)**

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Pre-Doha “water level”										
All 22 countries											
Agriculture	17.5	16.3	21.4	12.1	35.9	12.0	7.7	23.9	13.4	32.8	30.7
NAMA	6.2	5.9	4.4	12.0	10.5	5.3	3.7	8.9	9.4	3.2	3.7
Total	6.7	6.4	5.3	12.0	12.0	5.6	3.7	10.2	10.3	3.8	5.8
Developed (7)											
Agriculture	2.9	3.3	2.3	3.4	5.4	5.9	0.5	1.9	2.1	0.9	0.8
NAMA	2.6	1.8	1.8	7.5	11.9	1.0	0.6	2.1	1.9	0.5	1.2
Total	2.6	1.9	1.8	7.3	11.6	1.3	0.6	2.1	2.0	0.5	1.2
Developing (15)											
Agriculture	48.5	39.7	62.0	51.2	67.8	31.3	11.3	46.6	38.9	121.8	66.8
NAMA	12.7	12.6	10.1	18.7	8.3	12.1	6.4	18.2	20.3	13.3	9.6
Total	14.2	13.9	12.6	19.5	12.6	12.7	6.4	20.8	23.8	15.9	15.9
European Union											
Agriculture	1.8	0.6	1.4	3.4	4.5	...	0.0	0.0	0.3	1.4	0.0
NAMA	0.9	0.5	0.9	1.6	7.0	...	0.0	0.0	1.1	0.0	0.0
Total	0.9	0.5	1.0	1.9	6.8	...	0.0	0.0	0.8	0.0	0.0
Japan											
Agriculture	0.3	-0.0	0.9	0.7	0.2	-0.0	...	0.0	0.3	0.4	0.6
NAMA	4.8	0.5	1.5	14.6	31.6	0.1	...	0.3	0.7	0.9	6.7
Total	4.5	0.5	1.5	14.4	29.2	0.0	...	0.3	0.6	0.9	6.1
United States											
Agriculture	1.7	1.4	2.0	2.4	4.0	0.0	0.0	...	0.3	0.0	0.7
NAMA	2.8	1.7	2.0	8.6	13.8	0.1	0.0	...	2.8	0.0	1.3
Total	2.7	1.7	2.0	8.3	13.7	0.1	0.0	...	2.5	0.0	1.3
Brazil											
Agriculture	36.5	21.6	42.8	40.3	45.5	20.2	8.7	26.2	...	24.5	27.3
NAMA	23.3	19.4	24.7	30.0	34.4	18.6	19.6	20.7	...	20.2	27.4
Total	23.9	19.5	26.2	30.5	34.7	18.7	19.6	20.8	...	20.3	27.4
China											
Agriculture	6.6	7.5	3.4	7.2	30.8	0.8	0.2	11.2	0.6	...	24.7
NAMA	0.6	0.6	0.7	0.3	0.1	0.6	0.7	0.6	0.2	...	0.8
Total	0.9	0.9	0.8	0.4	1.5	0.6	0.7	1.9	0.4	...	3.3
India											
Agriculture	106.9	40.4	130.7	79.8	76.6	56.0	77.2	40.2	50.4	71.1	...
NAMA	22.5	21.0	21.0	25.4	25.8	20.1	21.3	15.2	27.9	18.2	...
Total	23.7	21.1	25.6	25.6	33.2	20.2	21.3	15.5	32.8	18.5	...

(continued on next page)

**Table A3 Bound versus applied “water levels,” pre- and post-Doha (percentage points)**

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Post-Doha “water level”										
All 22 countries											
Agriculture	12.9	11.7	16.5	8.2	24.5	6.1	5.0	18.9	9.9	26.8	25.4
NAMA	1.9	1.8	1.3	3.6	3.4	1.3	0.9	3.4	3.9	0.7	1.3
<i>Total</i>	2.4	2.3	2.1	3.9	4.5	1.5	1.0	4.6	5.3	1.2	3.1
Developed (7)											
Agriculture	1.0	1.1	0.9	1.4	2.5	1.4	0.1	0.9	0.8	0.2	0.3
NAMA	0.9	0.7	0.6	2.3	3.6	0.3	0.1	1.0	0.7	0.1	0.5
<i>Total</i>	0.9	0.7	0.6	2.2	3.5	0.4	0.1	1.0	0.8	0.1	0.5
Developing (15)											
Agriculture	38.1	30.8	49.7	39.1	47.4	20.9	7.5	37.6	30.3	101.1	55.7
NAMA	3.7	3.7	2.9	5.7	3.0	2.8	1.7	6.5	8.5	3.0	3.1
<i>Total</i>	5.2	5.0	5.2	6.5	6.2	3.4	1.7	9.4	12.5	5.4	8.9
European Union											
Agriculture	0.7	0.3	0.5	1.4	2.3	...	0.0	0.0	0.1	0.2	0.0
NAMA	0.4	0.3	0.4	0.7	2.9	...	0.0	0.0	0.6	0.0	0.0
<i>Total</i>	0.4	0.3	0.4	0.8	2.8	...	0.0	0.0	0.4	0.0	0.0
Japan											
Agriculture	0.0	-0.0	0.2	0.1	0.1	-0.0	...	0.0	0.1	0.0	0.2
NAMA	1.4	0.1	0.5	4.2	4.4	0.0	...	0.1	0.2	0.4	2.0
<i>Total</i>	1.3	0.1	0.5	4.1	4.1	0.0	...	0.1	0.2	0.4	1.8
United States											
Agriculture	0.8	0.7	1.0	1.1	2.0	0.0	0.0	...	0.2	0.0	0.4
NAMA	0.9	0.7	0.8	2.5	4.0	0.0	0.0	...	1.0	0.0	0.8
<i>Total</i>	0.9	0.7	0.8	2.5	4.0	0.0	0.0	...	0.9	0.0	0.8
Brazil											
Agriculture	27.1	11.2	33.8	31.5	28.3	10.3	3.2	13.4	...	11.8	15.2
NAMA	6.5	4.3	6.8	11.1	12.4	3.5	3.6	5.3	...	3.4	8.4
<i>Total</i>	7.4	4.5	9.0	12.2	12.7	3.8	3.6	5.5	...	3.5	8.5
China											
Agriculture	5.8	6.7	3.0	6.3	27.2	0.7	0.2	9.9	0.6	...	21.8
NAMA	0.3	0.3	0.3	0.2	0.1	0.3	0.3	0.4	0.1	...	0.3
<i>Total</i>	0.5	0.6	0.4	0.3	1.3	0.3	0.3	1.5	0.3	...	2.6
India											
Agriculture	74.8	17.8	99.0	43.3	34.6	23.9	31.5	20.1	12.9	28.8	...
NAMA	4.1	2.1	3.4	6.3	7.1	1.8	2.1	1.6	6.5	2.1	...
<i>Total</i>	5.0	2.2	7.4	6.5	11.1	1.8	2.2	1.8	7.9	2.3	...

... = not applicable

NAMA = nonagricultural market access

LDCs = least developed countries

Note: Rows are tariffs applied to imports; columns are tariffs applied to exports.

Source: Authors' calculations.

**Table A4 Trade-weighted average tariff rates, 2001, 2006, and post-Doha Round (percent)**

Country	WTO dataset <sup>b</sup>								
	WTO IDB <sup>a</sup> 2001			2006			Post-Doha Round		
	Bound	MFN	Applied	Bound	MFN	Applied	Bound	MFN	Applied
Argentina									
Agriculture	31.0	12.5	12.5	31.9	9.7	2.9	21.1	9.6	2.9
NAMA	32.2	15.1	15.1	32.0	11.8	5.1	13.9	9.2	4.3
Total	32.1	15.0	15.0	32.0	11.7	5.0	14.1	9.2	4.2
Brazil									
Agriculture	41.2	12.2	12.2	40.6	11.1	4.1	31.0	10.6	3.9
NAMA	30.3	10.5	10.5	30.3	8.7	7.0	12.4	6.9	5.9
Total	30.8	10.6	10.6	30.8	8.8	6.9	13.2	7.1	5.8
China									
Agriculture	10.1	49.0	49.0	16.1	16.1	9.6	14.7	14.6	8.9
NAMA	4.7	11.2	11.2	4.1	3.6	3.5	2.9	2.6	2.6
Total	4.9	12.7	12.7	4.6	4.1	3.7	3.4	3.1	2.8
Colombia									
Agriculture	113.8	14.8	14.8	118.6	18.1	10.5	85.5	18.0	10.5
NAMA	35.6	11.0	11.0	35.2	11.1	8.7	14.0	9.5	7.6
Total	42.9	11.4	11.4	43.0	11.8	8.9	20.7	10.3	7.9
India									
Agriculture	155.3	58.9	58.9	167.0	61.3	60.2	130.4	56.6	55.7
NAMA	27.4	21.0	21.0	30.4	8.0	7.8	11.8	7.8	7.7
Total	29.2	21.5	21.5	32.3	8.7	8.6	13.4	8.5	8.4
Indonesia									
Agriculture	59.0	5.2	5.2	56.2	4.2	3.1	43.1	4.2	3.1
NAMA	36.5	3.7	3.7	36.5	3.3	2.5	13.2	3.0	2.3
Total	38.8	3.9	3.9	38.5	3.4	2.5	16.2	3.1	2.4
Korea									
Agriculture	85.2	79.2	79.2	84.9	14.1	13.9	70.8	10.9	10.9
NAMA	6.1	4.6	4.6	11.8	4.0	4.0	5.9	3.7	3.7
Total	9.2	7.6	7.6	14.7	4.4	4.4	8.5	4.0	4.0
Malaysia									
Agriculture	11.3	2.2	2.2	236.8	15.9	13.7	199.2	13.3	12.6
NAMA	7.0	4.5	4.5	10.3	4.2	3.6	4.9	2.4	2.1
Total	7.2	4.4	4.4	22.7	4.8	4.1	15.5	3.0	2.6
Mexico									
Agriculture	37.6	34.4	14.5	56.3	23.9	4.8	43.9	18.1	3.4
NAMA	35.4	13.9	3.5	35.8	11.1	3.6	14.3	9.0	3.0
Total	35.5	15.2	4.2	37.1	11.9	3.7	16.2	9.6	3.0
Pakistan									
Agriculture	94.1	14.3	14.3	99.2	15.4	15.2	78.4	15.1	14.9
NAMA	58.9	20.9	20.9	58.5	12.8	12.8	16.7	9.7	9.7
Total	63.4	20.1	20.1	63.7	13.2	13.1	24.7	10.4	10.4

*(continued on next page)*

**Table A4 Trade-weighted average tariff rates, 2001, 2006, and post-Doha Round (percent)**

Country	WTO dataset <sup>b</sup>								
	WTO IDB <sup>a</sup> 2001			2006			Post-Doha Round		
	Bound	MFN	Applied	Bound	MFN	Applied	Bound	MFN	Applied
Philippines									
Agriculture	30.0	11.1	11.1	26.3	13.0	11.8	18.9	12.7	11.6
NAMA	11.5	3.4	3.4	17.9	3.3	2.6	7.7	3.0	2.5
<i>Total</i>	13.2	4.1	4.1	18.7	4.2	3.5	8.8	3.9	3.3
South Africa									
Agriculture	51.1	8.3	7.9	53.3	9.5	8.6	40.9	8.9	8.0
NAMA	15.6	6.1	6.0	18.6	6.4	6.3	9.4	4.7	4.6
<i>Total</i>	17.5	6.2	6.1	20.5	6.5	6.4	11.1	4.9	4.8
Taiwan									
Agriculture	14.4	14.4	14.4	17.6	11.3	11.3	15.4	10.1	10.1
NAMA	3.5	3.5	3.5	1.8	1.6	1.6	1.5	1.1	1.1
<i>Total</i>	3.9	3.9	3.9	2.4	2.0	2.0	2.0	1.4	1.4
Thailand									
Agriculture	49.4	9.9	9.9	47.3	13.8	9.2	38.1	11.1	7.9
NAMA	17.1	5.2	5.2	20.4	4.5	4.0	8.8	3.5	3.1
<i>Total</i>	18.3	5.3	5.3	21.4	4.9	4.2	10.0	3.8	3.3
Turkey									
Agriculture	37.9	15.5	14.3	37.6	16.7	16.6	24.2	12.6	12.5
NAMA	17.2	3.9	1.5	21.2	3.5	3.0	10.6	3.4	2.9
<i>Total</i>	18.0	4.4	2.1	22.0	4.1	3.6	11.2	3.8	3.3

NAMA = nonagricultural market access

LDCs = least developed countries

MFN = most favored nation

a. WTO Integrated Data Base, accessed through World Integrated Trade Solution. Tariff year for Thailand is 2004.

b. Dataset compiled by the WTO (on file with authors).

Notes: Averages based on HS 2-digit categories and bilateral import values for 2006 reported by WTO dataset.

**Table A5 Weighted average of applied tariffs pre- and post-Doha (percent)**

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Pre-Doha applied rates										
All 22 countries											
Agriculture	7.6	6.7	8.8	6.7	6.8	8.7	13.7	4.5	7.7	8.3	4.2
NAMA	2.4	2.6	2.8	1.8	1.9	3.7	4.0	1.6	1.3	3.7	4.0
Total	2.7	2.8	3.1	2.0	2.2	3.9	4.0	1.9	2.7	3.8	4.0
Developed (7)											
Agriculture	5.5	5.2	5.8	5.4	0.6	6.8	4.3	2.6	6.2	6.6	3.2
NAMA	1.4	1.1	2.1	0.7	2.3	1.5	2.5	0.7	0.9	3.1	4.1
Total	1.6	1.3	2.3	1.0	2.2	1.8	2.5	0.9	2.3	3.2	4.0
Developing (15)											
Agriculture	12.0	9.5	15.3	12.5	13.2	14.7	18.6	6.6	10.9	13.1	5.5
NAMA	4.4	5.1	4.2	3.4	1.3	7.1	5.3	2.8	1.9	5.9	3.7
Total	4.7	5.3	4.7	3.7	2.2	7.3	5.4	3.2	3.5	6.1	3.9
European Union											
Agriculture	6.0	5.1	5.8	7.1	0.2	...	7.2	4.0	6.4	5.7	5.3
NAMA	1.5	1.3	2.6	0.7	0.2	...	3.4	1.5	0.6	3.5	5.1
Total	1.7	1.4	2.8	1.5	0.2	...	3.4	1.6	2.7	3.5	5.1
Japan											
Agriculture	10.4	9.1	13.0	7.6	0.8	8.3	...	3.6	8.7	9.1	1.0
NAMA	0.9	1.0	1.4	0.2	0.1	1.7	...	0.6	0.3	2.3	0.9
Total	1.6	2.2	2.0	0.3	0.1	2.3	...	1.2	3.0	2.6	0.9
United States											
Agriculture	1.3	0.9	1.8	1.0	0.0	1.6	3.1	...	3.5	2.7	0.8
NAMA	1.4	1.0	1.9	0.9	4.2	1.5	1.7	...	1.1	3.0	3.3
Total	1.4	1.0	1.9	0.9	4.2	1.5	1.7	...	1.4	3.0	3.2
Brazil											
Agriculture	4.1	11.3	1.4	0.9	7.6	12.3	5.9	8.7	...	9.0	6.6
NAMA	7.0	9.5	7.5	0.8	0.4	11.0	12.0	8.0	...	12.4	4.9
Total	6.9	9.6	7.0	0.8	0.5	11.0	12.0	8.1	...	12.3	4.9
China											
Agriculture	9.6	10.3	8.4	14.7	5.4	12.0	17.9	5.9	5.6	...	5.9
NAMA	3.5	4.8	3.0	1.4	0.1	6.0	4.9	3.9	1.1	...	1.9
Total	3.7	5.0	3.2	1.7	0.3	6.1	4.9	4.1	2.4	...	2.3
India											
Agriculture	60.2	37.0	75.5	30.3	29.3	48.8	29.7	29.8	62.6	32.0	...
NAMA	7.8	9.8	7.9	6.2	6.0	10.1	11.5	7.7	6.2	8.5	...
Total	8.6	10.0	10.7	6.3	9.4	10.2	11.6	8.0	18.5	8.6	...

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**Table A5 Weighted average of applied tariffs pre- and post-Doha (percent) (continued)**

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Post-Doha applied rates										
All 22 countries	5.3	4.5	6.6	4.5	6.4	6.0	11.3	3.3	5.4	5.6	3.2
Agriculture	1.8	2.0	1.8	1.5	0.9	2.9	2.9	1.3	1.0	2.3	2.2
NAMA	2.0	2.1	2.1	1.7	1.2	3.0	2.9	1.4	2.0	2.3	2.3
Total											
Developed (7)	2.9	2.6	3.0	3.1	0.4	3.8	2.1	1.2	3.6	3.4	1.5
Agriculture	0.7	0.7	1.1	0.3	0.7	1.0	1.6	0.5	0.5	1.5	1.9
NAMA	0.8	0.8	1.2	0.5	0.7	1.1	1.6	0.5	1.3	1.6	1.8
Total											
Developing (15)	10.6	8.1	14.2	10.9	12.7	13.0	16.0	5.4	9.5	11.4	5.3
Agriculture	3.7	4.2	3.5	3.3	1.2	5.9	4.1	2.4	1.7	5.1	3.0
NAMA	4.0	4.4	4.0	3.5	2.0	6.1	4.1	2.7	3.1	5.3	3.2
Total											
European Union	3.4	2.5	3.4	4.2	0.1	...	3.4	2.0	3.8	3.3	2.5
Agriculture	0.8	0.8	1.3	0.4	0.1	...	1.8	0.9	0.5	1.7	2.5
NAMA	1.0	0.8	1.5	0.9	0.1	...	1.8	1.0	1.7	1.8	2.5
Total											
Japan	4.5	3.9	5.6	3.4	0.5	4.0	...	1.7	4.1	4.6	0.6
Agriculture	0.5	0.5	0.7	0.1	0.1	0.9	...	0.4	0.2	1.1	0.6
NAMA	0.8	1.0	1.0	0.1	0.1	1.2	...	0.6	1.4	1.3	0.6
Total											
United States	0.7	0.5	1.0	0.5	0.0	0.8	1.5	...	1.7	1.3	0.4
Agriculture	0.7	0.6	0.9	0.3	1.3	1.0	1.2	...	0.6	1.4	1.3
NAMA	0.7	0.6	0.9	0.3	1.3	0.9	1.2	...	0.7	1.4	1.2
Total											
Brazil	3.9	10.7	1.4	0.9	7.5	11.5	5.8	8.6	...	9.0	6.6
Agriculture	5.9	7.9	6.3	0.7	0.3	8.9	9.6	6.8	...	10.5	4.1
NAMA	5.8	7.9	5.9	0.7	0.4	9.0	9.6	6.9	...	10.5	4.1
Total											
China	8.9	9.4	7.9	13.4	5.4	10.4	14.5	5.6	5.4	...	5.9
Agriculture	2.6	3.4	2.3	1.1	0.1	4.1	3.5	2.8	0.8	...	1.7
NAMA	2.8	3.7	2.6	1.4	0.3	4.2	3.5	3.1	2.2	...	2.1
Total											
India	55.7	29.5	70.8	26.8	28.3	42.4	29.4	23.0	48.7	30.3	...
Agriculture	7.7	9.5	7.8	6.1	5.8	9.8	10.9	7.4	6.1	8.3	...
NAMA	8.4	9.7	10.4	6.2	9.1	9.9	10.9	7.6	15.4	8.4	...
Total											

... = not applicable

NAMA = nonagricultural market access

LDCs = least developed countries

Note: Rows are tariffs applied to imports; columns are tariffs applied to exports.

Source: Authors' calculations.

**Table A6 Cuts in applied tariffs (percentage points)**

Country/group	World	Developed (7)	Developing (15)	Other	Least developed countries	European Union	Japan	United States	Brazil	China	India
All 22 countries											
Agriculture	2.2	2.2	2.2	2.1	0.4	2.7	2.4	1.2	2.3	2.7	1.0
NAMA	0.6	0.6	0.9	0.3	1.0	0.8	1.1	0.3	0.3	1.4	1.8
<i>Total</i>	0.7	0.7	1.0	0.4	1.0	0.9	1.1	0.4	0.7	1.4	1.7
Developed (7)											
Agriculture	2.6	2.6	2.8	2.2	0.3	3.0	2.1	1.3	2.7	3.1	1.7
NAMA	0.6	0.4	1.1	0.4	1.6	0.5	0.9	0.3	0.4	1.6	2.2
<i>Total</i>	0.7	0.5	1.2	0.5	1.5	0.7	0.9	0.3	0.9	1.6	2.2
Developing (15)											
Agriculture	1.4	1.5	1.1	1.6	0.5	1.7	2.6	1.1	1.4	1.7	0.3
NAMA	0.7	0.9	0.7	0.1	0.2	1.2	1.3	0.4	0.2	0.8	0.7
<i>Total</i>	0.7	0.9	0.7	0.2	0.2	1.2	1.3	0.5	0.4	0.8	0.7
European Union											
Agriculture	2.5	2.5	2.4	2.8	0.1	...	3.8	2.0	2.6	2.4	2.8
NAMA	0.7	0.5	1.3	0.3	0.1	...	1.5	0.5	0.2	1.7	2.6
<i>Total</i>	0.8	0.6	1.3	0.6	0.1	...	1.5	0.6	1.0	1.7	2.6
Japan											
Agriculture	6.0	5.3	7.4	4.2	0.3	4.3	...	1.9	4.6	4.5	0.4
NAMA	0.4	0.4	0.7	0.1	0.0	0.8	...	0.2	0.1	1.2	0.4
<i>Total</i>	0.8	1.1	1.0	0.1	0.1	1.2	...	0.6	1.5	1.3	0.4
United States											
Agriculture	0.6	0.5	0.9	0.5	0.0	0.8	1.5	...	1.9	1.4	0.4
NAMA	0.7	0.3	1.1	0.6	2.9	0.5	0.5	...	0.5	1.6	2.0
<i>Total</i>	0.7	0.3	1.0	0.6	2.9	0.5	0.5	...	0.7	1.6	2.0
Brazil											
Agriculture	0.2	0.7	0.0	0.0	0.1	0.8	0.2	0.1	...	0.0	0.0
NAMA	1.2	1.7	1.2	0.1	0.1	2.1	2.4	1.2	...	1.9	0.8
<i>Total</i>	1.1	1.7	1.1	0.1	0.1	2.0	2.4	1.2	...	1.9	0.8
China											
Agriculture	0.7	0.9	0.4	1.3	0.0	1.6	3.4	0.3	0.2	...	0.1
NAMA	0.9	1.4	0.7	0.3	0.0	1.9	1.3	1.1	0.2	...	0.2
<i>Total</i>	0.9	1.4	0.6	0.3	0.0	1.9	1.3	1.0	0.2	...	0.2
India											
Agriculture	4.5	7.5	4.7	3.5	1.0	6.5	0.3	6.8	13.9	1.7	...
NAMA	0.1	0.3	0.1	0.0	0.1	0.3	0.6	0.3	0.1	0.2	...
<i>Total</i>	0.2	0.3	0.3	0.0	0.3	0.3	0.6	0.4	3.1	0.2	...

... = not applicable

NAMA = nonagricultural market access

Note: Rows are cuts in tariffs applied to imports; columns are cuts in tariffs applied to exports.

Source: Authors' calculations.

**Table A7 Reciprocity measure gains from domestic support concessions** (millions of dollars)

Concessions given to	Concessions given by									
	Australia	Canada	European Union	Japan	Norway	Switzerland	United States	Argentina	Korea	Thailand
World	8	235	5,546	511	67	118	556	1	32	85
Australia	...	41	156	71	1	5	50	0	8	1
Canada	0	...	156	n.a.	2	9	17	0	1	0
European Union	3	27	...	0	35	57	50	0	0	3
Japan	0	0	462	...	n.a.	0	0	0	0	0
Norway	0	0	16	n.a.	...	0	1	0	0	0
Switzerland	0	0	31	n.a.	0	...	2	0	0	0
United States	1	85	635	294	1	10	...	0	18	17
Argentina	1	10	55	n.a.	0	3	77	...	0	1
Brazil	0	27	373	28	8	15	56	0	2	0
Bulgaria/Romania/Iceland	n.a.	n.a.	10	n.a.	2	n.a.	n.a.	n.a.	n.a.	n.a.
China	0	6	380	17	0	1	60	0	1	10
Colombia	0	0	76	n.a.	n.a.	0	6	0	n.a.	0
Korea	0	0	154	0	n.a.	0	1	0	...	0
India	0	3	119	0	n.a.	0	25	0	0	24
Indonesia	n.a.	n.a.	79	n.a.	0	0	0	0	0	0
Malaysia	0	0	64	n.a.	n.a.	0	0	0	0	0
Mexico	0	2	307	n.a.	n.a.	0	12	0	0	0
Pakistan	0	0	23	n.a.	n.a.	0	7	0	0	13
Philippines	n.a.	0	56	n.a.	n.a.	0	8	0	0	n.a.
South Africa	0	0	57	n.a.	0	2	11	0	0	0
Taiwan	0	0	102	0	n.a.	0	1	0	n.a.	0
Thailand	0	0	170	15	n.a.	0	5	0	0	...
Turkey	0	1	114	n.a.	n.a.	0	8	0	0	0
Other developing countries	1	14	1,022	7	14	4	86	0	0	14
Least developed countries	0	1	140	0	0	0	45	0	0	0
Non WTO	2	17	791	78	3	11	27	0	1	1

... = not applicable

n.a. = not available

Note: Rows are cuts in tariffs applied to imports; columns are cuts in tariffs applied to exports.

Source: Authors' calculations.

**Table A8 Reciprocity measure gains from concessions in export subsidies (millions of dollars)**

Concessions given to	Concessions given by				
	Canada	European Union	Norway	Switzerland	United States
World	21	2,882	42	151	21
Australia	3	363	5	11	3
Canada	...	184	2	4	1
European Union	8	...	18	43	7
Japan	0	16	0	1	0
Norway	0	14	...	1	0
Switzerland	0	63	2	...	0
United States	1	559	3	11	...
Argentina	1	97	1	9	0
Brazil	0	197	1	8	1
Bulgaria	0	8	0	0	0
China	0	91	1	2	0
Colombia	0	16	0	1	0
Hong Kong	0	23	0	1	0
Iceland	0	0	0	0	0
India	0	43	0	1	0
Indonesia	0	6	0	3	0
Korea	0	11	0	0	0
Malaysia	0	18	0	12	0
Mexico	0	39	0	1	0
New Zealand	4	538	6	17	5
Pakistan	0	7	0	0	0
Philippines	0	6	0	1	0
Romania	0	3	0	0	0
Singapore	0	28	0	1	0
South Africa	0	31	0	1	0
Taiwan	0	6	0	0	0
Thailand	0	138	0	3	0
Turkey	0	14	0	1	0
Other developing countries	1	263	2	14	1
Least developed countries	0	11	0	1	0
Non-WTO members	1	88	1	3	1

... = not applicable

Source: Author's calculations.

**Table A9 Reciprocity measure gains from tariff rate quota expansion** (millions of of dollars)

Concessions given to	Concessions given by				
	Canada	European Union	Norway	Switzerland	United States
World	329.9	3,979.0	112.8	177.1	407.6
Australia	5.1	74.2	1.5	0.9	47.3
Canada	...	124.9	0.0	n.a.	9.8
European Union	97.0	...	60.1	92.8	93.6
Japan	0.0	0.6	n.a.	1.8	0.0
Norway	n.a.	11.5	...	n.a.	0.0
Switzerland	n.a.	159.7	0.1	...	2.7
United States	152.7	587.0	0.0	3.4	...
Argentina	5.1	346.9	0.1	0.5	17.5
Brazil	0.0	817.6	2.9	20.9	17.0
Bulgaria/Romania/Iceland	0.3	303.8	2.0	n.a.	0.4
China	n.a.	25.7	0.0	0.0	0.6
Colombia	n.a.	0.2	n.a.	n.a.	3.4
Korea	n.a.	0.0	n.a.	n.a.	0.0
India	0.0	8.0	n.a.	0.0	0.1
Indonesia	n.a.	0.0	n.a.	n.a.	0.3
Malaysia	n.a.	0.1	n.a.	n.a.	n.a.
Mexico	0.0	26.5	n.a.	0.0	132.6
Pakistan	n.a.	0.1	n.a.	0.0	n.a.
Philippines	0.4	0.3	n.a.	0.0	0.3
South Africa	n.a.	0.2	n.a.	0.9	0.0
Taiwan	0.0	0.0	n.a.	n.a.	0.0
Thailand	7.9	0.8	n.a.	0.8	n.a.
Turkey	0.0	12.2	n.a.	0.0	0.0
Other developing countries	0.4	805.2	10.2	0.7	42.7
Least developed countries	n.a.	37.1	n.a.	0.0	n.a.
Others	60.7	289.3	35.8	54.3	38.8
Non WTO	0.2	347.3	0.1	0.0	0.1

... = not applicable

n.a. = not available

Source: Author's calculations.

**Table A10 Overall gains in agriculture and NAMA expressed in terms of reciprocity measure (billions of dollars)**

Importer	Exporters										
	World	Developed (7)	Developing (15)	Other	Least developed countries	European Union	Japan	United States	Brazil	China	India
All 22 countries											
Agriculture total	22.7	8.5	7.4	3.2	0.3	1.8	0.5	3.2	2.1	1.1	0.3
Tariffs	7.4	3.4	2.6	0.9	0.0	1.2	0.0	0.8	0.6	0.5	0.1
NTBs	15.3	5.1	4.8	2.3	0.2	0.6	0.5	2.4	1.6	0.6	0.2
NAMA	42.4	16.4	21.2	2.2	0.7	7.1	6.2	2.5	0.2	12.2	1.3
Total	65.1	24.9	28.6	5.4	0.9	8.9	6.8	5.6	2.4	13.2	1.6
Developed (7)											
Agriculture total	21.1	7.6	6.9	3.1	0.2	1.6	0.5	2.8	2.0	1.0	0.3
Tariffs	5.9	2.6	2.2	0.8	0.0	1.0	0.0	0.4	0.4	0.4	0.1
NTBs	15.2	5.1	4.8	2.3	0.2	0.6	0.5	2.3	1.6	0.6	0.2
NAMA	26.9	6.8	16.4	1.7	0.6	3.0	2.4	1.1	0.2	10.7	1.2
Total	48.0	14.4	23.4	4.8	0.9	4.6	2.9	3.9	2.2	11.7	1.4
Developing (15)											
Agriculture total	1.6	0.8	0.5	0.1	0.0	0.2	0.0	0.4	0.1	0.1	0.0
Tariffs	1.5	0.8	0.4	0.1	0.0	0.2	0.0	0.4	0.1	0.1	0.0
NTBs	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAMA	15.5	9.6	4.8	0.5	0.0	4.1	3.8	1.4	0.1	1.4	0.2
Total	17.0	10.4	5.2	0.6	0.0	4.3	3.8	1.8	0.2	1.5	0.2
European Union											
Agriculture total	14.5	4.0	4.9	2.7	0.2	...	0.5	1.9	1.7	0.6	0.2
Tariffs	2.1	0.4	0.9	0.6	0.0	...	0.0	0.2	0.3	0.1	0.0
NTBs	12.4	3.6	4.1	2.1	0.2	...	0.5	1.8	1.4	0.5	0.2
NAMA	10.0	2.4	6.2	0.5	0.0	...	1.4	0.9	0.0	4.0	0.7
Total	24.4	6.4	11.2	3.2	0.2	...	1.8	2.9	1.7	4.6	0.9
Japan											
Agriculture total	3.0	1.7	1.0	0.1	0.0	0.2	...	0.5	0.1	0.3	0.0
Tariffs	2.5	1.3	1.0	0.1	0.0	0.2	...	0.3	0.1	0.3	0.0
NTBs	0.5	0.4	0.1	0.0	0.0	0.0	...	0.3	0.0	0.0	0.0
NAMA	2.3	0.6	1.6	0.1	0.0	0.4	...	0.1	0.0	1.3	0.0
Total	5.3	2.3	2.6	0.2	0.0	0.7	...	0.7	0.1	1.6	0.0

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**Table A10 Overall gains in agriculture and NAMA expressed in terms of reciprocity measure (billions of dollars)**

Importer	Exporters										
	World	Developed (7)	Developing (15)	Other	Least developed countries	European Union	Japan	United States	Brazil	China	India
United States											
Agriculture total	1.4	0.4	0.7	0.2	0.0	0.3	0.0	...	0.1	0.1	0.0
Tariffs	0.4	0.2	0.2	0.0	0.0	0.1	0.0	...	0.1	0.0	0.0
NTBs	1.0	0.3	0.5	0.1	0.0	0.2	0.0	...	0.1	0.1	0.0
NAMA	11.7	2.3	7.2	1.1	0.6	1.5	0.7	...	0.1	4.5	0.4
<i>Total</i>	13.1	2.8	7.9	1.2	0.6	1.8	0.7	...	0.2	4.5	0.4
Brazil											
Agriculture total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
Tariffs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
NAMA	1.0	0.7	0.3	0.0	0.0	0.4	0.1	0.2	...	0.2	0.0
<i>Total</i>	1.0	0.7	0.3	0.0	0.0	0.4	0.1	0.2	...	0.2	0.0
China											
Agriculture total	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0
Tariffs	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0
NAMA	6.1	3.9	1.8	0.1	0.0	1.6	1.5	0.6	0.0	...	0.0
<i>Total</i>	6.3	4.0	1.8	0.2	0.0	1.7	1.5	0.6	0.0	...	0.0
India											
Agriculture total	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	...
Tariffs	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	...
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...
NAMA	0.5	0.3	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.1	...
<i>Total</i>	0.7	0.4	0.3	0.0	0.0	0.2	0.1	0.1	0.1	0.1	...

... = not applicable

NAMA = nonagricultural market access

NTBs = nontariff barriers

Source: Authors' calculations.

**Table A11 Calculations of a single trade elasticity for trade impact calculations**

<b>Country</b>	<b>Kee et al. (2004) estimated import elasticity</b>	<b>2006 total merchandise imports (billions of dollars)</b>	<b>Import weight</b>	<b>Elasticity weight</b>
Argentina	-1.26	34	0.00	-0.01
Australia	-1.19	133	0.02	-0.02
Brazil	-1.34	91	0.01	-0.02
Canada	-1.13	350	0.05	-0.05
China	-1.13	791	0.11	-0.12
Colombia	-1.16	26	0.00	-0.00
European Union	-1.08	1,698	0.23	-0.25
India	-1.33	185	0.03	-0.03
Indonesia	-1.14	61	0.01	-0.01
Japan	-1.37	579	0.08	-0.11
Korea	-1.10	309	0.04	-0.05
Malaysia	-1.05	131	0.02	-0.02
Mexico	-1.11	256	0.03	-0.04
Norway	-1.11	64	0.01	-0.01
Pakistan	-1.16	30	0.00	-0.00
Philippines	-1.07	54	0.01	-0.01
South Africa	-1.16	68	0.01	-0.01
Switzerland	-1.10	141	0.02	-0.02
Taiwan	-1.16	203	0.03	-0.03
Thailand	-1.08	129	0.02	-0.02
Turkey	-1.14	140	0.02	-0.02
United States	-1.30	1,919	0.26	-0.34
<i>Total</i>		7,394	<i>Average</i>	-1.19

Source: Kee et al. (2004); UN Comtrade Database via WITS (2009).

**Table A12 Increase in trade due to tariff cuts and nontariff barriers**

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Increase in billions of dollars										
All 22 countries											
Agriculture total	20.5	7.6	6.4	3.2	0.2	1.7	0.5	3.3	2.0	1.1	0.3
Tariffs	6.7	3.0	2.2	0.9	0.0	1.1	0.0	0.8	0.5	0.5	0.1
NTBs	13.8	4.6	4.2	2.3	0.2	0.6	0.5	2.5	1.5	0.6	0.2
NAMA	45.6	17.6	22.8	2.4	0.7	7.5	6.7	2.7	0.3	13.2	1.4
<i>Total</i>	66.1	25.2	29.2	5.5	0.9	9.2	7.2	6.0	2.3	14.2	1.7
Developed (7)											
Agriculture total	19.2	6.8	6.1	3.1	0.2	1.5	0.5	3.0	2.0	1.0	0.3
Tariffs	5.4	2.3	1.9	0.8	0.0	1.0	0.0	0.5	0.4	0.4	0.1
NTBs	13.8	4.5	4.2	2.3	0.2	0.6	0.5	2.6	1.6	0.6	0.2
NAMA	29.5	7.7	17.8	1.9	0.7	3.3	2.7	1.2	0.2	11.7	1.2
<i>Total</i>	48.7	14.4	23.9	5.0	0.8	4.8	3.3	4.3	2.2	12.7	1.5
Developing (15)											
Agriculture total	1.4	0.8	0.4	0.1	0.0	0.2	0.0	0.4	0.1	0.1	0.0
Tariffs	1.3	0.7	0.3	0.1	0.0	0.2	0.0	0.4	0.1	0.1	0.0
NTBs	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAMA	16.1	9.9	5.0	0.5	0.0	4.2	3.9	1.5	0.1	1.5	0.2
<i>Total</i>	17.4	10.7	5.3	0.6	0.0	4.3	3.9	1.8	0.2	1.5	0.2
European Union											
Agriculture total	15.3	4.3	5.1	2.9	0.2	...	0.6	2.1	1.7	0.6	0.2
Tariffs	2.2	0.4	0.9	0.7	0.0	...	0.0	0.2	0.3	0.1	0.0
NTBs	13.1	3.9	4.2	2.3	0.2	...	0.6	2.0	1.4	0.5	0.2
NAMA	11.0	2.7	6.9	0.5	0.0	...	1.5	1.1	0.0	4.4	0.7
<i>Total</i>	26.3	7.0	11.9	3.5	0.2	...	2.1	3.2	1.7	5.0	0.9
Japan											
Agriculture total	2.4	1.4	0.8	0.1	0.0	0.3	...	0.6	0.1	0.3	0.0
Tariffs	2.0	1.1	0.7	0.0	0.0	0.3	...	0.3	0.1	0.3	0.0
NTBs	0.4	0.3	0.0	0.0	0.0	0.0	...	0.3	0.0	0.0	0.0
NAMA	2.5	0.7	1.7	0.1	0.0	0.5	...	0.1	0.0	1.4	0.0
<i>Total</i>	4.9	2.1	2.5	0.1	0.0	0.7	...	0.7	0.1	1.7	0.0

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**Table A12 Increase in trade due to tariff cuts and nontariff barriers** (continued)

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Increase in billions of dollars										
United States											
Agriculture total	1.6	0.5	0.7	0.2	0.0	0.3	0.0	...	0.1	0.1	0.0
Tariffs	0.5	0.2	0.2	0.1	0.0	0.1	0.0	...	0.1	0.0	0.0
NTBs	1.1	0.3	0.5	0.1	0.0	0.2	0.0	...	0.1	0.1	0.0
NAMA	12.7	2.7	7.7	1.2	0.6	1.8	0.8	...	0.1	4.8	0.4
<i>Total</i>	14.2	3.2	8.5	1.4	0.6	2.1	0.8	...	0.3	5.0	0.5
Brazil											
Agriculture total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
Tariffs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
NAMA	1.0	0.7	0.3	0.0	0.0	0.4	0.1	0.2	...	0.2	0.0
<i>Total</i>	1.0	0.7	0.3	0.0	0.0	0.4	0.1	0.2	...	0.2	0.0
China											
Agriculture total	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0
Tariffs	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0
NAMA	6.7	4.3	2.0	0.2	0.0	1.8	1.7	0.6	0.0	...	0.0
<i>Total</i>	6.9	4.4	2.0	0.2	0.0	1.8	1.7	0.6	0.0	...	0.0
India											
Agriculture total	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...
Tariffs	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...
NAMA	0.5	0.3	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.1	...
<i>Total</i>	0.7	0.4	0.2	0.0	0.0	0.2	0.1	0.1	0.0	0.1	...
<b>Percent increase from 2006 trade levels</b>											
All 22 countries											
Agriculture total	6.2	5.0	5.6	7.4	5.8	3.8	27.3	5.2	8.3	6.5	4.8
Tariffs	2.0	2.0	2.0	2.1	0.3	2.5	2.4	1.3	2.2	2.8	1.1
NTBs	4.2	3.0	3.7	5.3	5.5	1.2	24.9	3.9	6.1	3.7	3.8
NAMA	0.7	0.6	1.0	0.3	1.1	0.8	1.2	0.4	0.3	1.5	1.9
<i>Total</i>	0.9	0.8	1.2	0.7	1.4	1.0	1.3	0.8	2.2	1.6	2.1

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**Table A12 Increase in trade due to tariff cuts and nontariff barriers** (continued)

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Percent increase from 2006 trade levels										
Developed (7)											
Agriculture total	8.5	10.3	7.8	9.0	10.2	4.5	82.7	9.4	12.0	8.3	7.9
Tariffs	2.4	3.5	2.5	2.3	0.2	2.8	2.3	1.4	2.7	3.3	1.7
NTBs	6.1	6.9	5.4	6.7	10.0	1.6	80.4	7.9	9.3	5.0	6.2
NAMA	0.7	0.4	1.2	0.4	1.6	0.6	1.1	0.3	0.4	1.7	2.4
<i>Total</i>	1.1	0.8	1.5	1.0	2.0	0.8	1.3	1.0	3.4	1.8	2.7
Developing (15)											
Agriculture total	1.3	1.4	1.0	1.3	0.4	1.6	2.4	1.2	1.1	1.7	1.1
Tariffs	1.2	1.4	0.9	1.2	0.4	1.6	2.4	1.1	1.1	1.5	0.3
NTBs	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.9
NAMA	0.7	0.9	0.7	0.2	0.2	1.2	1.3	0.5	0.2	0.8	0.7
<i>Total</i>	0.7	1.0	0.7	0.2	0.2	1.2	1.3	0.5	0.4	0.8	0.7
European Union											
Agriculture total	18.7	29.2	14.2	13.5	12.8	...	348.9	28.0	15.2	17.5	13.5
Tariffs	2.7	2.7	2.4	3.1	0.1	...	4.3	2.2	2.6	2.5	2.9
NTBs	16.0	26.5	11.7	10.4	12.7	...	344.6	25.8	12.6	15.0	10.5
NAMA	0.8	0.6	1.4	0.3	0.1	...	1.7	0.6	0.2	1.9	2.8
<i>Total</i>	1.7	1.5	2.2	1.9	1.2	...	2.4	1.8	5.6	2.1	3.5
Japan											
Agriculture total	5.7	5.6	5.7	3.5	0.0	4.5	...	4.5	6.4	5.1	0.5
Tariffs	4.7	4.4	5.4	3.2	0.0	4.5	...	2.1	4.6	4.7	0.5
NTBs	1.0	1.2	0.3	0.4	0.0	0.0	...	2.4	1.8	0.3	0.0
NAMA	0.5	0.5	0.7	0.1	0.0	0.9	...	0.3	0.1	1.3	0.4
<i>Total</i>	0.9	1.2	1.0	0.1	0.1	1.2	...	1.1	2.1	1.5	0.4
United States											
Agriculture total	2.3	1.5	3.1	2.1	0.0	1.9	1.7	...	4.3	4.4	2.9
Tariffs	0.7	0.5	1.0	0.5	0.0	0.9	1.7	...	2.0	1.6	0.5
NTBs	1.6	1.0	2.1	1.6	0.0	1.1	0.0	...	2.3	2.8	2.4
NAMA	0.7	0.4	1.1	0.7	3.1	0.6	0.6	...	0.6	1.7	2.1
<i>Total</i>	0.8	0.4	1.2	0.7	3.0	0.7	0.6	...	1.0	1.7	2.2

(continued on next page)

**Table A12 Increase in trade due to tariff cuts and nontariff barriers** (continued)

Country/group	World	Developed (7)	Developing (15)	Other	LDCs	European Union	Japan	United States	Brazil	China	India
	Percent increase from 2006 trade levels										
Brazil											
Agriculture total	0.2	0.7	0.0	0.0	0.0	0.8	0.0	0.0	...	0.0	0.0
Tariffs	0.2	0.7	0.0	0.0	0.0	0.8	0.0	0.0	...	0.0	0.0
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
NAMA	1.2	1.8	1.2	0.1	0.1	2.1	2.5	1.3	...	2.0	0.8
<i>Total</i>	1.2	1.7	1.1	0.1	0.1	2.1	2.5	1.3	...	1.9	0.8
China											
Agriculture total	0.6	0.9	0.4	0.1	0.0	1.6	3.4	0.3	0.2	...	0.1
Tariffs	0.6	0.9	0.4	0.1	0.0	1.6	3.4	0.3	0.2	...	0.1
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0
NAMA	1.0	1.5	0.7	0.3	0.0	2.0	1.5	1.2	0.2	...	0.2
<i>Total</i>	1.0	1.5	0.7	0.3	0.0	2.0	1.5	1.1	0.2	...	0.2
India											
Agriculture total	3.5	6.0	3.6	0.3	0.9	4.5	0.0	6.0	9.7	1.5	...
Tariffs	3.5	6.0	3.6	0.3	0.9	4.5	0.0	6.0	9.7	1.5	...
NTBs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...
NAMA	0.1	0.3	0.2	0.0	0.1	0.3	0.6	0.3	0.1	0.2	...
<i>Total</i>	0.2	0.3	0.3	0.0	0.2	0.3	0.6	0.4	2.2	0.2	...

... = not applicable

NAMA = nonagricultural market access; LDCs = least developed countries; NTBs = nontariff barriers

Note: Rows = imports; columns = exports.

Source: Authors' calculations.

**Table A13 Trade gains from improved trade facilitation: Simulation results from Wilson, Mann, and Otsuki (2005) (percent change of trade flow)**

Region	Port efficiency	Customs environment	Regulatory environment	Service-sector infrastructure	Combined effect
	Exporters				
East Asia	7.6	0.8	3.9	11.7	24.0
East Europe and Central Asia	9.5	0.9	6.1	13.5	30.0
Latin America and Caribbean	7.9	0.9	4.4	6.8	20.0
Middle East and North Africa	0.6	0.7	0.6	1.4	3.3
OECD	0.7	0.8	1.3	1.0	3.8
South Asia	12.1	0.8	7.4	20.0	40.3
Sub-Saharan Africa	1.4	0.6	3.3	5.6	10.9
<i>Total</i>	2.8	0.8	2.1	4.0	9.7
Importers					
East Asia	4.2	2.2	3.3	7.0	16.7
East Europe and Central Asia	4.9	3.2	4.0	7.7	19.8
Latin America and Caribbean	4.2	3.5	3.8	4.7	16.1
Middle East and North Africa	1.3	1.3	1.2	2.8	6.6
OECD	2.2	0.1	1.6	3.0	6.9
South Asia	4.5	5.8	4.8	9.3	24.4
Sub-Saharan Africa	3.0	3.0	3.1	6.1	15.2
<i>Total</i>	2.8	0.8	2.1	4.0	9.7

OECD = Organization for Economic Cooperation and Development

Source: Wilson, Mann, and Otsuki (2005).

## APPENDIX B METHODOLOGY

### Agriculture

#### *Tariff and Tariff Quotas*

In agriculture, the reductions in bound rates follow a tiered formula detailed in table B1. A “half deviation” is applied to out-of-quota tariffs for sensitive products.<sup>1</sup> If the tariff on a sensitive product remains above 100 percent after the tariff cut, the quota for that product is expanded by 0.5 percent of domestic consumption. For in-quota tariffs, the tiered formula is applied (table B1). Tariff caps of 100 and 150 percent are imposed, respectively, on non-“sensitive” tariff lines for developed countries and on non-“special” tariff lines for developing countries and recently acceded member-countries (RAMs).

For developed countries, 4 percent of the products are assumed to be “sensitive.” To compensate for lower tariff cuts in these products, developed countries must expand their quotas by 3.5 percent of domestic consumption. Japan, Norway, and Switzerland get a different treatment for tariff quota expansion. After the cut, if tariff lines above 100 percent represent less than or up to 2 percent of all tariff lines, the additional 2 percent of “sensitive” tariff lines will have their quotas expanded by 2 percent of domestic consumption. If there remain more than 2 percent of tariff lines with a tariff rate above 100 percent, all tariff lines concerned will have a quota expansion of 4 percent of domestic consumption.

For new or expanded tariff quotas, in-quota tariffs are assumed to be zero. These new or expanded tariff quotas are multiplied by the out-of-quota tariff to determine the value of concessions from reduced out-of-quota tariff revenues. For tariff quota simulations for the European Union, the United States, Japan, Canada, and Norway, a hypothetical list of “sensitive” products is made from agricultural tariff lines for which the countries have provided consumption data.

For developing countries, the “special” products consist of the 12 percent of agricultural tariff lines with the highest bound tariffs. For RAMs the figure is 13 percent. For developing countries, an 11 percent tariff cut is applied to these products, and for RAMs 10 percent. For developing countries and RAMs, no “sensitive” products are taken into account.<sup>2</sup>

#### *Domestic Support and Export Subsidies*

For domestic support and export subsidies, the method consists of calculating tariff rate equivalents so as to be comparable with market access concessions detailed above.

For domestic support, product-specific limits on aggregate measurement of support (AMS) are calculated based on the modalities for developed and developing countries, assuming that developing

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1. A “half deviation” means that the reductions required are divided by 2. If a tariff was to be reduced by 70 percent according to the tiered formula, then for sensitive products it will need to be reduced by only 35 percent.

2. The WTO methodology applies a tariff cut to some “special” products but not to “sensitive” products.

countries would choose the methodology that would require the least cuts in their product-specific AMS. If the average of non-product-specific AMS over the last three years exceeds the Doha *de minimis* level, the surplus is allocated to individual products according to their share of average notified product-specific support over the last three years for which data are available. After applying these modalities, if the sum of product-specific AMS limits is higher than the new final bound total AMS, the new final bound total AMS is allocated to the products according to their share of the average notified product-specific support over the last three years for which data are available. However, if the allocated amount for a product exceeds the product-specific AMS limit, the latter is used as the “new” product-specific limit. The difference between the “new” product-specific AMS limits and the average notified product-specific support over the last three years for which data are available is the cut that the country should apply to AMS.

For each commodity, we determine the cuts in subsidy amounts per unit of production. Dividing per unit subsidy amounts by world unit values, we calculate the tariff rate equivalents. To determine the concessions made by the country, the tariff rate equivalent is multiplied by either imports or exports, depending on whether the country is a net importer or net exporter of the good. If it is a net importer of that good, a country’s concession is allocated to its trading partners according to their shares in the country’s market. If it is a net exporter of that good, a country’s concession is allocated to other competing exporters according to their share in world exports of that commodity (excluding the country making the concession).

The same approach is followed for Blue Box payments. Simulations based on this methodology were carried out for the United States, the European Union, Japan, Canada, Norway, Switzerland, Australia, Argentina, Brazil, Colombia, Mexico, Korea, South Africa, Taiwan, and Thailand.

A different methodology is used for export subsidies. Notified outlays are used as an estimate of concessions given by a country. These are calculated as the average amount notified to the WTO during 2000–04. Concessions are allocated to other exporting countries according to the WTO member’s share in world exports of that commodity (excluding the country making the concession). This method was used for simulations of export subsidy reductions for Canada, the European Union, Norway, Switzerland, and the United States.

### **Nonagricultural Market Access (NAMA)**

For NAMA, in the case of developed countries, in all tables we follow the scenario agreed in Doha, which assumes a Swiss coefficient of 8, applied to all tariff lines with no exceptions.<sup>3</sup>

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3. The Swiss formula is a linear mathematical formula that calculates the decrease in duty rates with a slope dependent on the original tariff rate. If the original tariff is high, the slope of decrease will be higher. If the original tariff is low, the slope of decrease will be lower. Therefore, the Swiss formula reduces tariff dispersion. The exact formula is  $Z = AX / (A+X)$ ,

For developing countries, in tables 1 through 12, we assume that countries follow the “20 half cut” scenario, one of the five options available to developing countries in Doha NAMA negotiations. This scenario consists of applying a coefficient of 20 to the Swiss formula, with the flexibility of making smaller cuts on 14 percent of its most “sensitive” industrial tariff lines, provided that these tariff lines do not exceed 15 percent of the total value of NAMA imports. In tables 13 through 15, we allow China, India, and Brazil to select other tariff reduction scenarios.<sup>4</sup>

We assume that the first set of tariff lines subject to flexibility are those with the highest applied tariffs. If there is added flexibility, we assume it is applied to tariff lines with the highest bound tariff, and finally to those with the lowest import share. The formula is generally applied to bound rates; it is used for applied rates only in the case where the current applied rate is higher than the new bound rate. Moreover, the NAMA reductions are compliant with the “anti-concentration clause,” which restricts developing countries from applying all the flexibility granted to them in a single sector, thereby excluding that sector from the liberalization process.<sup>5</sup> When a tariff line is unbound, for purposes of these calculations, an artificial bound rate is created at 25 percent above the most favored nation (MFN) applied rate. Finally, some countries had not yet implemented all their commitments by 2005. To omit the accession effect, MFN applied rates are simply set at the level of the final bound rates.

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where  $Z$  is the reduced tariff,  $X$  is the initial tariff, and  $A$  is the negotiated coefficient. For example, if we assume a Swiss coefficient of 20, an initial tariff of 100 percent will be reduced to 16.6 percent, while an initial tariff of 5 percent will be reduced to 4 percent.

4. The other four scenarios available to developing countries are: (1) “20 no cut” (a Swiss coefficient of 20 with the flexibility to make no cuts in bound rates on 6.5 percent of its most sensitive industrial tariff lines, provided they do not exceed 7.5 percent of the total NAMA import value); (2) “22 half cut” (a Swiss coefficient of 22, which means tariff reductions that are less steep than the 20 coefficient, and a flexibility of making smaller cuts in 10 percent of its most sensitive industrial products, provided they do not exceed 10 percent of the total NAMA import value); (3) “22 no cut” (a Swiss coefficient of 22, and the flexibility to make no cuts in tariff rates to 5 percent of its most sensitive industrial tariff lines, provided they do not exceed 5 percent of the total NAMA imports); and (4) “25” (a Swiss coefficient of 25 applied to all NAMA tariff lines).

5. The anti-concentration clause states that “full formula tariff reductions shall apply to a minimum of either 20 percent of national tariff lines or 9 percent of the value of imports of the Member in each HS Chapter” (WTO, paragraph 7(d) of “Fourth Revision of Draft Modalities for Non-Agricultural Market Access,” TN/MA/W/103/Rev.3, December 6, 2008).

**Table B1 Tiered formula for tariff reductions in market access (percent)**

Developed countries		Developing countries		Recently acceded countries	
Tier	Reduction	Tier	Reduction	Tier	Reduction
0<=20	50	0<=30	33.5	0<=10	0
>20<=50	57	>30<=80	38	>10<=20	25.5
>50<=75	64	>80<=130	43	>20<=50	30
>75	70	>130	47	>50<=75	35
				>75	39

Notes: A tariff within a certain tier will be reduced by the corresponding reduction amount. For example, a developed country with a tariff of 55 percent will decrease its tariff rate by 64 percent (down to 19.8 percent), while a developing country will decrease the same tariff rate by 38 percent (down to 34.1 percent), and a recently acceded country by 35 percent (down to 35.7 percent).

## APPENDIX C SERVICES

To estimate the potential trade gains from liberalization in services, we assume a 10 percent reduction in the econometrically estimated tariff equivalent of services barriers in the 21 countries studied (Taiwan is excluded from this exercise). The initial tariff equivalents (table C1) are taken from Rosen (2009). The tariff equivalents are calculated as the average across services sectors using an ordinary least squares gravity model estimation procedure.<sup>1</sup>

To determine the impact of a 10 percent tariff equivalent change we first must determine bilateral services trade flows between the 21 countries. Only some of this data are publicly available (and some of it may not be collected at all). Essentially, only OECD countries' bilateral flows with other OECD countries and major economies (e.g., China and India) are readily available. To fill in the missing data points, we estimate bilateral service flows between countries by assuming the share of a country's services trade with a partner out of its total services trade is equal to the share of that country's merchandise trade with the same partner out of its total merchandise trade. A collapsed version of the results from this estimation procedure is shown in table C2.

We use a partial equilibrium analysis to determine the impact of a 10 percent tariff equivalent reduction. For each bilateral trade flow, the percentage point difference in tariff equivalents for the importing country is multiplied by an elasticity of  $-1.37$ ; one minus the resulting figure (as a percent) is then multiplied by the current trade flow to estimate trade after the 10 percent cut. The results from this estimation procedure are displayed in table C3. The results indicate a large jump in developing-country service imports (\$40.9 billion). Only about a third of this increase would come from the United States and European Union (\$7 billion and \$7.6 billion, respectively). Developed-country imports would increase by only \$14.8 billion; the smaller increase is due to the low levels of developed-country service barriers relative to developing-country barriers (as measured by the tariff equivalents shown in table C1).

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1. The gravity equation used is:  $M_{ij} = a_i + a_j + a_1 \ln(GDP_j) + a_2 \ln(PCI_j) + \varepsilon_j$ . Where  $M_{ij}$  represents existing services imports in sector  $i$  by country  $j$ ,  $a_i$  and  $a_j$  are sector and country effect variables, respectively,  $PCI_j$  represents per capita income in the importing country,  $GDP_j$  represents national GDP, and  $\varepsilon_j$  is an error term. To determine tariff equivalents the following equation is used  $a_j = -\sigma \ln(T_j)$ . Where  $T_j$  is the power of the tariff equivalent ( $1+\tau$ ) such that in free trade  $T_0 = 1$ , and  $\sigma$  is the trade substitution elasticity relative to domestic production, data for which are derived from the Global Trade Analysis Project (GTAP) (Rosen 2009).

**Table C1 Tariff equivalents of service barriers (percent)**

<b>Country</b>	<b>Current tariff equivalent</b>	<b>Tariff equivalent after 10 percent cut</b>
Argentina	33.09	29.78
Australia	16.12	14.51
Brazil	55.54	49.99
Canada	15.42	13.88
China	80.79	72.71
Colombia	40.87	36.78
European Union <sup>a</sup>	6.69	6.02
India	98.48	88.63
Indonesia	67.93	61.14
Japan	16.76	15.08
Korea	25.04	22.54
Malaysia	28.77	25.89
Mexico	44.32	39.89
Norway	0.00	0.00
Pakistan	68.06	61.25
Philippines	55.35	49.81
South Africa	39.66	35.69
Switzerland	3.37	3.03
Thailand	44.06	39.65
Turkey	43.89	39.50
United States <sup>b</sup>	6.69	6.02

a. Measured as the weighted average of service tariff equivalents for Belgium, France, Germany, Italy, Netherlands, and the United Kingdom, using 2008 US exports to each country as weights.

b. Set equal to the EU tariff equivalent. Rosen (2009) assumes a US tariff equivalent of service barriers of zero.

Sources: Rosen (2009), authors' calculations.

**Table C2 Estimated 2007 bilateral services trade** (billions of dollars)

Country/group	World	Developed (7)	Developing (14)	European Union	Japan	United States	Brazil	China	India
All 21 countries	1,777.3	380.9	1,080.8	421.3	81.9	394.2	19.0	84.8	24.8
Developed (7)	1,284.3	282.2	827.3	322.3	51.0	294.3	10.5	39.4	18.5
Developing (14)	492.9	98.7	253.5	98.9	30.9	99.8	8.6	45.4	6.3
European Union	567.1	285.3	71.2	...	18.9	175.1	5.5	14.7	7.4
Japan	150.5	85.3	24.6	33.1	...	43.1	0.3	8.2	0.6
United States	378.4	223.6	59.2	145.9	26.2	...	4.1	8.8	9.7
Brazil	37.2	20.7	10.9	8.8	0.6	9.9	...	3.9	0.7
China	129.3	51.8	27.5	24.4	8.2	14.2	2.5	...	2.0
India	77.6	26.8	17.7	10.2	1.2	9.5	0.3	8.7	...

Note: Services import data availability (including reported exports by a partner) is as follows:

Argentina: All countries but Australia, Brazil, Colombia, Turkey

Australia: Only Canada, EU, Japan, Norway, Pakistan, USA

Brazil: Only Canada, EU, Japan, Norway, Pakistan, USA

Canada: All countries

China: Only Australia, Canada, EU, Japan, Korea, Norway, Pakistan, USA

European Union: All countries

India: Only Australia, Canada, EU, Japan, Norway, Pakistan, USA

Indonesia: Only Australia, Canada, EU, Japan, Pakistan, USA

Japan: All countries but Argentina, Colombia, Turkey

Korea: Only Australia, Canada, Colombia, EU, Japan, Pakistan, USA

Malaysia: Only Australia, Canada, EU, Japan, Pakistan, USA

Mexico: Only Australia, Canada, EU, Japan, Pakistan, USA

Norway: All countries but Argentina, Colombia, Indonesia, Korea, Malaysia, Mexico, Philippines South Africa, Thailand

Pakistan: All countries

Philippines: Only Australia, Canada, EU, Japan, Pakistan, USA

South Africa: Only Australia, Canada, EU, Japan, Pakistan, USA

Switzerland: Only Australia, Canada, EU, Japan, Norway Pakistan, USA

Thailand: Only Australia, Canada, EU, Japan, Pakistan, USA

Turkey: Only Canada, EU, Norway, Pakistan

United States: All countries but Colombia, Turkey

All other bilateral relationships are estimated by multiplying each country's total service imports by the relevant proportion of bilateral merchandise trade from 2007.

Sources: BEA (2009), UNSD (2009), OECD (2009), UN Comtrade Database via WITS (2009), authors' calculations.

**Table C3 Impact on services trade of a 10 percent cut in the tariff equivalents of service barriers**

	<b>World</b>	<b>Developed (7)</b>	<b>Developing (14)</b>	<b>European Union</b>	<b>Japan</b>	<b>United States</b>	<b>Brazil</b>	<b>China</b>	<b>India</b>
<b>Country/group</b>	<b>Increase in billions of dollars</b>								
All 21 countries	55.7	15.0	27.9	10.8	2.7	10.8	0.7	3.7	0.7
Developed (7)	14.8	3.6	9.1	3.1	0.5	3.9	0.1	0.6	0.2
Developing (14)	40.9	11.4	18.8	7.6	2.2	7.0	0.6	3.1	0.5
European Union	5.2	2.6	0.7	...	0.2	1.6	0.1	0.1	0.1
Japan	3.5	2.0	0.6	0.8	...	1.0	0.0	0.2	0.0
United States	3.5	2.1	0.5	1.3	0.2	...	0.0	0.1	0.1
Brazil	2.8	1.6	0.8	0.7	0.0	0.8	...	0.3	0.1
China	14.3	5.7	3.0	2.7	0.9	1.6	0.3	...	0.2
India	10.5	3.6	2.4	1.4	0.2	1.3	0.0	1.2	...
	<b>Percent increase from current services trade</b>								
All 21 countries	3.1	3.9	2.6	2.6	3.3	2.7	3.7	4.4	2.6
Developed (7)	1.2	1.3	1.1	1.0	1.0	1.3	1.0	1.4	1.0
Developing (14)	8.3	11.5	7.4	7.7	7.0	7.0	7.0	6.9	7.5
European Union	0.9	0.9	0.9	...	0.9	0.9	0.9	0.9	0.9
Japan	2.3	2.3	2.3	2.3	...	2.3	2.3	2.3	2.3
United States	0.9	0.9	0.9	0.9	0.9	...	0.9	0.9	0.9
Brazil	7.6	7.6	7.6	7.6	7.6	7.6	...	7.6	7.6
China	11.1	11.1	11.1	11.1	11.1	11.1	11.1	...	11.1
India	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	...

Sources: Rosen (2009), BEA (2009), UNSD (2009), OECD (2009), UN Comtrade Database via WITS (2009), Marquez (2005), authors' calculations.

## APPENDIX D CHEMICALS

Using the same partial equilibrium methodology detailed earlier, we determine the impact of the nonagricultural market access (NAMA) modality tariff cuts and a sectoral initiative on chemical trade between the 22 countries. The simple averages of applied bilateral tariffs before and after the modality tariff cuts on all traded tariff lines are displayed in table D1. The rates vary widely, even for one country's tariffs, because of different product coverage. The average rate the United States applies before the modality cuts to Japanese and Chinese chemical imports is roughly the same, 3.28 and 3.24 percent, respectively, while the average rate on Brazilian and Indian imports is much lower, 0.70 and 0.85 percent, respectively. After the modality cuts, the US rates for chemical imports from Japan and China drop by about 1.5 percentage points while those for chemical imports from Brazil and India drop by a much smaller margin, about 0.3 percentage points. Under a sectoral initiative, we assume all chemical tariffs at or below 2.5 percent, after the modality cuts, will go to zero; all tariffs above 2.5 percent and equal to or below 5 percent, after the modality cuts, will go to a new tariff of 2.5 percent; and all tariffs above 5 percent, after the modality cuts, will go to a new tariff of 5 percent.

The modality cuts increase world chemical exports to the 22 countries by 1.79 percent over current levels of chemical trade (table D2). Chemical imports by the three main developed countries (the European Union, Japan, and the United States) all increase by less than 2 percent from the modality cuts. Chemical imports by the three main developing countries (Brazil, China, and India) all increase by over 2.5 percent, with Brazilian and Chinese chemical imports increasing by over 3 percent. Of the \$2.28 billion increase in US chemical imports, over half (\$1.15 billion) comes from the European Union. Of the EU increase in chemical imports, \$2.89 billion, only about a third (\$ 0.96 billion) comes from the United States.

Table D3 shows the estimated trade flows from the sector initiative tariff cuts, which encompass the modality cuts. Nearly every bilateral relationship at least doubles over the modality cuts alone. Table D4 shows the additional increase in trade from the sectoral tariff cuts over the modality cuts. The modality and sectoral cuts each increase world chemical exports to the 22 countries by roughly \$15.4 billion.

**Table D1 Average applied tariffs on chemicals (percent)**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Current applied rates								
All 22 countries	3.29	2.95	2.89	3.05	4.78	2.78	2.26	2.56	3.63
Developed (7)	2.05	1.77	1.43	2.01	3.38	2.05	0.73	1.67	2.37
Developing (15)	5.58	4.99	5.92	4.70	5.98	3.87	4.74	5.70	5.91
European Union	2.57	2.54	1.16	...	3.88	3.88	0.67	0.73	3.69
Japan	1.66	2.50	0.52	2.55	...	2.58	0.17	0.05	0.06
United States	2.13	1.88	1.98	2.92	3.28	...	0.70	3.24	0.85
Brazil	8.02	8.86	6.59	8.57	9.11	9.11	...	8.56	8.02
China	6.71	6.87	6.60	6.78	6.86	6.76	7.27	...	6.81
India	8.72	8.51	9.85	8.31	8.31	8.42	13.93	8.22	...
Post-modality applied rates									
All 22 countries	2.24	1.99	2.06	2.09	3.25	1.83	1.72	1.76	2.51
Developed (7)	1.20	1.03	0.89	1.21	1.97	1.15	0.54	1.05	1.42
Developing (15)	4.16	3.64	4.49	3.45	4.36	2.84	3.63	4.27	4.49
European Union	1.52	1.46	0.80	...	2.24	2.23	0.59	0.63	2.14
Japan	0.83	1.27	0.27	1.28	...	1.29	0.10	0.03	0.04
United States	1.24	1.12	1.14	1.76	1.87	...	0.50	1.84	0.58
Brazil	5.91	6.47	4.96	6.29	6.64	6.64	...	6.30	6.84
China	4.95	4.98	4.98	4.91	4.98	4.95	5.24	...	4.99
India	7.04	6.74	8.18	6.66	6.66	6.72	11.98	6.62	...

Notes: Tariffs are the simple average of 2008 (for most countries) applied tariffs on all traded tariff lines in each bilateral relationship. Applied tariffs from 2007 are used for Korea, Malaysia, and the Philippines. Applied tariffs from 2006 are used for Thailand. For Brazil 2008 applied tariffs are used except for on imports from India, Indonesia, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2007 applied tariffs are used. For India 2008 applied tariffs are used except for on imports from Brazil, Indonesia, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2007 applied tariff are used. For Indonesia 2007 applied tariffs are used except for on imports from India, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2006 applied tariffs are used. For Mexico 2008 applied tariffs are used except for on imports from Brazil, India, Indonesia, Malaysia, Pakistan, the Philippines, and Taiwan, where 2006 applied tariffs are used. See table 18, footnote a, for product coverage. Aggregate tariffs are weighted by total 2007 imports for each country in the group.

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table D2 Estimated increase in chemicals trade from NAMA modality tariff cuts**

	<b>World</b>	<b>Developed (7)</b>	<b>Developing (15)</b>	<b>European Union</b>	<b>Japan</b>	<b>United States</b>	<b>Brazil</b>	<b>China</b>	<b>India</b>
<b>Country/group</b>	<b>Increase in billions of dollars</b>								
All 22 countries	15.41	8.63	3.66	3.57	1.99	2.48	0.05	1.15	0.22
Developed (7)	6.39	3.65	1.13	1.77	0.54	1.15	0.02	0.51	0.13
Developing (15)	9.02	4.97	2.54	1.80	1.45	1.34	0.03	0.65	0.09
European Union	2.89	1.26	0.33	...	0.27	0.96	0.01	0.02	0.11
Japan	0.79	0.64	0.11	0.38	...	0.19	0.00	0.00	0.00
United States	2.28	1.48	0.61	1.15	0.25	...	0.00	0.44	0.02
Brazil	0.80	0.57	0.09	0.26	0.01	0.01	...	0.05	0.01
China	3.56	1.80	1.22	0.53	0.63	0.46	0.01	...	0.03
India	0.46	0.22	0.18	0.12	0.02	0.05	0.00	0.10	...
	<b>Percent increase from current chemicals trade</b>								
All 22 countries	1.79	1.56	1.86	1.63	2.68	1.59	0.56	1.69	1.56
Developed (7)	1.23	1.01	1.18	1.15	2.40	1.18	0.43	1.11	1.52
Developing (15)	2.64	2.59	2.49	2.74	2.81	2.24	0.74	2.85	1.63
European Union	1.61	1.17	0.94	...	2.58	1.88	0.67	0.15	2.49
Japan	1.58	2.11	0.64	2.38	...	1.70	1.43	0.01	0.20
United States	1.27	1.17	1.80	1.41	2.46	...	0.27	2.74	0.58
Brazil	3.68	4.35	1.85	4.29	3.61	3.61	...	3.24	1.14
China	3.20	3.48	2.74	3.75	3.14	3.82	3.41	...	2.23
India	2.62	3.29	0.00	3.25	2.61	3.14	2.49	2.20	...

NAMA = nonagricultural market access

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table D3 Estimated increase in chemicals trade from sectoral tariff cuts**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Increase in billions of dollars								
All 22 countries	30.79	16.69	8.42	6.90	4.15	4.56	0.14	2.47	0.52
Developed (7)	10.60	6.12	2.07	3.25	0.88	1.69	0.06	1.02	0.23
Developing (15)	20.19	10.57	6.34	3.65	3.26	2.86	0.09	1.45	0.29
European Union	4.30	1.88	0.59	...	0.40	1.42	0.04	0.11	0.16
Japan	1.01	0.79	0.16	0.45	...	0.27	0.00	0.01	0.00
United States	4.57	3.03	1.14	2.44	0.46	...	0.01	0.81	0.06
Brazil	1.80	1.24	0.26	0.56	0.03	0.03	...	0.11	0.04
China	8.03	3.75	3.07	1.08	1.39	0.92	0.03	...	0.09
India	1.30	0.49	0.05	0.26	0.05	0.11	0.01	0.26	...
Percent increase from current chemicals trade									
All 22 countries	3.57	3.02	4.27	3.14	5.61	2.91	1.63	3.63	3.66
Developed (7)	2.03	1.70	2.18	2.11	3.94	1.75	1.15	2.26	2.73
Developing (15)	5.91	5.50	6.22	5.56	6.33	4.79	2.28	6.37	5.01
European Union	2.40	1.74	1.71	...	3.80	2.80	1.83	0.69	3.75
Japan	2.02	2.62	0.94	2.79	...	2.40	1.49	0.07	0.40
United States	2.55	2.40	3.40	2.99	4.46	...	0.93	5.06	1.96
Brazil	8.30	9.48	5.38	9.35	8.31	8.31	...	7.39	6.96
China	7.22	7.25	6.91	7.57	6.98	7.74	7.51	...	5.71
India	7.35	7.37	0.00	7.34	6.48	7.16	16.83	5.75	...

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table D4 Additional increase in chemicals trade from sectoral tariff cuts above modality tariff cuts**

	<b>World</b>	<b>Developed (7)</b>	<b>Developing (15)</b>	<b>European Union</b>	<b>Japan</b>	<b>United States</b>	<b>Brazil</b>	<b>China</b>	<b>India</b>
<b>Country/group</b>	<b>Increase in billions of dollars</b>								
All 22 countries	15.38	8.06	4.76	3.32	2.16	2.07	0.09	1.32	0.30
Developed (7)	4.21	2.47	0.95	1.47	0.34	0.55	0.04	0.52	0.10
Developing (15)	11.17	5.59	3.81	1.85	1.82	1.53	0.06	0.80	0.19
European Union	1.41	0.61	0.27	...	0.13	0.47	0.02	0.09	0.05
Japan	0.22	0.16	0.05	0.07	...	0.08	0.00	0.00	0.00
United States	2.29	1.55	0.54	1.29	0.21	...	0.01	0.37	0.04
Brazil	1.00	0.67	0.17	0.30	0.02	0.02	...	0.06	0.03
China	4.47	1.95	1.86	0.54	0.77	0.47	0.01	...	0.05
India	0.84	0.27	0.00	0.14	0.03	0.06	0.01	0.16	...
	<b>Percent increase from current chemicals trade</b>								
All 22 countries	1.78	1.46	2.41	1.51	2.92	1.32	1.07	1.93	2.10
Developed (7)	0.81	0.68	1.00	0.96	1.54	0.56	0.72	1.14	1.21
Developing (15)	3.27	2.91	3.73	2.81	3.52	2.55	1.54	3.52	3.39
European Union	0.79	0.57	0.77	...	1.22	0.92	1.17	0.54	1.26
Japan	0.43	0.51	0.29	0.41	...	0.70	0.07	0.05	0.20
United States	1.28	1.23	1.59	1.58	2.00	...	0.66	2.33	1.38
Brazil	4.62	5.12	3.53	5.06	4.70	4.70	...	4.14	5.82
China	4.02	3.77	4.18	3.82	3.84	3.92	4.10	...	3.48
India	4.73	4.08	0.00	4.08	3.87	4.03	14.34	3.54	...

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

## APPENDIX E IT GOODS AND ELECTRONIC/ELECTRICAL GOODS

Currently, WTO negotiators are working on a sectoral agreement covering electronics and electrical goods. The agreement covers a large amount of trade, but several key players are absent from the negotiations, most notably the European Union and China. We are, therefore, skeptical that an electronic/electrical goods sectoral initiative can succeed. A more likely outcome is an expanded Information Technology Agreement (ITA). We calculate the trade impact of both scenarios. A list of the products included in the ITA sectoral calculations is displayed in table E1. A list of the products included in the electronic/electrical goods calculations is displayed in table E6.

Applied tariffs on ITA goods are low (table E2). The developed-country average is 0.40 percent, and even China, which unlike Brazil, Mexico, and South Africa is an ITA member, has relatively low tariffs (1.73 percent). Currently, due to product coverage, the United States faces applied tariffs that are higher than the world average on ITA goods in the European Union (1.13 percent for the United States versus a world average of 0.87 percent), in China (1.84 percent versus 1.73 percent), and in Brazil (11.77 percent versus 9.91 percent). After the modality tariff cuts, the average tariff on US ITA goods exported to China is equal to the average world applied tariff, while an imbalance persists for US ITA exports to the European Union and Brazil.

Japan experiences almost no increase in ITA goods trade from the modality tariff cuts or sectoral tariff cuts because its current tariffs are essentially all zero (tables E3 to E5). Brazil and India have very minimal export increases, because they currently export only a small amount of ITA goods. Under the sectoral tariff cuts, China gains the most, with an \$8.72 billion increase in imports from the world and a \$2.82 billion increase in exports to the 21 other countries included in this study (table E4). The increase in Chinese imports from Japan (\$1.65 billion) account for about a fifth of the increase in total Chinese imports of ITA goods (table E4). The additional increase beyond the modality tariff cuts in US trade from a sectoral initiative in ITA goods is \$3.62 billion. Close to three-quarters of this increase (\$2.63 billion) is from US exports to the 21 other countries (table E5).

Tariffs on electronic/electrical goods are substantially higher than on ITA goods (table E7). For example, the average applied tariff on world exports of electronic/electrical goods to China is 6.62 percent; for ITA goods the tariff rate is only 1.73 percent. The impact of tariff cuts on trade could be substantial since initial tariffs are so high. This is especially true in a sectoral initiative where, we assume, all electronic/electrical goods tariffs go to zero. A sectoral initiative in electronic/electrical goods could lead to a \$45.4 billion increase in world exports to the 22 countries; this is \$16.18 billion higher than the impact of a sectoral initiative in only ITA goods and \$35.45 billion more than the impact of modality cuts alone in electronic/electrical goods (tables E8 to E10). For the United States a sectoral initiative in electronic/electrical goods would increase exports to the 21 other countries by \$3.30 billion; most (\$2.10 billion) of this increase would be in exports to developing countries other than Brazil, China, and India.

**Table E1 Goods covered by the Information Technology Agreement (ITA)**

<b>Code</b>	<b>Description</b>
381800	Chemical elements doped for use in electronics, in the form of discs, wafers, or similar forms; chemical compounds doped for use in electronics
701710	Of fused quartz or other fused silica
702000	Other articles of glass
841989	Other machinery, plant and equipment—other
841990	Parts for machinery, plant or laboratory equipment for the treatment of material involving temperature change (except domestic machinery), nesoi
842119	Centrifuges, including centrifugal dryers—other
842191	Parts of centrifuges, including centrifugal dryers
842430	Steam or sand blasting machines and similar jet projecting machines
842489	Other appliances—other
842490	Parts for mechanical appliances for projecting, dispersing, or spraying, fire extinguishers, spray guns, and steam or sand blasting machines
842820	Pneumatic elevators and conveyors
842833	Other continuous-action elevators and conveyors, for goods or materials—other, belt type
842839	Other continuous-action elevators and conveyors, for goods or materials—other
842890	Other machinery
843139	Of machinery of heading no. 84.28—other
845610	Operated by laser or other light or photon beam processes
845691	Other, for dry-etching patterns on semiconductor materials
845699	Machine tools for removal of material by electrochemical, electron-beam, ionic-beam or plasma arc processes, nesoi
846221	Bending, folding, straightening, or flattening machines (including presses)—numerically controlled
846229	Bending, folding, straightening, or flattening machines (including presses)—other
846410	Sawing machines
846420	Grinding or polishing machines
846490	Machine tools for working stone, ceramics, concrete, asbestos-cement or like mineral materials or for cold working glass, nesoi
846599	Machine tools (also those for nailing, stapling, glueing, etc.) for working wood, cork, bone, hard rubber, hard plastics or similar materials, nesoi
846610	Tool holders and self-opening dieheads
846620	Work holders
846630	Dividing heads and other special attachments for machine-tools
846691	Other—For machines of heading no. 84.64
846693	Other—For machines of headings nos. 84.56 to 84.61
846694	Other—For machines of heading no. 84.62 or 84.63
846911	Automatic typewriters and word-processing machines—word-processing machines
846912	Automatic typewriters and word-processing machines—automatic typewriters
847010	Electronic calculators capable of operation without an external source of electric power and pocket-sized data recording, reproducing, and displaying machines with calculating functions
847021	Other electronic calculating machines—incorporating a printing device
847029	Other electronic calculating machines—other
847030	Other calculating machines
847040	Accounting machines
847050	Cash registers
847090	Postage-franking machines, ticket-issuing machines and similar machines, incorporating a calculating device, nesoi

*(continued on next page)*

**Table E1 Goods covered by the Information Technology Agreement (ITA) (continued)**

<b>Code</b>	<b>Description</b>
847110	Analogue or hybrid automatic data-processing machines
847130	Portable digital automatic data-processing machines, weighing not more than 10 kg, consisting of at least a central processing unit, a keyboard, and a display
847141	Other digital automatic data-processing machines—comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined
847149	Other digital automatic data-processing machines—other, presented in the form of systems
847150	Digital processing units other than those of sub-headings 8471.41 and 8471.49, whether or not containing in the same housing one or two of the following types of unit : storage units, input units, output units
847160	Input or output units, whether or not containing storage units in the same housing
847170	Storage units
847180	Other units of automatic data-processing machines
847190	Automatic data processing units thereof; magnetic/optical readers, machinery for transcribing data to data media in coded form and machinery for processing data, nesoi
847290	Office machines nesoi (including automatic banknote dispensers, coin-sorting machines, pencil-sharpening machines, perforating or stapling machines)
847310	Parts and accessories of the machines of heading no. 84.69
847321	Parts and accessories of the machines of heading no. 84.70—of the electronic calculating machines of subheading No. 8470.10, 8470.21 or 8470.29
847329	Parts and accessories of the machines of heading no. 84.70—other
847330	Parts and accessories of the machines of heading no. 84.71
847340	Parts and accessories of the machines of heading no. 84.72
847350	Parts and accessories equally suitable for use with machines of two or more of the heading nos. 84.69 to 84.72
847710	Injection molding machines
847740	Vacuum molding machines and other thermoforming machines
847759	Other machinery for molding or otherwise forming—other
847790	Parts of machinery for working rubber or plastics or parts of machinery used in the manufacture of products from rubber or plastic materials, nesoi
847950	Industrial robots, not elsewhere specified or included
847989	Other machines and mechanical appliances—other
847990	Parts of machines and mechanical appliances having individual functions, nesoi
848071	Molds for rubber or plastics—injection or compression types
850440	Static converters
850450	Other inductors
850490	Parts for electrical transformers,static converters and inductors
851410	Resistance heated furnaces and ovens
851420	Induction or dielectric furnaces and ovens
851430	Other furnaces and ovens
851490	Parts for industrial or laboratory electric furnaces and ovens ; parts for industrial or laboratory induction or dielectric heating equipment, nesoi
851580	Other machines and apparatus
851590	Parts for electric laser, ultrasonic etc. welding etc. machines; parts for electric machines for hot spraying of metals or sintered metal carbides
851711	Telephone sets; videophones—line telephone sets with cordless handsets
851719	Telephone sets; videophones—other
851721	Facsimile machines and teleprinters—facsimile machines
851722	Facsimile machines and teleprinters—teleprinters
851730	Telephonic or telegraphic switching apparatus

*(continued on next page)*

**Table E1 Goods covered by the Information Technology Agreement (ITA) (continued)**

<b>Code</b>	<b>Description</b>
851750	Other apparatus, for carrier-current line systems or for digital line systems
851780	Other apparatus
851790	Parts of electrical apparatus for line telephony or telegraphy, including parts of such apparatus for carrier-current line systems
851810	Microphones and stands therefor
851829	Loudspeakers, whether or not mounted in their enclosures—Other
851830	Headphones, earphones, and combined microphone/speaker sets
851840	Audio-frequency electric amplifiers
851890	Parts of microphones, loudspeakers, headphones, earphones, audio-frequency electric amplifiers, and electric sound amplifier sets
852020	Telephone answering machines
852290	Parts and accessories, except pickup cartridges, for sound reproducing, sound recording, and video recording or reproducing apparatus
852311	Magnetic tapes—of a width not exceeding 4 mm
852312	Magnetic tapes—of a width exceeding 4 mm but not exceeding 6.5 mm
852313	Magnetic tapes—of a width exceeding 6.5 mm
852320	Magnetic discs
852390	Prepared magnetic media, unrecorded, nesoi
852431	Discs for laser reading systems—For reproducing phenomena other than sound or image
852439	Discs for laser reading systems—Other
852440	Magnetic tapes for reproducing phenomena other than sound or image
852491	Other—For reproducing phenomena other than sound or image
852499	Recorded media for reproducing sound or image, nesoi
852510	Transmission apparatus
852520	Transmission apparatus incorporating reception apparatus
852540	Still image video cameras and other video camera recorders
852790	Other apparatus
852812	Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus—color
852910	Aerials and aerial reflectors of all kinds; parts suitable for use therewith
852990	Parts (except antennas and reflectors) for use with radio transmission, radar, radio navigational aid, reception and television apparatus, nesoi
853120	Indicator panels incorporating liquid crystal devices (LCD) or light-emitting diodes (LED)
853180	Other apparatus
853190	Parts of electric sound or visual signaling apparatus, nesoi
853210	Fixed capacitors designed for use in 50/60 Hz circuits and having a reactive power handling capacity of not less than 0.5 kvar (power capacitors)
853221	Other fixed capacitors—tantalum
853222	Other fixed capacitors—aluminium electrolytic
853223	Other fixed capacitors—ceramic dielectric, single layer
853224	Other fixed capacitors—ceramic dielectric, multilayer
853225	Other fixed capacitors—dielectric of paper or plastics
853229	Other fixed capacitors—other
853230	Variable or adjustable (pre-set) capacitors
853290	Parts for electrical capacitors

*(continued on next page)*

**Table E1 Goods covered by the Information Technology Agreement (ITA) (continued)**

<b>Code</b>	<b>Description</b>
853310	Fixed carbon resistors, composition or film types
853321	Other fixed resistors—for a power handling capacity not exceeding 20 W
853329	Other fixed resistors—other
853331	Wirewound variable resistors, including rheostats and potentiometers—for a power handling capacity not exceeding 20 W
853339	Wirewound variable resistors, including rheostats and potentiometers—other
853340	Other variable resistors, including rheostats and potentiometers
853390	Parts for electrical resistors, including parts for rheostats and potentiometers
853400	Printed circuits
853650	Other switches
853669	Lamp-holders, plugs and sockets—other
853690	Other apparatus
853890	Parts for electrical apparatus for electrical circuits, boards, panels etc. for electric control or distribution of electricity, nesoi
854110	Diodes, other than photosensitive or light-emitting diodes
854121	Transistors, other than photosensitive transistors—with a dissipation rate of less than 1 W
854129	Transistors, other than photosensitive transistors—other
854130	Thyristors, diacs and triacs, other than photosensitive devices
854140	Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes
854150	Other semiconductor devices
854160	Mounted piezoelectric crystals
854190	Parts for diodes, transistors and similar semiconductor devices; parts for photosensitive semiconductor devices and mounted piezoelectric crystals
854212	Cards incorporating an electronic integrated circuit ("smart cards")
854213	Monolithic digital integrated circuits—metal oxide semiconductors (MOS technology)
854214	Monolithic digital integrated circuits—circuits obtained by bipolar technology
854219	Monolithic digital integrated circuits—other, including circuits obtained by a combination of bipolar and MOS technologies (BIMOS technology)
854230	Other monolithic integrated circuits
854240	Hybrid integrated circuits
854250	Electronic microassemblies
854290	Parts for electronic integrated circuits
854311	Particle accelerators—Ion implanters for doping semiconductor materials
854330	Machines and apparatus for electroplating, electrolysis or electrophoresis
854381	Other machines and apparatus—proximity cards and tags
854389	Other machines and apparatus—other
854390	Parts for electrical machines and apparatus having individual functions, nesoi
854441	Other electric conductors, for a voltage not exceeding 80 V—fitted with connectors
854449	Other electric conductors, for a voltage not exceeding 80 V—other
854451	Other electric conductors, for a voltage exceeding 80 V but not exceeding 1,000 V—fitted with connectors
854470	Optical fiber cables
900911	Electrostatic photocopying apparatus—operating by reproducing the original image directly onto the copy (direct process)

*(continued on next page)*

**Table E1 Goods covered by the Information Technology Agreement (ITA) (continued)**

<b>Code</b>	<b>Description</b>
900921	Other photocopying apparatus—incorporating an optical system
900990	Parts and accessories
901041	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials—direct write-on-wafer apparatus
901042	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials—step and repeat aligners
901049	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials—other
901050	Other apparatus and equipment for photographic (including cinematographic) laboratories; negatoscopes
901090	Parts and accessories
901110	Stereoscopic microscopes
901120	Other microscopes, for photomicrography, cinephotomicrography or microprojection
901190	Parts and accessories
901210	Microscopes other than optical microscopes and diffraction apparatus
901290	Parts and accessories
901380	Other devices, appliances and instruments
901390	Parts and accessories
901710	Drafting tables and machines, whether or not automatic
901720	Other drawing, marking-out, or mathematical calculating instruments
901790	Parts and accessories
902610	Instruments and apparatus for measuring or checking the flow or level of liquids
902620	Instruments and apparatus For measuring or checking pressure
902680	Other instruments or apparatus
902690	Parts and accessories
902720	Chromatographs and electrophoresis instruments
902730	Spectrometers, spectrophotometers, and spectrographs using optical radiations (UV, visible, IR)
902750	Other instruments and apparatus using optical radiations (UV, visible, IR)
902780	Other instruments and apparatus
902790	Microtomes, parts and accessories
903040	Other instruments and apparatus, specially designed for telecommunications (for example, cross-talk meters, gain measuring instruments, distortion factor meters, psophometers)
903082	Other instruments and apparatus—for measuring or checking semiconductor wafers or devices
903090	Parts and accessories
903141	Other optical instruments and appliances—for inspecting semiconductor wafers or devices or for inspecting photomasks or reticles used in manufacturing semiconductor devices
903149	Other optical instruments and appliances—other
903180	Other instruments, appliances, and machines
903190	Parts and accessories

Sources: WTO (2009b); Finger (2007); US International Trade Commission Interactive Tariff and Trade Dataweb, <http://dataweb.usitc.gov>, 2009..

**Table E2 Average applied tariffs on ITA goods (percent)**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Current applied rates								
All 22 countries	1.12	1.21	1.13	1.39	1.82	1.15	0.84	1.19	1.53
Developed (7)	0.40	0.52	0.40	0.67	1.13	0.50	0.04	0.52	0.65
Developing (15)	2.43	2.39	2.63	2.52	2.42	2.11	2.12	3.57	3.12
European Union	0.37	0.74	0.23	...	1.13	1.13	0.04	0.04	1.13
Japan	0.01	0.02	0.00	0.02	...	0.02	0.00	0.00	0.00
United States	0.58	0.61	0.64	0.91	1.14	...	0.01	1.14	0.01
Brazil	9.91	12.19	8.60	12.27	11.77	11.77	...	12.27	12.28
China	1.73	1.84	1.71	1.84	1.84	1.84	2.16	...	1.87
India	3.43	3.37	4.70	3.35	3.45	3.37	8.62	3.35	...
Post-modality applied rates									
All 22 countries	0.86	0.90	0.85	1.08	1.29	0.86	0.66	0.91	1.15
Developed (7)	0.27	0.34	0.25	0.48	0.69	0.31	0.04	0.31	0.41
Developing (15)	1.95	1.87	2.10	2.03	1.80	1.69	1.68	3.03	2.50
European Union	0.26	0.46	0.15	...	0.70	0.70	0.04	0.04	0.70
Japan	0.01	0.02	0.00	0.01	...	0.01	0.00	0.00	0.00
United States	0.36	0.39	0.36	0.62	0.63	...	0.01	0.63	0.01
Brazil	8.76	10.56	7.49	10.60	10.34	10.34	...	10.59	10.72
China	1.21	1.21	1.20	1.21	1.21	1.21	1.43	...	1.23
India	2.81	2.94	3.24	2.93	3.01	2.95	4.36	2.93	...

ITA = Information Technology Agreement

Notes: Tariffs are the simple average of 2008 (for most countries) applied tariffs on all traded tariff lines in each bilateral relationship. Applied tariffs from 2007 are used for Korea, Malaysia, and the Philippines. Applied tariffs from 2006 are used for Thailand. For Brazil 2008 applied tariffs are used except for on imports from India, Indonesia, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2007 applied tariffs are used. For India 2008 applied tariffs are used except for on imports from Brazil, Indonesia, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2007 applied tariff are used. For Indonesia 2007 applied tariffs are used except for on imports from India, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2006 applied tariffs are used. For Mexico 2008 applied tariffs are used except for on imports from Brazil, India, Indonesia, Malaysia, Pakistan, the Philippines, and Taiwan, where 2006 applied tariffs are used. See table E1 for product coverage. Aggregate tariffs are weighted by total 2007 imports for each country in the group.

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table E3 Estimated increase in ITA goods trade from NAMA modality tariff cuts**

	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
<b>Country/group</b>	<b>Increase in billions of dollars</b>								
All 22 countries	5.99	3.31	2.51	0.96	1.57	0.67	0.00	0.52	0.03
Developed (7)	1.47	0.77	0.70	0.16	0.37	0.20	0.00	0.17	0.01
Developing (15)	4.52	2.54	1.81	0.80	1.20	0.47	0.00	0.35	0.02
European Union	0.87	0.42	0.45	...	0.21	0.20	0.00	0.00	0.01
Japan	0.00	0.00	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	0.51	0.27	0.24	0.11	0.15	...	0.00	0.17	0.00
Brazil	0.27	0.20	0.07	0.10	0.02	0.02	...	0.05	0.00
China	1.90	0.67	1.19	0.15	0.43	0.07	0.00	...	0.00
India	0.22	0.08	0.12	0.06	0.01	0.01	0.00	0.03	...
	<b>Percent increase from current ITA trade</b>								
All 22 countries	0.53	0.59	0.51	0.58	0.87	0.43	0.17	0.24	0.73
Developed (7)	0.26	0.33	0.24	0.21	0.81	0.30	0.00	0.11	0.52
Developing (15)	0.79	0.77	0.92	0.89	0.89	0.52	0.50	0.63	1.18
European Union	0.41	0.54	0.39	...	1.03	0.59	0.00	0.00	0.88
Japan	0.00	0.00	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	0.26	0.38	0.21	0.32	0.68	...	0.00	0.27	0.00
Brazil	1.62	1.90	1.57	1.94	1.58	1.58	...	2.24	2.15
China	0.98	0.70	1.34	0.53	0.82	0.59	1.30	...	0.68
India	1.06	0.72	0.00	0.83	0.54	0.54	13.21	0.99	...

ITA = Information Technology Agreement

NAMA = nonagricultural market access

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table E4 Estimated increase in ITA goods trade from sectoral tariff cuts**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Increase in billions of dollars								
All 22 countries	29.20	15.66	12.21	5.23	6.35	3.30	0.04	2.82	0.14
Developed (7)	4.29	2.51	1.70	0.82	0.97	0.57	0.00	0.57	0.04
Developing (15)	24.91	13.15	10.51	4.42	5.38	2.72	0.04	2.25	0.10
European Union	2.06	1.09	0.94	...	0.46	0.57	0.00	0.06	0.04
Japan	0.01	0.00	0.01	0.00	...	0.00	0.00	0.00	0.00
United States	1.50	0.86	0.62	0.44	0.37	...	0.00	0.43	0.00
Brazil	3.53	2.43	0.85	1.32	0.24	0.24	...	0.44	0.01
China	8.72	2.66	5.88	0.67	1.65	0.26	0.00	...	0.01
India	1.36	0.79	0.01	0.52	0.11	0.11	0.00	0.15	...
Percent increase from current ITA trade									
All 22 countries	2.59	2.79	2.50	3.14	3.49	2.10	1.43	1.29	3.44
Developed (7)	0.77	1.08	0.58	1.08	2.11	0.87	0.06	0.35	1.61
Developing (15)	4.37	3.99	5.32	4.88	3.96	2.98	4.20	4.04	7.30
European Union	0.97	1.38	0.83	...	2.31	1.70	0.01	0.09	2.47
Japan	0.01	0.01	0.01	0.01	...	0.01	0.00	0.00	0.00
United States	0.77	1.21	0.54	1.33	1.71	...	0.02	0.71	0.03
Brazil	21.00	23.16	19.19	24.97	23.96	23.96	...	21.04	21.97
China	4.51	2.76	6.63	2.38	3.16	2.08	4.17	...	4.52
India	6.42	6.96	0.00	7.31	7.48	5.43	20.74	5.07	...

ITA = Information Technology Agreement

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table E5 Additional increase in ITA goods trade from sectoral tariff cuts above modality tariff cuts**

	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
<b>Country/group</b>	<b>Increase in billions of dollars</b>								
All 22 countries	23.21	12.35	9.70	4.28	4.77	2.63	0.03	2.30	0.11
Developed (7)	2.82	1.74	1.00	0.66	0.60	0.37	0.00	0.40	0.03
Developing (15)	20.39	10.61	8.70	3.61	4.17	2.25	0.03	1.90	0.08
European Union	1.18	0.67	0.49	...	0.26	0.37	0.00	0.06	0.03
Japan	0.01	0.00	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	0.99	0.59	0.38	0.34	0.22	...	0.00	0.27	0.00
Brazil	3.25	2.23	0.78	1.21	0.23	0.23	...	0.40	0.01
China	6.82	1.99	4.70	0.52	1.22	0.19	0.00	...	0.01
India	1.13	0.70	0.00	0.46	0.11	0.09	0.00	0.12	...
	<b>Percent increase from current ITA trade</b>								
All 22 countries	2.06	2.20	1.98	2.57	2.63	1.67	1.26	1.05	2.71
Developed (7)	0.51	0.75	0.34	0.87	1.30	0.57	0.06	0.24	1.09
Developing (15)	3.58	3.22	4.41	4.00	3.07	2.46	3.70	3.41	6.12
European Union	0.56	0.84	0.43	...	1.28	1.11	0.01	0.09	1.60
Japan	0.01	0.01	0.01	0.01	...	0.01	0.00	0.00	0.00
United States	0.51	0.83	0.33	1.02	1.03	...	0.02	0.44	0.03
Brazil	19.37	21.26	17.61	23.03	22.38	22.38	...	18.80	19.82
China	3.53	2.06	5.29	1.85	2.34	1.50	2.86	...	3.84
India	5.35	6.24	0.00	6.48	6.94	4.88	7.54	4.08	...

ITA = Information Technology Agreement

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table E6 Goods to be included in an electronic/electrical goods sector initiative**

<b>Code</b>	<b>Description</b>
381800	Chemical elements doped for use in electronics, in the form of discs, wafers, or similar forms: chemical compounds doped for use in electronics, of other substances other than those of silicon
700991	Unframed glass mirrors, excluding rear-view mirrors for vehicles
702000	Articles of glass, other than those of headings 7001 to 7019
841430	Other machinery, plant and equipment—other
841451	Table, floor, wall, window, ceiling, or roof fans, with a self-contained electric motor of an output not exceeding 125 W
841490	Centrifuges, including centrifugal dryers—other
841510	Parts of centrifuges, including centrifugal dryers
841581	Air conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity, incorporating a refrigerating unit and a valve for reversal of the cooling/heat cycle (reversible heat pumps), other than those of subheadings 8415.10 and 8415.20
841590	Parts of air conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity
841810	Combined refrigerator-freezers, fitted with separate external doors
841821	Household type refrigerators of compression-type
841822	Other continuous-action elevators and conveyors, for goods or materials—other, belt type
841829	Other continuous-action elevators and conveyors, for goods or materials—other
841830	Freezers of the chest type, not exceeding 800 l capacity
841840	Machinery of heading 84.28—other
841861	Refrigerating or freezing equipment of compression type, whose condensers are heat exchangers, other than those of subheadings 8418.10 to 8418.50, heat pumps
841899	Other, for dry-etching patterns on semiconductor materials
841989	Machinery, plant or laboratory equipment, for the treatment of materials by a process involving a change of temperature such as heating, cooking, roasting, distilling, rectifying, sterilizing, pasteurizing, steaming, drying, evaporating, vaporizing, condensing, or cooling, other than machinery or plant of a kind used for domestic purposes other than those of subheadings 8419.20 to 8419.81
841990	Bending, folding, straightening, or flattening machines (including presses)—numerically controlled
842112	Bending, folding, straightening, or flattening machines (including presses)—other
842119	Centrifuges, including centrifugal dryers, other than cream separators and clothes dryers
842191	Parts of centrifuges or centrifugal dryers
842211	Dish washing machines of the household type
842310	Personal weighing machines, including baby scales, household scales
842489	Mechanical appliances (whether or not hand-operated) for projecting, dispersing, or spraying liquids or powders, other than those for agricultural or horticultural use
842490	Parts of mechanical appliances (whether or not hand-operated) for projecting, dispersing, or spraying liquids or powders; parts of fire extinguishers, whether or not charged; parts of spray guns and similar appliances; parts of steam or sand blasting machines and similar jet projecting machines
842839	Continuous-action elevators and conveyors, for goods or materials, other than those specially designed for underground use, those of bucket or belt type, pneumatic elevators and pneumatic conveyors
842890	Other—for machines of heading 84.64
843139	Other—for machines of headings 84.56 to 84.61
845011	Other—for machines of heading 84.62 or 84.63
845012	Automatic typewriters and word-processing machines—word-processing machines
845019	Automatic typewriters and word-processing machines—automatic typewriters

*(continued on next page)*

**Table E6 Goods to be included in an electronic/electrical goods sector initiative** *(continued)*

<b>Code</b>	<b>Description</b>
845090	Parts of household or laundry-type washing machines
845121	Other electronic calculating machines—incorporating a printing device
845190	Other electronic calculating machines—other
845210	Sewing machines of the household type
845290	Parts of sewing machines, other than those of book-sewing machines of heading 84.40, sewing machine needles and furniture, base and covers for sewing machines and parts thereof
845610	Machine-tools for working any material by removal of material, by laser or other light or photon beam processes
845691	Machine-tools for working any material by removal of material, for dry-etching patterns on semiconductor materials, by electro-chemical, electron beam, ionic-beam or plasma arc processes
845699	Machine-tools for working any material by removal of material by electro-chemical, electron beam, ionic-beam or plasma arc processes, other than for dry-etching patterns on semiconductor materials
846221	Numerically controlled bending, folding, straightening, or flattening machines (including presses) for working metal
846229	Other digital automatic data processing machines—comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined
846410	Other digital automatic data processing machines—other, presented in the form of systems
846420	Grinding or polishing machines for working stone, ceramics, concrete, asbestos-cement, or like mineral materials or for cold working glass
846490	Machine-tools for working stone, ceramics, concrete, asbestos-cement, or like mineral materials or for cold working glass, other than sawing, grinding or polishing machines
846610	Self-opening die heads for use solely or principally with the machines of headings 84.56 to 84.65
846620	Work holders for use solely or principally with the machines of headings 84.56 to 84.65
846630	Dividing heads and other special attachments for machine-tools of heading 84.65
846691	Parts and accessories suitable for use solely or principally with the machines of heading 84.64 other than those of subheadings 8466.11 to 8466.30
846693	Parts and accessories suitable for use solely or principally with the machines of headings 84.56 to 84.61 other than those of subheadings 8466.11 to 8466.30
846694	Parts and accessories of the machines of heading 84.70—of the electronic calculating machines of subheading 8470.10, 8470.21, or 8470.29
846911	Parts and accessories of the machines of heading 84.70—other
846920	Electric typewriters, other than automatic typewriters and printers of heading 84.71
8470	Calculating machines and pocket-size data recording, reproducing and displaying machines with calculating functions; accounting machines, postage-franking machines, ticket-issuing machines and similar machines, incorporating a calculating device; cash registers
8471	Automatic data-processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, not elsewhere specified or included
847290	Office machines, other than those of subheadings 8472.10 to 8472.30
8473	Parts and accessories (other than covers, carrying cases and the like) suitable for use solely or principally with machines of headings 84.69 to 84.72
847710	Other machinery for molding or otherwise forming—other
847740	Vacuum molding machines and other thermoforming machines, for rubber or plastics, not specified or included elsewhere in this chapter
847759	Machinery for molding or otherwise forming rubber or plastics, not specified or included elsewhere in this chapter
847790	Other machines and mechanical appliances—other
847950	Industrial robots, not elsewhere specified

*(continued on next page)*

**Table E6 Goods to be included in an electronic/electrical goods sector initiative** *(continued)*

<b>Code</b>	<b>Description</b>
847989	Molds for rubber or plastics— injection or compression types
847990	Parts of machines and mechanical appliances, having individual functions, not specified or included elsewhere in this chapter
848071	Molds for rubber or plastics, of injection or compression types
8501	Electric motors and generators (excluding generating sets)
8502	Electric generating sets and rotary converters
8503	Parts suitable for use solely or principally with the machines of heading 85.01 or 85.02
850421	Liquid dielectric transformers, having a power-handling capacity not exceeding 650 kVA, other than ballasts for discharge lamps or tubes
850422	Liquid dielectric transformers having a power-handling capacity exceeding 650 kVA but not exceeding 10,000 kVA
850423	Liquid dielectric transformers having a power-handling capacity exceeding 10,000 kVA
850431	Electrical transformers, having a power handling capacity not exceeding 1 kVA, other than those of liquid dielectric transformers and ballasts for discharge lamps or tubes
850432	Telephone sets, videophones—line telephone sets with cordless handsets
850434	Telephone sets, videophones—other
850440	Facsimile machines and teleprinters—facsimile machines
850450	Facsimile machines and teleprinters—teleprinters
850490	Parts of electrical transformers, static converters or inductors
8505	Electro-magnets; permanent magnets and articles intended to become permanent magnets after magnetisation; electromagnetic or permanent magnet chucks, clamps and similar holding devices; electro-magnetic couplings, clutches and brakes; electro-magnetic lifting heads
8506	Primary cells and primary batteries
8507	Electric accumulators, including separators therefore, whether or not rectangular (including square)
850910	Vacuum cleaners for domestic appliances, including dry and wet vacuum cleaners, with self-contained electric motors
850920	Loudspeakers, whether or not mounted in their enclosures—other
850940	Food grinders, mixers, and fruit or vegetable juice extractors, for domestic appliance, with self-contained electric motors
850980	Electromechanical domestic appliances, with self-contained electric motors, other than those of subheadings 8509.10 to 8509.40
8510	Shavers, hair clippers, and hair-removing appliances, with self-contained electric motors
851310	Portable electric lamps designed to function by their own sources of energy (for example, dry batteries, accumulators magnetos), other than lighting equipment of heading 8512
851410	Resistance heated furnaces and ovens
851420	Magnetic tapes—of a width not exceeding 4 mm
851430	Magnetic tapes—of a width exceeding 4 mm but not exceeding 6.5 mm
851440	Magnetic tapes—of a width exceeding 6.5 mm
851490	Parts of industrial or laboratory electric furnaces and ovens (including those functioning by induction or dielectric loss) and other industrial or laboratory equipment for the heat treatment of materials by induction or dielectric loss
851519	Electric brazing or soldering machines or apparatus, other than soldering irons and guns
851521	Discs for laser reading systems—for reproducing phenomena other than sound or image
851529	Discs for laser reading systems—other
851531	Machines and apparatus for arc welding of metals, fully or partly automatic
851580	Other—for reproducing phenomena other than sound or image

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**Table E6 Goods to be included in an electronic/electrical goods sector initiative** *(continued)*

<b>Code</b>	<b>Description</b>
851590	Parts of electric (including electrically heated gas), laser or other light or photon beam, ultrasonic, electron beam, magnetic pulse or plasma arc soldering, brazing or welding machines and apparatus, whether or not capable of cutting, or parts of electric machines and apparatus for hot spraying of metals or cermets
8516	Electric instantaneous or storage water heaters and immersion heaters; electric space heating apparatus and soil heating apparatus; electrothermic hair-dressing apparatus and hand dryers; electric smoothing irons; other electrothermic appliances of a kind used for domestic purposes; electric heating resistors, other than those of heading 85.45
8517	Electrical apparatus for line telephony or line telegraphy, including line telephone sets with cordless handsets and telecommunication apparatus for carrier-current line systems or for digital line systems, videophones
8518	Microphones and stands thereof; loudspeakers, whether or not mounted in their enclosures; headphones and earphones, whether or not combined with a microphone, and sets consisting of a microphone and one or more loudspeakers; audio-frequency electric amplifiers; electric sound-amplifier sets
851910	Coin- or token-operated record players
851921	Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus—color
851931	Turntables, with automatic record changing mechanism
851992	Pocket-sized cassette players, not incorporating a sound recording device
851993	sound reproducing apparatus of cassette-type, not incorporating a sound recording device, other than those of pocket-size cassette-players
851999	Sound reproducing apparatus, not incorporating a sound recording device, other than those of subheadings 8519.10 to 8519.93
8520	Magnetic tape recorders and other sound recording apparatus
8521	Video recording or reproducing apparatus of magnetic tape-type
8522	Other fixed capacitors—tantalum
8523	Other fixed capacitors—aluminium electrolytic
8524	Other fixed capacitors—ceramic dielectric, single layer
8525	Other fixed capacitors—ceramic dielectric, multilayer
852691	Other fixed capacitors—dielectric of paper or plastics
852692	Other fixed capacitors—other
8527	Reception apparatus for radio-telephony, radio-telegraphy or radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock
852812	Reception apparatus for television of color, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus
852813	Black and white or other monochrome reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus. Reception apparatus for television of black and white or other monochrome whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus
852821	Other fixed resistors—for a power handling capacity not exceeding 20 W
852830	Other fixed resistors—other
8529	Wirewound variable resistors, including rheostats and potentiometers—for a power handling capacity not exceeding 20 W
8530	Wirewound variable resistors, including rheostats and potentiometers—other
8531	Electric sound or visual signaling apparatus, other than those of heading 85.12 or 85.30
8532	Electrical capacitors, fixed, variable or adjustable (pre-set)
8533	Electrical resistors, other than heating resistors

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**Table E6 Goods to be included in an electronic/electrical goods sector initiative** *(continued)*

<b>Code</b>	<b>Description</b>
8534	Printed circuits
8535	Lamp-holders, plugs and sockets—other
853610	Fuses, for a voltage not exceeding 1,000 volts
853620	Automatic circuit breakers for a voltage not exceeding 1,000 volts
853630	Apparatus for protecting electrical circuits for a voltage not exceeding 1,000 volts, other than fuses and automatic circuit breakers
853641	Transistors, other than photosensitive transistors—with a dissipation rate of less than 1 W
853649	Transistors, other than photosensitive transistors—other
853650	Switches for a voltage not exceeding 1,000 volts, other than relays
853669	Plugs and sockets for a voltage not exceeding 1,000 volts
853690	Electrical apparatus forsaking connections in electrical circuits, for a voltage not exceeding 1,000 volts, other than those of subheadings 8536.10 to 8536.69
8537	Boards, panels, consoles, desks, cabinets, and other bases, equipped with two or more apparatus of heading 85.35 or 85.36, for electric control or the distribution of electricity, including those incorporating instruments or apparatus of chapter 90, and numerical control apparatus, other than switching apparatus of heading 85.17
8538	Parts suitable for use solely or principally with the apparatus of heading 85.35, 85.36 or 85.37
853921	Electric filament lamps of tungsten halogen
853922	Monolithic digital integrated circuits—metal oxide semiconductors (MOS technology)
853929	Monolithic digital integrated circuits—circuits obtained by bipolar technology
853931	Monolithic digital integrated circuits—other, including circuits obtained by a combination of bipolar and MOS technologies (BIMOS technology)
853932	Mercury or sodium vapor lamps; metal halide lamps
853939	Electric discharge lamps, other than ultraviolet lamps, and those of subheadings 8539.31 and 8539.32
853941	Arc lamps
853949	Ultraviolet lamps and infrared lamps
853990	Particle accelerators—ion implanters for doping semiconductor materials
8540	Thermionic, cold cathode or photocathode valves and tubes
8541	Other machines and apparatus—proximity cards and tags
8542	Other machines and apparatus—other
8543	Electrical machines and apparatus, having individual functions, not specified or included elsewhere in this chapter.
854411	Other electric conductors, for a voltage not exceeding 80 V—fitted with connectors
854419	Other electric conductors, for a voltage not exceeding 80 V—other
854420	Other electric conductors, for a voltage exceeding 80 V but not exceeding 1,000 V—fitted with connectors
854441	Electric conductors fitted with connectors, for a voltage not exceeding 80 V, other than those of subheadings 8544.20 and 8544.30
854449	Electrostatic photocopying apparatus—operating by reproducing the original image directly onto the copy (direct process)
854451	Other photocopying apparatus—incorporating an optical system
854459	Insulated electric conductors, for a voltage exceeding 80 V but not exceeding 1,000 V, not fitted with connectors
854460	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials—direct write-on-wafer apparatus
854470	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials—step and repeat aligners

*(continued on next page)*

**Table E6 Goods to be included in an electronic/electrical goods sector initiative** *(continued)*

<b>Code</b>	<b>Description</b>
8545	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials—other
8546	Electrical insulators of any material
8547	Insulating fittings for electrical machines, appliances, or equipment, being fittings wholly of insulating material apart from any minor components of metal incorporated during molding solely for purposes of assembly, other than insulators of heading 85.46; electrical conduit tubing and joints thereof, of base metal lined with insulating material
8548	Waste and scrap of primary cells, primary batteries and electric accumulators; spent primary cells, spent primary batteries and spent electric accumulators; electrical parts of machinery or apparatus, not specified or included else where in this chapter
900110	Optical fibers, optical fiber bundles and cables, other than optical fiber cables made up of individually sheathed fibers
900120	Sheets and plates of polarizing material
900190	Lenses (including contact lenses), prisms, mirrors and, other optical elements of any material, unmounted, other than those of glass not optically worked and of subheadings 9001.30 to 9001.50
9002	Lenses, prisms, mirrors and other optical elements, of any material, mounted, being parts of or fittings for instruments or apparatus, other than such elements of glass not optically worked
9006	Photographic (other than cinematographic) cameras; photographic flashlight apparatus and flashbulbs other than discharge lamps of heading 85.39
9007	Cinematographic cameras and projectors
9008	Image projectors, other than cinematographic; photographic (other than cinematographic) enlargers and reducers
900911	Electrostatic photocopying apparatus, operated by reproducing the original image directly onto the copy (direct process)
900912	Electrostatic photocopying apparatus, operated by reproducing the original image via an intermediate onto the copy (indirect process)
900921	Photocopying apparatus incorporating an optical system, other than those of subheadings 9009.11 and 9009.12
900991	Automatic document feeders for photocopying apparatus incorporating an optical system or of the contact type and for thermocopying apparatus
900992	Paper feeders, photocopying apparatus and thermocopying apparatus
900993	Sorters for photocopying apparatus incorporating an optical system or of the contact type and for thermocopying apparatus
900999	Parts and accessories of photocopying apparatus (incorporating an optical system or the apparatus of the contact type) and thermocopying apparatus, other than automatic document feeders, paper feeders and sorters
901010	Apparatus and equipment for automatically developing photographic (including cinematographic) film or paper in rolls or for automatically exposing developed film to rolls of photographic paper
901041	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials, direct write-on-water apparatus, not specified or included elsewhere in this chapter
901042	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials, step and repeat aligners, not specified or included elsewhere in this chapter
901049	Apparatus for the projection or drawing of circuit patterns on sensitized semiconductor materials, not specified or included elsewhere in this chapter
901050	Other apparatus and equipment for photographic (including cinematographic) laboratories, negatoscopes
901090	Other instruments and apparatus—for measuring or checking semiconductor wafers or devices
901110	Stereoscopic microscopes
901120	Other optical instruments and appliances—for inspecting semiconductor wafers or devices or for inspecting photomasks or reticles used in manufacturing semiconductor devices
901180	Other optical instruments and appliances—other

*(continued on next page)*

**Table E6 Goods to be included in an electronic/electrical goods sector initiative** *(continued)*

<b>Code</b>	<b>Description</b>
901190	Parts and accessories for compound optical microscopes, including those for microphotography, micro cinematography or micro projection
901210	Microscopes other than optical microscopes and diffraction apparatus
901290	Parts and accessories for microscopes other than optical microscopes; and diffraction apparatus
901390	Liquid crystal devices not constituting articles provided for more specifically in other headings; lasers, other than laser diodes; other optical appliances and instruments, not specified or included elsewhere in this chapter
901410	Direction-finding compasses
901480	Other instruments and appliances
901490	Parts and accessories for direction-finding compasses and other navigational instruments and appliances excluding those of electrical instruments and apparatus
9015	Surveying, hydrographic, oceanographic, hydrological, meteorological, or geophysical instruments and appliances, excluding compasses; rangefinders
9016	Balances of a sensitivity of 5 cg or better, with or without weights
901710	Drafting tables and machines
901720	Drawing, marking-out, or mathematical calculating instruments, other than drafting tables and machines
901780	Drawing, marking-out, or mathematical calculating instruments other than drafting tables and machines, micrometers, calipers, and gauges
901790	Parts and accessories for drawing, marking-out or mathematical calculating instruments; parts and accessories for instruments for measuring length, for use in the hand
901812	Ultrasonic scanning apparatus
901819	Electrodiagnostic apparatus (including apparatus for functional exploratory examination or for checking physiological parameters), other than those subheadings 9018.11 to 9018.14 and parts thereof
9023	Instruments, apparatus and models, designed for demonstrational purposes, unsuitable for other uses
9024	Machines and appliances for testing the hardness, strength, compressibility, elasticity or other mechanical properties of materials
9025	Hydrometers and similar floating instruments, thermometers, pyrometers, barometers, hygrometers and psychrometers, recording or not, and any combination of these instruments
9026	Instruments and apparatus for measuring or checking the flow, level, pressure or other variables of liquids or gases, excluding instruments and apparatus of heading 90.14, 90.15, 90.28 or 90.32
9027	Instruments and apparatus for physical or chemical analysis; instruments and apparatus for measuring or checking viscosity, porosity, expansion, surface tension, or the like; instruments and apparatus for measuring or checking quantities of heat, sound, or light; microtomes
9028	Gas, liquid, or electricity supply or production meters, including calibrating meters thereof
9029	Revolution counters, production counters, taximeters, mileometers, pedometers, and the like; speed indicators and tachometers, other than those of heading 90.14 or 90.15; stroboscopes
903010	Instruments and apparatus for measuring or detecting ionizing radiations
903020	Cathode-ray oscilloscopes and cathode-ray oscillographs
903031	Multimeters; instruments and apparatus, for measuring or checking voltage, current, resistance or power, without a recording device
903039	Instruments and apparatus for measuring or checking voltage, current, resistance or power, without a recording device (excluding multimeters), other than those of subheadings 9030.10 and 9030.20
903040	Instruments and apparatus, specially designed for telecommunications, other than those of subheadings 9030.10 to 9030.39
903082	Instruments and apparatus for measuring or checking semiconductor wafers or devices, other than those of subheadings 9030.10 to 9030.40

*(continued on next page)*

**Table E6 Goods to be included in an electronic/electrical goods sector initiative** *(continued)*

<b>Code</b>	<b>Description</b>
903083	Other instruments and apparatus for measuring or checking electrical quantities, with a recording device
903090	Parts and accessories of instruments and apparatus for measuring or checking electrical quantities, excluding meters of heading 90.28; parts and accessories of instruments and apparatus for measuring or detecting ionizing radiations
9031	Measuring or checking instruments, appliances and machines, not specified or included elsewhere in this chapter; profile projectors
9032	Automatic regulating or controlling instruments and apparatus
9033	Parts and accessories (not specified or included elsewhere in this chapter) for machines, appliances, instruments or apparatus of chapter 90
910111	Wrist watches with mechanical display only, with case of precious metal or of metal clad with precious metal
910112	Wrist watches, electrically operated with optoelectronic display only, with cases of precious metal or of metal clad with precious metal
910119	Wrist watches, electrically operated, with case of precious metal or of metal clad with precious metal, other than those of subheadings 9101.11 and 9101.12
910191	Electrically operated pocket watches and other watches, including stopwatches, with case of precious metal or of metal clad with precious metal
910211	Electrically operated wrist watches with mechanical display only, whether or not incorporating a stopwatch facility, other than those of heading 91.01
910212	Electrically operated wrist watches with optoelectronic only, whether or not incorporating a stopwatch facility, other than those of heading 91.01
910219	Electrically operated wrist watches, whether or not incorporating a stopwatch facility, other than those of heading 91.01 and of subheadings 9102.11 and 9102.12
910291	Electrically operated pocketwatches and other watches, including stopwatches, other than those of heading 91.01
910310	Electrically operated clocks with watch movements, excluding clocks of heading 91.04
910511	Alarm clocks, electrically operated
910521	Wall clocks, electrically operated
910591	Clocks, electrically operated, not specified or included elsewhere in this chapter
910811	Electrically operated watch movements, complete and assembled, with mechanical display only or with a device to which a mechanical display can be incorporated
910812	Electrically operated watch movements, complete and assembled, with optoelectronic display only
910819	Electrically operated watch movements, complete and assembled other than those of subheadings 9108.11 and 9108.12
910911	Electrically operated clock movements, complete and assembled, of alarm clocks
910919	Electrically operated clock movements, complete and assembled, other than those of alarm clocks
940510	Chandeliers and other electric ceiling or wall lighting fittings, excluding those of a kind used for lighting public open spaces or thoroughfares, excluding those of base metal
940520	Electric table, desk, bedside or floor-standing lamps
940530	Lighting sets of a kind used for Christmas trees
940540	Electric lamps and lighting fittings, nes
940560	Illuminated signs, illuminated name-plates and the like
940592	Parts of lamps and lighting fittings, of plastics; parts of illuminated signs, illuminated name-plates and the like, of plastics
940599	Parts of lamps and lighting fittings, nes.; parts of illuminated signs, illuminated name-plate and the like, nes
950410	Video games of a kind used with a television receiver

*(continued on next page)*

**Table E6 Goods to be included in an electronic/electrical goods sector initiative (continued)**

Code	Description
950490	Articles for funfair, table, or parlor games, including pinball tables, billiards, special tables for casino games and automatic bowling alley equipment, other than those of subheadings 9504.10 to 9504.40
961210	Typewriter or similar ribbons, inked or otherwise prepared for giving impressions, whether or not on spools or in cartridges

Source: WTO (2008c).

**Table E7 Average applied tariffs on electronic/electrical goods (percent)**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Current applied rates								
All 22 countries	2.34	3.08	2.91	2.72	4.23	2.29	1.64	2.01	2.97
Developed (7)	1.24	1.11	0.86	1.37	2.27	1.17	0.27	1.05	1.45
Developing (15)	7.02	6.47	7.19	6.26	7.87	5.13	5.10	7.22	8.55
European Union	0.85	1.64	0.68	...	2.31	2.31	0.25	0.27	2.22
Japan	0.04	0.40	0.08	0.09	...	0.09	0.00	0.00	0.00
United States	0.95	1.06	1.09	1.53	1.82	...	0.11	1.82	0.08
Brazil	11.23	12.83	9.36	13.90	13.06	13.06	...	13.98	13.44
China	6.62	9.29	8.46	7.47	7.49	7.39	5.99	...	6.46
India	6.38	8.19	9.31	6.74	6.32	6.66	9.51	6.62	...
Post-modality applied rates									
All 22 countries	1.79	2.33	2.27	2.04	3.02	1.68	1.27	1.57	2.17
Developed (7)	0.87	0.80	0.61	1.04	1.56	0.83	0.25	0.73	1.05
Developing (15)	5.47	4.97	5.73	4.84	5.92	3.98	4.03	6.38	6.34
European Union	0.62	1.17	0.54	...	1.53	1.53	0.18	0.20	1.47
Japan	0.03	0.26	0.05	0.06	...	0.06	0.00	0.00	0.00
United States	0.64	0.74	0.66	1.09	1.11	...	0.07	1.11	0.06
Brazil	9.13	10.72	7.85	10.96	10.61	10.61	...	10.96	10.85
China	4.57	6.06	5.99	4.84	4.84	4.81	4.05	...	4.25
India	5.73	8.03	8.87	6.12	5.72	6.05	7.79	6.02	...

Notes: Tariffs are the simple average of 2008 (for most countries) applied tariffs on all traded tariff lines in each bilateral relationship. Applied tariffs from 2007 are used for Korea, Malaysia, and the Philippines. Applied tariffs from 2006 are used for Thailand. For Brazil 2008 applied tariffs are used except for on imports from India, Indonesia, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2007 applied tariffs are used. For India 2008 applied tariffs are used except for on imports from Brazil, Indonesia, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2007 applied tariff are used. For Indonesia 2007 applied tariffs are used except for on imports from India, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2006 applied tariffs are used. For Mexico 2008 applied tariffs are used except for on imports from Brazil, India, Indonesia, Malaysia, Pakistan, the Philippines, and Taiwan, where 2006 applied tariffs are used. See table E6 for product coverage. Aggregate tariffs are weighted by total 2007 imports for each country in the group.

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table E8 Estimated increase in electronic/electrical goods trade from NAMA modality tariff cuts**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Increase in billions of dollars								
All 22 countries	9.94	0.69	0.30	1.31	2.31	0.92	0.01	1.88	0.04
Developed (7)	0.48	0.20	0.10	0.09	0.05	0.04	0.00	0.07	0.00
Developing (15)	0.97	0.49	0.20	0.19	0.21	0.08	0.00	0.06	0.01
European Union	1.71	0.07	0.01	...	0.45	0.28	0.00	0.28	0.02
Japan	0.01	0.00	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	1.39	0.11	0.07	0.19	0.22	...	0.00	0.81	0.00
Brazil	0.53	0.03	0.02	0.14	0.02	0.02	...	0.16	0.00
China	3.58	0.30	0.12	0.49	1.03	0.21	0.00	...	0.01
India	0.41	0.00	0.00	0.09	0.02	0.05	0.00	0.05	...
Percent increase from current electronics trade									
All 22 countries	0.59	1.03	0.78	0.75	1.17	0.47	0.15	0.48	0.81
Developed (7)	0.59	0.53	0.35	0.62	0.85	0.42	0.05	0.48	0.26
Developing (15)	1.82	1.68	1.84	1.62	2.19	1.21	0.77	1.54	5.09
European Union	0.50	0.56	0.08	...	1.40	0.57	0.01	0.23	0.92
Japan	0.01	0.12	0.05	0.01	...	0.01	0.00	0.00	0.00
United States	0.40	0.81	0.61	0.46	0.69	...	0.00	0.67	0.00
Brazil	2.33	2.09	5.01	3.15	2.54	2.54	...	3.67	2.78
China	1.16	3.01	2.91	1.73	1.76	1.09	3.53	...	1.72
India	1.41	0.03	0.00	1.30	1.19	2.11	2.96	0.60	...

NAMA = nonagricultural market access

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table E9 Estimated increase in electronic/electrical goods trade from sectoral tariff cuts**

	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
<b>Country/group</b>	<b>Increase in billions of dollars</b>								
All 22 countries	45.38	3.79	1.69	6.99	8.78	4.36	0.12	8.62	0.21
Developed (7)	1.68	0.76	0.38	0.34	0.17	0.20	0.00	0.27	0.02
Developing (15)	6.10	3.03	1.31	1.36	1.02	0.54	0.02	0.59	0.05
European Union	4.66	0.30	0.05	...	1.17	0.89	0.00	0.90	0.07
Japan	0.02	0.01	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	4.03	0.33	0.24	0.80	0.66	...	0.00	2.03	0.00
Brazil	4.42	0.27	0.12	1.02	0.17	0.17	...	1.04	0.02
China	14.86	1.18	0.43	1.93	3.76	0.77	0.01	...	0.03
India	2.09	0.30	0.00	0.65	0.13	0.18	0.01	0.50	...
	<b>Percent increase from current electronics trade</b>								
All 22 countries	2.69	5.68	4.38	3.98	4.44	2.20	2.10	2.19	3.86
Developed (7)	2.03	2.02	1.38	2.35	2.75	1.95	0.66	1.93	1.75
Developing (15)	11.46	10.39	11.73	11.54	10.71	8.39	7.77	14.07	18.66
European Union	1.36	2.59	0.44	...	3.63	1.81	0.08	0.74	3.21
Japan	0.02	0.34	0.14	0.03	...	0.02	0.00	0.00	0.00
United States	1.15	2.48	1.99	1.99	2.03	...	0.04	1.69	0.03
Brazil	19.40	22.32	26.94	23.71	22.02	22.02	...	23.10	23.91
China	4.84	11.80	10.53	6.77	6.40	3.92	12.03	...	8.38
India	7.22	14.84	0.00	9.53	9.08	7.19	20.96	5.86	...

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table E10 Additional increase in electronic/electrical goods trade from sectoral tariff cuts above modality tariff cuts**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Increase in billions of dollars								
All 22 countries	35.45	3.10	1.39	5.68	6.47	3.43	0.11	6.74	0.16
Developed (7)	1.19	0.56	0.28	0.25	0.12	0.16	0.00	0.20	0.01
Developing (15)	5.13	2.54	1.10	1.17	0.81	0.46	0.02	0.52	0.04
European Union	2.96	0.24	0.04	...	0.72	0.61	0.00	0.62	0.05
Japan	0.01	0.01	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	2.63	0.22	0.16	0.62	0.44	...	0.00	1.22	0.00
Brazil	3.89	0.24	0.10	0.89	0.15	0.15	...	0.87	0.02
China	11.28	0.88	0.31	1.44	2.73	0.55	0.01	...	0.02
India	1.68	0.30	0.00	0.56	0.11	0.13	0.01	0.45	...
Percent increase from current electronics trade									
All 22 countries	2.10	4.65	3.60	3.23	3.27	1.73	1.96	1.71	3.05
Developed (7)	1.45	1.50	1.04	1.73	1.90	1.52	0.62	1.44	1.48
Developing (15)	9.64	8.71	9.89	9.93	8.52	7.18	7.00	12.53	13.57
European Union	0.86	2.03	0.35	...	2.24	1.25	0.08	0.51	2.28
Japan	0.01	0.22	0.09	0.02	...	0.02	0.00	0.00	0.00
United States	0.75	1.67	1.38	1.52	1.34	...	0.03	1.02	0.03
Brazil	17.06	20.23	21.93	20.56	19.48	19.48	...	19.43	21.13
China	3.68	8.79	7.62	5.04	4.64	2.83	8.50	...	6.67
India	5.81	14.81	0.00	8.24	7.89	5.08	18.00	5.27	...

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

## APPENDIX F ENVIRONMENTAL GOODS

There is no set definition of what constitutes an “environmental good.” For our calculations we use a list developed by the World Bank (2007) (table F1). Products related to solar power, wind power, heating/cooling, and natural gas dominate the list.

There is a large disparity between applied tariffs on environmental goods in developed and developing countries. The average applied tariff in the seven developed countries in this study is 1.24 percent, while the average applied tariff in the 15 developing countries is 7.02 percent (table F2). The average developing-country tariff is brought up by the high average tariffs in the three main developing countries—Brazil (11.74 percent), China (9 percent), and India (8.47 percent). After the modality cuts, China experiences the largest cuts in applied tariffs, in large part because of the small amount of “water” between its bound and applied tariffs (table A3). Under a sectoral initiative we assume all tariffs on environmental goods go to zero.

Tables F3 to F5 show the increase in trade following the modality and sectoral tariff cuts. The impact of the modality cuts is small. The total increase in world exports is only \$1.45 billion, and more than half of this goes into US and Chinese imports (increases of \$0.33 billion and \$0.58 billion, respectively). The impact of the sectoral initiative is much larger: World exports of environmental goods would increase by \$7.78 billion. This increase is widely dispersed as no one bilateral relationship experiences a trade increase above \$1 billion. In percentage terms, the environmental goods imports of all three main developing countries increase more than 10 percent over their current levels in most of their bilateral relationships.<sup>1</sup>

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1. While all of the percentage impacts on Brazilian, Chinese and Indian imports shown in table F4 are above 10 percent, some of the underlying bilateral relationships that make up “developed (7)” and “developing (15)” do not experience increases above 10 percent.

**Table F1 List of environmental goods**

<b>Code</b>	<b>Description</b>
392010	PVC or polyethylene plastic membrane systems to provide an impermeable base for landfill sites and protect soil under gas stations, oil refineries, etc. from infiltration by pollutants and for reinforcement of soil
560314	Nonwovens, whether or not impregnated, coated, covered, or laminated: of manmade filaments, weighing more than 150 g/m <sup>2</sup> for filtering wastewater
701931	Thin sheets (voiles), webs, mats, mattresses, boards, and similar nonwoven products
730820	Towers and lattice masts for wind turbines
730900	Containers of any material, of any form, for liquid or solid waste, including for municipal or dangerous waste
732111	Solar driven stoves, ranges, grates, cookers (including those with subsidiary boilers for central heating), barbecues, braziers, gas rings, plate warmers, and similar nonelectric domestic appliances, and parts thereof, of iron or steel
732190	Stoves, ranges, grates, cookers (including those with subsidiary boilers for central heating), barbecues, braziers, gas-rings, plate warmers, and similar nonelectric domestic appliances, and parts thereof, of iron or steel
732490	Water saving shower
761100	Aluminum reservoirs, tanks, vats and similar containers for any material (specifically tanks or vats for anaerobic digesters for biomass gasification)
761290	Containers of any material, of any form, for liquid or solid waste, including for municipal or dangerous waste
840219	Vapor generating boilers, not elsewhere specified or included (nesoi), hybrid
840290	Superheated water boilers and parts of steam generating boilers
840410	Auxiliary plant for steam, water, and central boiler
840490	Parts for auxiliary plant for boilers, condensers for steam, vapor power unit
840510	Producer gas or water gas generators, with or without purifiers
840681	Turbines, steam and other vapor, over 40 MW, not elsewhere specified or included
841011	Hydraulic turbines and water wheels of a power not exceeding 1,000 kW
841090	Hydraulic turbines and water wheels, parts, including regulators
841181	Gas turbines of a power not exceeding 5,000 kW
841182	Gas turbines of a power exceeding 5,000 kW
841199	Gas turbine parts nesoi
841581	Air conditioning machines nesoi, incorporating a refrigerating unit and valve for reversal of the cooling/heat cycle
841861	Heat pumps, other than air conditioning machines of 8415
841869	Refrigerating or freezing equipment, nesoi
841919	Solar boiler (water heater)
841940	Distilling or rectifying plant
841950	Solar collector and solar system controller, heat exchanger
841989	Machinery, plant, or laboratory equipment whether or not electrically heated (excluding furnaces, ovens, etc.) for treatment of materials by a process involving a change of temperature
841990	Medical, surgical, or laboratory stabilizers
848340	Gears and gearing and other speed changers (specifically for wind turbines)
848360	Clutches and universal joints (specifically for wind turbines)
850161	AC generators not exceeding 75 kVA (specifically for all electricity-generating renewable energy plants)
850162	AC generators exceeding 75 kVA but not 375 kVA (specifically for all electricity-generating renewable energy plants)

*(continued on next page)*

**Table F1 List of environmental goods** *(continued)*

<b>Code</b>	<b>Description</b>
850163	AC generators exceeding 375 kVA but not 750 kVA (specifically for all electricity-generating renewable energy plants)
850164	AC generators exceeding 750 kVA (specifically for all electricity-generating renewable energy plants)
850231	Electric generating sets and rotary converters, wind-powered
850680	Fuel cells that use hydrogen or hydrogen-containing fuels such as methane to produce an electric current, through an electrochemical process rather than combustion
850720	Other lead acid accumulators
853710	Photovoltaic system controller
853931	Discharge lamps, (ex ultraviolet), fluorescent
854140	Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels, light-emitting diodes
900190	Mirrors of other than glass (specifically for solar concentrator systems)
900290	Mirrors of glass (specifically for solar concentrator systems)
903210	Thermostats
903220	Manostats

Source: World Bank (2007); US International Trade Commission Interactive Tariff and Trade Dataweb, <http://dataweb.usitc.gov>, 2009..

**Table F2 Average applied tariffs on environmental goods (percent)**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Current applied rates								
All 22 countries	3.27	3.08	2.91	3.27	5.28	2.75	2.11	2.41	3.98
Developed (7)	1.24	1.11	0.86	1.37	2.27	1.17	0.27	1.05	1.45
Developing (15)	7.02	6.47	7.19	6.26	7.87	5.13	5.10	7.22	8.55
European Union	1.59	1.64	0.68	...	2.51	2.51	0.33	0.37	2.46
Japan	0.26	0.40	0.08	0.40	...	0.41	0.00	0.00	0.00
United States	1.23	1.06	1.09	1.62	1.92	...	0.04	1.90	0.04
Brazil	11.74	12.83	9.36	12.78	12.72	12.72	...	13.67	13.34
China	9.00	9.29	8.46	9.29	9.18	9.31	7.09	...	9.48
India	8.47	8.19	9.31	8.22	8.16	8.23	11.76	8.23	...
Post-modality applied rates									
All 22 countries	2.49	2.33	2.27	2.52	3.90	2.09	1.69	1.98	2.94
Developed (7)	0.87	0.80	0.61	1.04	1.56	0.83	0.25	0.73	1.05
Developing (15)	5.47	4.97	5.73	4.84	5.92	3.98	4.03	6.38	6.34
European Union	1.15	1.17	0.54	...	1.79	1.79	0.32	0.35	1.76
Japan	0.17	0.26	0.05	0.26	...	0.27	0.00	0.00	0.00
United States	0.79	0.74	0.66	1.20	1.18	...	0.03	1.15	0.03
Brazil	9.82	10.72	7.85	10.65	10.68	10.68	...	11.26	11.33
China	6.04	6.06	5.99	6.07	6.01	6.07	5.08	...	6.13
India	8.24	8.03	8.87	8.06	8.01	8.05	10.33	8.08	...

Notes: Tariffs are the simple average of 2008 (for most countries) applied tariffs on all traded tariff lines in each bilateral relationship. Applied tariffs from 2007 are used for Korea, Malaysia, and the Philippines. Applied tariffs from 2006 are used for Thailand. For Brazil 2008 applied tariffs are used except for on imports from India, Indonesia, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2007 applied tariffs are used. For India 2008 applied tariffs are used except for on imports from Brazil, Indonesia, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2007 applied tariff are used. For Indonesia 2007 applied tariffs are used except for on imports from India, Malaysia, Mexico, Pakistan, the Philippines, and Taiwan, where 2006 applied tariffs are used. For Mexico 2008 applied tariffs are used except for on imports from Brazil, India, Indonesia, Malaysia, Pakistan, the Philippines, and Taiwan, where 2006 applied tariffs are used. See table F1 for product coverage. Aggregate tariffs are weighted by total 2007 imports for each country in the group.

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table F3 Estimated increase in environmental goods trade from NAMA modality tariff cuts**

	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
<b>Country/group</b>	<b>Increase in billions of dollars</b>								
All 22 countries	1.45	0.69	0.30	0.28	0.26	0.12	0.00	0.13	0.02
Developed (7)	0.48	0.20	0.10	0.09	0.05	0.04	0.00	0.07	0.00
Developing (15)	0.97	0.49	0.20	0.19	0.21	0.08	0.00	0.06	0.01
European Union	0.10	0.07	0.01	...	0.02	0.04	0.00	0.00	0.00
Japan	0.01	0.00	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	0.33	0.11	0.07	0.07	0.03	...	0.00	0.06	0.00
Brazil	0.06	0.03	0.02	0.01	0.00	0.00	...	0.02	0.00
China	0.58	0.30	0.12	0.12	0.13	0.05	0.00	...	0.01
India	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	...
	<b>Percent increase from current environmental goods trade</b>								
All 22 countries	1.07	1.03	0.78	1.07	1.67	0.72	0.44	0.73	1.30
Developed (7)	0.59	0.53	0.35	0.62	0.85	0.42	0.05	0.48	0.26
Developing (15)	1.82	1.68	1.84	1.62	2.19	1.21	0.77	1.54	5.09
European Union	0.40	0.56	0.08	...	0.50	0.82	0.00	0.00	0.54
Japan	0.09	0.12	0.05	0.12	...	0.12	0.00	0.00	0.00
United States	0.96	0.81	0.61	0.91	1.34	...	0.04	1.15	0.00
Brazil	2.71	2.09	5.01	2.26	2.69	2.69	...	6.90	2.34
China	3.07	3.01	2.91	2.92	2.93	3.92	3.17	...	9.33
India	0.05	0.03	0.00	0.03	0.01	0.01	1.82	0.02	...

NAMA = nonagricultural market access

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table F4 Estimated increase in environmental goods trade from sectoral tariff cuts**

	<b>World</b>	<b>Developed (7)</b>	<b>Developing (15)</b>	<b>European Union</b>	<b>Japan</b>	<b>United States</b>	<b>Brazil</b>	<b>China</b>	<b>India</b>
<b>Country/group</b>	<b>Increase in billions of dollars</b>								
All 22 countries	7.78	3.79	1.69	1.71	1.19	0.75	0.02	0.85	0.07
Developed (7)	1.68	0.76	0.38	0.34	0.17	0.20	0.00	0.27	0.02
Developing (15)	6.10	3.03	1.31	1.36	1.02	0.54	0.02	0.59	0.05
European Union	0.42	0.30	0.05	...	0.08	0.20	0.00	0.01	0.01
Japan	0.02	0.01	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	0.90	0.33	0.24	0.24	0.08	...	0.00	0.20	0.00
Brazil	0.54	0.27	0.12	0.15	0.03	0.03	...	0.09	0.01
China	2.28	1.18	0.43	0.50	0.48	0.17	0.00	...	0.02
India	0.79	0.30	0.00	0.23	0.03	0.03	0.00	0.15	...
	<b>Percent increase from current environmental goods trade</b>								
All 22 countries	5.74	5.68	4.38	6.45	7.58	4.40	4.54	4.74	5.37
Developed (7)	2.03	2.02	1.38	2.35	2.75	1.95	0.66	1.93	1.75
Developing (15)	11.46	10.39	11.73	11.54	10.71	8.39	7.77	14.07	18.66
European Union	1.78	2.59	0.44	...	2.17	3.81	0.26	0.11	2.69
Japan	0.25	0.34	0.14	0.32	...	0.36	0.00	0.00	0.00
United States	2.67	2.48	1.99	3.07	3.26	...	0.26	3.90	0.02
Brazil	23.73	22.32	26.94	24.30	26.39	26.39	...	32.78	28.70
China	12.02	11.80	10.53	12.48	10.64	14.59	13.13	...	24.19
India	15.78	14.84	0.00	15.40	13.95	13.60	26.25	17.78	...

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.

**Table F5 Additional increase in environmental goods trade from sectoral tariff cuts above modality tariff cuts**

Country/group	World	Developed (7)	Developing (15)	European Union	Japan	United States	Brazil	China	India
	Increase in billions of dollars								
All 22 countries	6.32	3.10	1.39	1.42	0.93	0.62	0.02	0.72	0.05
Developed (7)	1.19	0.56	0.28	0.25	0.12	0.16	0.00	0.20	0.01
Developing (15)	5.13	2.54	1.10	1.17	0.81	0.46	0.02	0.52	0.04
European Union	0.33	0.24	0.04	...	0.06	0.16	0.00	0.01	0.01
Japan	0.01	0.01	0.00	0.00	...	0.00	0.00	0.00	0.00
United States	0.58	0.22	0.16	0.17	0.05	...	0.00	0.14	0.00
Brazil	0.48	0.24	0.10	0.14	0.02	0.02	...	0.07	0.01
China	1.70	0.88	0.31	0.38	0.35	0.12	0.00	...	0.01
India	0.78	0.30	0.00	0.23	0.03	0.03	0.00	0.15	...
Percent increase from current environmental goods trade									
All 22 countries	4.66	4.65	3.60	5.39	5.91	3.67	4.10	4.01	4.07
Developed (7)	1.45	1.50	1.04	1.73	1.90	1.52	0.62	1.44	1.48
Developing (15)	9.64	8.71	9.89	9.93	8.52	7.18	7.00	12.53	13.57
European Union	1.38	2.03	0.35	...	1.67	2.99	0.26	0.11	2.14
Japan	0.16	0.22	0.09	0.20	...	0.24	0.00	0.00	0.00
United States	1.71	1.67	1.38	2.16	1.92	...	0.23	2.75	0.02
Brazil	21.02	20.23	21.93	22.05	23.70	23.70	...	25.88	26.36
China	8.95	8.79	7.62	9.56	7.71	10.67	9.96	...	14.86
India	15.73	14.81	0.00	15.37	13.94	13.59	24.43	17.76	...

Sources: UNCTAD TRAINS Database via WITS (2009); authors' calculations.