A Quantification of the Economic Effects of the February 2008 Draft NAMA Text: Summary of Results

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Executive Summary

On 8 February 2008, Non-Agricultural Market Access (NAMA) negotiating group Chairman Don Stephenson released a revised draft negotiating text for the NAMA talks under way under the auspices of the Doha Development Agenda of the World Trade Organization (WTO).[1] The February draft reflects the state of play of the negotiations as of February, providing ranges for possible tariff cuts and a narrowing of options for exceptions for different groups of WTO Members.

WTO Members are keenly concerned about achieving a balance between the various packages of trade liberalization affecting agricultural, industrial goods, services, and other key issues. The purpose of this paper is to provide an initial indication, as of February 2008, of the potential impacts of the trade liberalization envisioned by the Chairman's NAMA draft text. That text is generally specific in important respects, and unspecific in other important respects. As such, it provides an indication of the economic effects of the tariff liberalization proposed so far for industrial goods that will change as WTO Members flesh out the details further.

This paper incorporated the proposed changes in industrial tariffs outlined in the February draft text, where specific, into a general equilibrium model to estimate the impacts on trade and net income for individual WTO Members and groups of WTO Members. Such modeling enables us to estimate the full range of effects on economies overall: on trade-weighted tariffs, on exports, and on net

[1] This research was funded by a grant from the German Marshall Fund of the United States. Dr. Francois is Managing Director of Trade Partnership Worldwide, LLC and Professor of Economics at Johannes Kepler University, Vienna, Austria. Ms Baughman is an economist and President of Trade Partnership Worldwide, LLC, in Washington, DC. Dr. Brockmeier is Director and Professor of the Institute of Market Analysis and Agricultural Trade Policy at the Johann Heinrich von Thunen Institute in Braunschweig, German; Mr. Klepper is an economist at that Institute.

income, taking into account the ways in which trade would shift and domestic markets would react to changes in prices (caused by declines in tariffs).

Briefly, we found that the ranges of non-agricultural goods tariff reductions suggested for developed and developing countries, combined with exceptions for least developed countries and other less ambitious changes envisioned for other developing countries, would result in generally modest changes in exports and national income.

Members can expect that these economic effects would be expanded or reduced depending on the degree to which the elements of NAMA liberalization are further defined in future negotiations. In addition, the economic effects of NAMA liberalization would be supplemented by the effects of agricultural market access and services market access changes, also under discussion in the Doha round. Our results reinforce a message from earlier research of the impacts of multilateral trade liberalization, namely that "active developing country participation in terms of market access concessions is critical to their prospects. If developing countries continue for the most part with business as usual after the round, in terms of trade policy, there is little scope for actual benefits accruing to developing countries. South-South trade liberalization is key to the 'development' part of the Doha Development Agenda." (Francois, van Meijl and van Tongeren 2005). As the NAMA modalities take final shape, limited developing country obligations do indeed translate into limited gains on the NAMA front.

Modeling Scenarios

The NAMA Chairman's February 2008 modalities text contemplates tariff cuts based on the application of a "simple Swiss" formula. Under the Swiss formula, a maximum tariff is suggested (the Swiss is coefficient still under negotiation), and tariffs below this maximum are reduced in such a way that higher tariffs are cut proportionally more than lower ones, effectively compressing the range of tariffs in each country's tariff schedule. In addition, tariffs above a prescribed maximum are brought to or below that maximum rate.

The current draft text calls for two sets of maximum tariff coefficients, one for developed and another for developing WTO Members. The coefficients for developing countries (19 and 23) are much higher (meaning lower reductions in tariffs) than the maximum for the high-income countries (8 or 9).[2] Specifically, the formula is:

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[2] The Chairman notes in a summary of the February text that most Members have accepted the proposed ranges, and it is these ranges, which we have modeled in this research (see http://www.wto.org/english/news_e/news08_e/nama_14apr08_e.htm#nama_text) . However, some are seeking (a) greater reductions by developing Members, through the use of a lower coefficient than 19 to 23; (b) greater reductions for developed Members, also through the application of a coefficient lower than 8 or 9; or (c) a smaller tariff

$$t_1 = \frac{(\text{a or b}) \times t_0}{(\text{a or b}) + t_0}$$

where,
t_1= Final bound rate of duty
t_0= Base rate of duty
a = [8-9] = Coefficient for developed Members
b = [19-23] = Coefficient for developing Members

In addition, the text permits developing countries to "shelter" some tariff lines from full cuts, or exclude them from cuts complete (subject to caps), or to apply a higher coefficient than the once established for developing Members. It also exempts least developed countries and recently acceded Members (but not China, Chinese Taipei, Oman and Croatia) from making any tariff cuts. As the Chairman notes and our results bear out, least developed Members will retain higher average tariffs but they will nevertheless contribute to the market access outcome, significantly reducing "the water" (the difference between bound rates and those actually applied) and binding a high number of their tariffs.

Working with detailed data for applied tariffs and tariff bindings, we applied the Swiss formula to tariff bindings according to the current draft set of modalities, including major provisions for flexibility. For every six-digit tariff line for every country, we compared the 2004 bound and applied tariff rates. The Swiss formula is applied to the bound rate. When the Swiss formula results in a new bound rate that is below the applied rate, the applied rate is reduced to the level of the new bound rate. No changes to tariffs of least developed countries were made. Once the cuts are made, no developed country tariff rate is higher than 8 ("high cut" scenario) or 9 ("low cut" scenario) percent; non-exempt developing country tariff rates do not exceed 19 ("high cut" scenario) or 23 percent ("low cut" scenario).[3]

Another important point is the provision for countries with binding coverages of less than 35 percent of their tariff lines. These countries do not have to implement the Swiss formula, but rather are expected to adopt the average developing country post-Uruguay Round bindings. Appendix B details

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reduction for developing Members, through the application of a coefficient higher than 19 to 23 and a greater differential between the developed and developing country coefficient.

[3] We did not model some elements of the February draft text. These include 13 zero tariff proposals and non-tariff barrier restrictions on industrial goods trade.

these average bindings and the current applied rates. These countries, identified in Appendix A, and which include, for example, Sri Lanka and Nigeria, will not have to implement any substantive reductions in applied rates. Yet another important point also illustrated in Appendix A is that many developing countries have applied rates well below their bound rate. For example, Brazil's average binding is 30.8 percent while its applied rate is an average of 12.6 percent. In such cases, even aggressive application of the Swiss formula to the schedule of bindings will have only limited effect on the applied rates. This situation is not limited to developing countries: Australia has an average binding of 11 percent and an average applied rate of 3.9 percent. Our analysis indicates that, for most developing countries, the combination of binding overhang and special and differential treatment means that the application of the Swiss formula did very little to change base applied tariffs.

The February draft text notes that tariff reductions may be implemented gradually over a period of four years for developed Members and eight years for developing Members.

We focus on what the pattern of trade will look like after full implementation. The following chart summarizes our modeling effort.

Summary of Changes Made to Tariffs

	Developed Members	**Developing Members***
Formula	Swiss, coefficients of 8 & 9	Swiss, coefficients of 19 & 23
Product Flexibilities	None	Top 5% of tariff lines were exempt from Swiss formula cuts
<35% Bound Tariffs	None	Applied the average developing country post-Uruguay Round bindings
***Developing Member Exceptions:**		
Least Developed Country Members	No tariff cuts	
Small & Vulnerable Economies	No tariff cuts	
Recently-Acceded Members, Very Recently-Acceded Members	No tariff cuts	

Results

Because the tariff cuts are generally modest and developing countries are permitted a large number of exclusions and exceptions, the economic effects of the February draft text are at most "modest."

Impact on Tariffs

Every country exports a unique basket of industrial goods. Some of these goods (e.g., apparel) face higher tariffs around the world than others. Consequently, countries that largely export these types of industrial goods face higher overall tariff barriers than others. Our model is able to tell us how the February draft text would change the level of protection a country or group of countries faces against its exports – i.e., the degree to which other countries reduce their tariff barriers against the basket of goods exported by the country. Table 1 shows those results. Overall, the largest developed country exporters would see a reduction in the average tariff they face of 13-18 percent; developing countries exporters would see cuts in the average tariffs they face of 21-27 percent. These broad groupings obscure some real "winners": Bangladesh would see the protection it faces in world markets reduced by up to 51 percent, and Vietnam by up to 47 percent. A number of sub-Saharan African countries also see significant reductions in the foreign barriers to trade their suppliers face, including Madagascar (up to 43 percent decline in foreign protection), and Mozambique (36 percent decline).

The impact of the February draft text on protection from the perspective of the protector is also informative. Table 2 shows the changes to the average trade-weighted level of import protection from tariffs that would result from the February 2008 text. Overall, it shows that average tariffs now maintained by the largest developed countries would drop by 39-43 percent, while those of developing countries would decline by 9-13 percent. The least developed countries see no decline in their prevailing average tariff rate, as permitted by the Chairman's draft text. Other developing countries see some drops, but they are small. Countries with large spreads between their bound and applied rates see final average tariff rates very near their current based applied rates, reflecting the reduction in the so-called "water" between the bound and applied rates.

Impact on Exports

What do the current proposed tariff cuts mean for actual trade flows? Tables 3 and 4 show the impact of these tariff cuts on the total value of each country's exports if the NAMA text were fully implemented in 2004. Overall, world exports would increase by as much as $163 billion, or by up to 1.7 percent. Virtually every country sees export gains; losses are due largely to trade diversion as preference advantages are eroded. Countries that could expect to see the largest percentage gains in exports include Vietnam and South Africa.

There is risk of preference erosion in Africa; however, the mixed experience of Madagascar and Mozambique demonstrates (see Tables 3, 4, 5 and 6) that this depends on a complex set of issues, including the mix of exports in trading partners.[4]

Impact on Income

Overall, the export changes of the industrial goods tariff cuts suggested by the February draft text will work their way through each economy in both positive (e.g., improved competitiveness) and negative (tariff revenue losses, import competition, e.g.) ways. The model provides estimates of the impacts of the NAMA tariff cuts on national income (sometimes referred to as "net welfare"). These national income effects are typically expressed in dollar terms and as a share of GDP, as shown in Tables 5 and 6. Although for some products and some countries the tariff reductions are significant, for most countries (and indeed for WTO Members overall) the net national welfare gains (or losses) are modest – at best $40 billion for the world as a whole, and generally well below 1 percent of each country's GDP.[5] Exceptions include a number of sub-Saharan African countries, and Vietnam.

About the Model

We employ a general equilibrium model that enables us to estimate the impacts of NAMA tariff cuts on an array of upstream and downstream industries, both within an economy and between countries worldwide. The model yields estimates of the likely impacts of the tariff changes on production or output (gross domestic product, GDP) at the national level as well as output at the sectoral level, consumption, economic welfare,[6] and prices. It compares one situation (existing average tariffs) with another situation (reduced tariffs) for a selected

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[4] However, if one looks for example at South Africa, it is clear that liberalization of one's own tariffs can drive meaningful growth in exports.

[5] Overall, there may be additional dynamic effects as income changes and investment conditions lead to shifting levels of investment. However, given the low level of initial income effects, these are not likely to be large. See Francois, J.F., B. McDonald and H. Nordstrom (1996), "Trade liberalization and the capital stock in the GTAP model," GTAP consortium technical paper. http://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=310)

[6] "Welfare" represents an economy's increased spending power, or increased net income, made available from efficiency gains due to trade liberalization. Studies typically report it as a net concept in the sense that it takes into account (it subtracts) the negative impacts on producers who lose import protection, and the government that loses tariff revenue if tariffs are eliminated.

base year (in this case 2004).[7] The economic adjustments that take place within the model following policy changes include linkages between changes in investment levels and the capital stock.

The model is a variation of the Global Trade Analysis Project general equilibrium model. Our version is based on the Francois, Van Meijl, and Van Tongeren model (FMT 2005)[8] and is implemented in GEMPACK – a software package designed for solving large applied general equilibrium models.[9] The model builds on Francois (2000),[10] and versions have recently been employed for studies for the EC of World Trade Organization negotiations, and prospective EU-Korea and EU-MERCOSUR free trade agreements, and well as a large-scale Asian Development Bank assessment of regional integration schemes in Asia (Francois and Wignarajan 2008).[11]

The model is solved as an explicit non-linear system of equations, through techniques described by Harrison and Pearson (1994).[12] Investment effects are included, along the lines of Francois, McDonald, and Nordstrom (1996).[13] Social accounting data are based on the most recent (unpublished 2008 pre-release) Version 7.5 of the GTAP dataset (www.gtap.org). This database is the best and most up-to-date source of internally consistent data on production, consumption

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[7] While we work with a 2004 base year, we remove remaining textile and apparel quotas before conducting our tariff experiments. We also implement any remaining tariff obligations (like accession obligations) to define the starting point for bound rates.

[8] Francois. J.F., H. van Meijl and F. van Tongeren (2005), "Trade Liberalization in the Doha Development Round," Economic Policy April: 349-391.

[9] The full model code for Francois, van Meijl and van Tongeren can be downloaded from the Internet at http://wwwi4ide.org/francois/data.htm/.

[10] Francois, J.F., *THE NEXT WTO ROUND: North-South stakes in new market access negotiations*, CIES Adelaide and the Tinbergen Institute, CIES: Adelaide, 2001. ISBN: 086396 474 5.

[11] Francois, J.F. and G. Wignarajan (2008), "Asian Integration: Economic Implications of Integration Scenarios," Global Economy Journal, forthcoming.

[12] Francois, J.F. (1998), "Scale economies and imperfect competition in the GTAP model," GTAP consortium technical paper, http://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=317

[13] Francois, J.F., B. McDonald and H. Nordstrom (1996), "Trade liberalization and the capital stock in the GTAP model," GTAP consortium technical paper. http://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=310)

and international trade by country and sector.[14]. The GTAP data on protection incorporates the Macmaps data set, which includes a set of *ad valorem* equivalents (AVEs) of border protection across the world. The source information concerns various instruments, such as specific tariffs, mixed tariffs and quotas, which cannot be directly compared or summed. As we have detailed tariff data, we have validated and supplemented the GTAP/Macmaps tariff data with estimates of post-Doha tariffs, as described above in “Modeling Scenarios.”

[14] For more information on the basic database structure, see Dimaran, B, and McDougall, R., ed. (2007), The GTAP database -- version 7, Global Trade Analysis Center: Purdue University.

Table 1
Trade-Weighted Average Tariffs Faced by Exporters, percent

		Rates after High Cuts*			Rates after Low Cuts**		
	Base Applied Rates	Aver-age Rates	Abso-lute Change	Aver-age Cut	Aver-age Rates	Abso-lute Change	Aver-age Cut
Canada	0.57	0.48	-0.08	-15.0	0.50	-0.06	-10.9
European Union	1.76	1.49	-0.28	-15.7	1.57	-0.19	-10.8
Japan	5.23	4.09	-1.14	-21.8	4.37	-0.86	-16.5
United States	2.21	1.80	-0.40	-18.3	1.92	-0.29	-13.0
Other High Income	3.02	2.46	-0.55	-18.4	2.60	-0.42	-13.9
Other Europe	2.39	1.91	-0.48	-20.1	2.04	-0.35	-14.6
Bangladesh	3.87	1.90	-1.97	-51.0	2.11	-1.76	-45.5
China	5.18	3.60	-1.58	-30.6	3.89	-1.29	-24.9
India	4.84	3.74	-1.10	-22.7	3.93	-0.91	-18.8
Vietnam	6.01	3.19	-2.83	-47.0	3.54	-2.47	-41.1
Other ASEAN	3.00	2.29	-0.71	-23.6	2.43	-0.57	-19.0
Other South Asia	7.67	4.73	-2.94	-38.4	5.11	-2.55	-33.3
Other Central and West Asia	3.42	2.74	-0.67	-19.7	2.93	-0.49	-14.2
Argentina	1.93	1.61	-0.32	-16.5	1.71	-0.21	-11.2
Bolivia	0.89	0.80	-0.09	-10.1	0.82	-0.06	-7.3
Brazil	2.75	2.02	-0.73	-26.4	2.19	-0.56	-20.5
Ecuador	3.57	2.99	-0.59	-16.4	3.25	-0.32	-9.0
Peru	1.57	1.33	-0.25	-15.6	1.42	-0.16	-9.9
Other Latin America	2.72	1.76	-0.96	-35.3	1.89	-0.82	-30.4
Egypt	3.25	2.50	-0.75	-23.0	2.64	-0.61	-18.8
Madagascar	0.34	0.19	-0.15	-42.9	0.21	-0.13	-36.9
Malawi	1.92	1.40	-0.52	-27.2	1.60	-0.32	-16.8
Mauritius	1.28	0.97	-0.32	-24.6	1.04	-0.24	-19.0
Mozambique	0.38	0.24	-0.14	-36.3	0.26	-0.12	-31.4
Nigeria	1.64	1.16	-0.48	-29.4	1.33	-0.31	-18.8
Senegal	6.21	5.52	-0.69	-11.1	6.10	-0.11	-1.8
South Africa	3.10	2.78	-0.32	-10.4	2.94	-0.16	-5.3
Tanzania	4.51	4.02	-0.48	-10.8	4.16	-0.34	-7.6
Zambia	2.84	2.78	-0.06	-2.2	2.81	-0.03	-1.1
Other Northern Africa	1.03	0.86	-0.17	-16.8	0.90	-0.13	-12.8
Other Southern Africa	1.73	1.58	-0.15	-8.7	1.62	-0.11	-6.3
Canada, EU, Japan, US	2.22	1.82	-0.40	-18.0	1.93	-0.29	-12.9
Developing countries	3.76	2.76	-1.01	-26.8	2.95	-0.81	-21.5
World	2.73	2.15	-0.58	-21.2	2.29	-0.44	-16.1

* A Swiss formula coefficient of 19 for developing countries and 8 for developed countries
** A Swiss formula coefficient of 23 for developing countries and 9 for developed countries
See Appendix D for identities of countries in regional groupings
Source: Own calculations based on WTO tariff schedules and national schedules of applied rates.

Table 2
Trade-Weighted Average Import Protection, percent

	Base Applied Rates	Rates after High Cuts*			Rates after Low Cuts**		
		Aver-age Rates	Abso-lute Change	Aver-age Cut	Aver-age Rates	Abso-lute Change	Aver-age Cut
Canada	0.90	0.48	-0.41	-46.2	0.53	-0.37	-41.2
European Union	0.69	0.41	-0.28	-40.5	0.45	-0.25	-35.5
Japan	1.28	0.65	-0.63	-49.2	0.71	-0.57	-44.3
United States	1.62	0.89	-0.72	-44.8	0.97	-0.65	-40.2
Other High Income	2.64	2.13	-0.51	-19.3	2.32	-0.32	-12.0
Other Europe	7.27	7.27	0.00	0.0	7.27	0.00	0.0
Bangladesh	18.85	18.85	0.00	0.0	18.85	0.00	0.0
China	6.26	6.19	-0.07	-1.0	6.19	-0.06	-1.0
India	13.03	9.73	-3.30	-25.3	11.70	-1.33	-10.2
Vietnam	10.27	10.27	0.00	0.0	10.27	0.00	0.0
Other ASEAN	5.85	3.63	-2.22	-37.9	4.25	-1.60	-27.3
Other South Asia	13.74	8.89	-4.85	-35.3	10.24	-3.50	-25.5
Other Central and West Asia	5.55	5.47	-0.08	-1.4	5.50	-0.05	-0.9
Argentina	5.97	4.59	-1.38	-23.1	5.50	-0.47	-7.8
Bolivia	5.21	5.20	-0.01	-0.2	5.20	-0.01	-0.2
Brazil	8.55	6.78	-1.76	-20.6	8.05	-0.50	-5.9
Ecuador	9.23	9.21	-0.02	-0.2	9.21	-0.02	-0.2
Peru	8.41	7.90	-0.51	-6.0	8.22	-0.19	-2.2
Other Latin America	8.56	6.78	-1.78	-20.8	7.24	-1.32	-15.4
Egypt	9.78	6.32	-3.46	-35.4	7.35	-2.43	-24.8
Madagascar	3.87	3.87	0.00	0.0	3.87	0.00	0.0
Malawi	8.50	8.50	0.00	0.0	8.50	0.00	0.0
Mauritius	13.43	13.43	0.00	0.0	13.43	0.00	0.0
Mozambique	9.50	9.50	0.00	0.0	9.50	0.00	0.0
Nigeria	21.50	21.50	0.00	0.0	21.50	0.00	0.0
Senegal	9.15	9.15	0.00	0.0	9.15	0.00	0.0
South Africa	6.35	2.29	-4.06	-63.9	2.67	-3.68	-58.0
Tanzania	9.28	9.28	0.00	0.0	9.28	0.00	0.0
Zambia	7.78	7.78	0.00	0.0	7.78	0.00	0.0
Other Northern Africa	16.50	11.48	-5.02	-30.4	13.16	-3.34	-20.3
Other Southern Africa	10.37	10.37	0.00	0.0	10.37	0.00	0.0
Canada, EU, Japan, US	0.98	0.56	-0.43	-43.4	0.60	-0.38	-38.5
Developing countries	7.17	6.17	-0.99	-13.9	6.51	-0.65	-9.1
World	2.73	2.15	-0.58	-21.2	2.29	-0.44	-16.1

* A Swiss formula coefficient of 19 for developing countries and 8 for developed countries
** A Swiss formula coefficient of 23 for developing countries and 9 for developed countries
See Appendix D for identities of countries in regional groupings
Source: Own calculations based on WTO tariff schedules and national schedules of applied rates.

Table 3
Percent Change in Exports, 2004

	Low Cut Scenario*	High Cut Scenario**
Largest Developed Countries	*1.0*	*1.2*
Canada	0.6	0.6
European Union	0.6	0.7
Japan	2.2	2.7
United States	1.9	2.2
Other High Income	*1.4*	*1.9*
Other Europe	*0.6*	*0.7*
Asia	*2.4*	*3.2*
Bangladesh	1.1	1.3
China	2.5	3.0
India	2.5	5.2
Vietnam	5.5	6.4
Other ASEAN	3.5	4.9
Other South Asia	7.3	9.5
Other Central and West Asia	0.6	0.7
Latin America	*2.0*	*3.1*
Argentina	0.4	1.1
Bolivia	0.1	0.2
Brazil	1.2	3.0
Ecuador	0.5	0.8
Peru	0.4	1.1
Other Latin America	3.0	3.8
Africa	*1.6*	*1.9*
Egypt	2.8	4.2
Madagascar	-1.8	-2.0
Malawi	-1.6	-1.6
Mauritius	-0.7	-0.7
Mozambique	0.4	0.5
Nigeria	0.3	0.3
Senegal	0.0	0.5
South Africa	5.0	5.7
Tanzania	0.5	0.6
Zambia	0.5	0.5
Other Northern Africa	-0.1	-0.1
Other Southern Africa	0.1	0.1
TOTAL	1.3	1.7

* A Swiss formula coefficient of 23 for developing countries and 9 for developed countries
** A Swiss formula coefficient of 19 for developing countries and 8 for developed countries
See Appendix D for identities of countries in regional groupings

Table 4
Value of Change in Exports
(Millions of Dollars, 2004 Base)

	Low Cut Scenario*	High Cut Scenario**
Largest Developed Countries	*57,712*	*69,855*
Canada	1,753	1,972
European Union	22,133	27,364
Japan	13,924	17,123
United States	19,902	23,396
Other High Income	*15,980*	*22,001*
Other Europe	*1,255*	*1,537*
Asia	*40,940*	*54,781*
Bangladesh	123	142
China	18,370	22,519
India	2,489	5,180
Vietnam	1,440	1,679
Other ASEAN	14,306	19,842
Other South Asia	1,965	2,572
Other Central and West Asia	2,246	2,847
Latin America	*6,532*	*10,225*
Argentina	168	424
Bolivia	3	3
Brazil	1,331	3,360
Ecuador	32	56
Peru	51	144
Other Latin America	4,947	6,237
Africa	*3,656*	*4,383*
Egypt	623	923
Madagascar	-30	-33
Malawi	-9	-9
Mauritius	-24	-24
Mozambique	8	9
Nigeria	50	54
Senegal	1	9
South Africa	3,022	3,430
Tanzania	12	14
Zambia	10	11
Other Northern Africa	-69	-81
Other Southern Africa	62	79
TOTAL	126,076	162,781

* A Swiss formula coefficient of 23 for developing countries and 9 for developed countries
** A Swiss formula coefficient of 19 for developing countries and 8 for developed countries
See Appendix D for identities of countries in regional groupings

Table 5
National Income Effects: Increase in 2004 GDP
(Percent)

	Low Cut Scenario*	High Cut Scenario**
Largest Developed Countries	*0.03*	*0.04*
Canada	0.05	0.06
European Union	0.03	0.04
Japan	0.10	0.13
United States	0.00	0.00
Other High Income	*0.18*	*0.22*
Other Europe	*0.05*	*0.06*
Asia	*0.31*	*0.38*
Bangladesh	0.07	0.10
China	0.41	0.51
India	-0.03	-0.12
Vietnam	1.24	1.45
Other ASEAN	0.70	0.89
Other South Asia	0.56	0.65
Other Central and West Asia	0.05	0.08
Latin America	*0.08*	*0.12*
Argentina	0.08	0.14
Bolivia	-0.03	0.00
Brazil	0.07	0.09
Ecuador	0.04	0.11
Peru	-0.08	-0.09
Other Latin America	0.12	0.16
Africa	*0.09*	*0.11*
Egypt	0.19	0.22
Madagascar	-0.29	-0.32
Malawi	-0.18	-0.16
Mauritius	-0.22	-0.20
Mozambique	0.20	0.24
Nigeria	-0.02	-0.02
Senegal	-0.11	-0.01
South Africa	0.38	0.41
Tanzania	0.02	0.04
Zambia	0.24	0.27
Other Northern Africa	-0.05	-0.06
Other Southern Africa	-0.05	-0.04
TOTAL	0.08	0.10

* A Swiss formula coefficient of 23 for developing countries and 9 for developed countries
** A Swiss formula coefficient of 19 for developing countries and 8 for developed countries
See Appendix D for identities of countries in regional groupings

Table 6
National Income Effects: Increase in 2004 GDP
(Millions of 2004 Dollars)

	Low Cut Scenario*	High Cut Scenario**
Largest Developed Countries	*9,061*	*12,536*
Canada	535	603
European Union	3,499	5,297
Japan	4,818	6,112
United States	208	524
Other High Income	*5,568*	*7,034*
Other Europe	*339*	*476*
Asia	*14,767*	*18,188*
Bangladesh	39	53
China	7,511	9,370
India	-193	-740
Vietnam	534	623
Other ASEAN	5,528	6,998
Other South Asia	721	832
Other Central and West Asia	627	1,052
Latin America	*1,252*	*1,721*
Argentina	117	215
Bolivia	-2	0
Brazil	435	533
Ecuador	13	33
Peru	-56	-59
Other Latin America	746	999
Africa	*748*	*858*
Egypt	147	168
Madagascar	-13	-14
Malawi	-3	-3
Mauritius	-13	-12
Mozambique	12	14
Nigeria	-13	-10
Senegal	-8	-1
South Africa	815	880
Tanzania	2	4
Zambia	13	15
Other Northern Africa	-101	-106
Other Southern Africa	-91	-78
TOTAL	31,396	40,338

* A Swiss formula coefficient of 23 for developing countries and 9 for developed countries
** A Swiss formula coefficient of 19 for developing countries and 8 for developed countries
See Appendix D for identities of countries in regional groupings

APPENDIX A: Tariff Profiles of Non-Agricultural Products, percent

	Binding Coverage	Average Bound Rate	Average Applied Rate	Difference Between Bound and Applied Rates
Afghanistan			5.7	.
Albania	100.0	6.6	5.4	1.2
Algeria			18.1	.
Angola	100.0	60.1	6.8	53.3
Antigua and Barbuda	97.6	51.4	8.9	42.5
Argentina	100.0	31.8	12.6	19.2
Armenia	100.0	7.5	2.3	5.2
Australia	96.5	11.0	3.9	7.1
Azerbaijan			8.8	.
Bahamas			31.2	.
Bahrain	68.5		4.8	.
Bangladesh	2.9	33.4	14.9	18.5
Barbados	97.6	33.8	11.0	22.8
Belize	97.7	72.9	9.3	63.6
Benin	30.1	51.5	11.6	39.9
Bermuda		11.4	18.9	-7.5
Bhutan			19.2	.
Bolivarian Rep. of Venezuela	100.0	33.9	12.7	21.2
Bolivia	100.0	40.0	8.1	31.9
Bosnia and Herzegovina			6.2	.
Botswana	96.1	15.7	7.8	7.9
Brazil	100.0	30.8	12.6	18.2
Brunei Darussalam	95.0	24.5	3.0	21.5
Bulgaria	100.0	23.0	9.0	14.0
Burkina Faso	29.9	13.1	11.6	1.5
Burundi	9.9	26.6	13.1	13.5
Cambodia	100.0	17.7	13.7	4.0
Cameroon	0.1	50.0	17.4	32.6
Canada	99.7	5.3	3.7	1.6
Cape Verde			10.2	.
Central African Republic	56.8	37.9	17.4	20.5
Chad	0.2	75.0	17.4	57.6
Chile	100.0	25.0	6.0	19.0
China	100.0	9.1	9.0	0.1
Colombia	100.0	35.4	11.8	23.6
Comoros			29.3	.
Congo	3.3	14.7	17.7	-3.0
Costa Rica	100.0	42.9	4.9	38.0

	Binding Coverage	Average Bound Rate	Average Applied Rate	Difference Between Bound and Applied Rates
Cote d'Ivoire	22.9	8.6	11.6	-3.0
Croatia	100.0	5.5	4.0	1.5
Cuba	20.3	9.4	10.8	-1.4
Democratic Republic of the Congo	100.0	95.9	11.9	84.0
Djibouti	100.0	39.9	29.1	10.8
Dominica	94.0	50.0	8.3	41.7
Dominican Republic	100.0	34.2	7.8	26.4
Ecuador	100.0	21.2	11.3	9.9
Egypt	99.2	27.7	12.2	15.5
El Salvador	100.0	35.7	5.0	30.7
Equatorial Guinea			17.4	.
Eritrea			7.6	.
Ethiopia			16.7	.
European Communities	100.0	3.9	3.9	0
Fiji	45.0	40.0	7.8	32.2
FYR of Macedonia	100.0	6.3	7.4	-1.1
Gabon	100.0	15.5	17.4	-1.9
Gambia		56.1		56.1
Georgia	100.0	6.5	6.4	0.1
Ghana		34.7		34.7
Grenada	100.0	50.0	9.2	40.8
Guatemala	100.0	40.8	5.0	35.8
Guinea	29.6	10.0	11.5	-1.5
Guinea-Bissau	97.4	50.0	11.6	38.4
Guyana	100.0	50.0	9.6	40.4
Haiti	87.6	18.3	2.4	15.9
Honduras	100.0	32.6	4.9	27.7
Hong Kong, China	37.5	0	0	.
Iceland	94.2	9.6	2.4	7.2
India	69.8	34.9	16.4	18.5
Indonesia	96.1	35.6	6.8	28.8
Israel	71.5	11.1	4.9	6.2
Jamaica	100.0	42.4	5.8	36.6
Japan	99.6	2.7	2.8	-0.1
Jordan	100.0	15.2	10.4	4.8
Kenya	1.6	54.1	11.7	42.4
Kiribati			16.3	.
Korea, Republic of	93.8	10.1	6.6	3.5
Kuwait	100.0	100.0	4.8	95.2
Kyrgyz Republic	99.9	6.7	4.3	2.4

	Binding Coverage	Average Bound Rate	Average Applied Rate	Difference Between Bound and Applied Rates
Lao People's Democratic Republic			8.2	.
Lebanon			5.1	.
Lesotho	100.0	60.0	7.8	52.2
Libyan Arab Jamahiriya			0	.
Macao, China	15.6	0	0	.
Madagascar	18.9	25.3	13.1	12.2
Malawi	20.7	42.4	13.3	29.1
Malaysia	81.3	14.9	7.9	7
Maldives	96.7	35.1	20.5	14.6
Mali	31.6	14.2	11.6	2.6
Mauritania	30.1	10.5	10.5	0
Mauritius	5.3	19.1	3.0	16.1
Mexico	100.0	34.9	13.3	21.6
Micronesia, Federated States of			4.5	.
Moldova	100.0	6.0	4.2	1.8
Mongolia	100.0	17.3	4.4	12.9
Montenegro			4.0	.
Morocco	100.0	39.2	21.2	18.0
Mozambique	0.4	6.6	11.4	-4.8
Myanmar	4.7	21.1	5.1	16.0
Namibia	96.1	15.7	7.8	7.9
Nepal	99.3	23.7	13.7	10.0
New Zealand	99.9	10.4	3.2	7.2
Nicaragua	100.0	41.5	4.9	36.6
Niger	96.3	38.1	11.6	26.5
Nigeria	6.9	48.5	11.4	37.1
Norway	100.0	3.1	0.6	2.5
Oman	100.0	11.6	4.8	6.8
Pakistan	99.1	54.6	14.0	40.6
Palau			3	
Panama	100.0	22.9	6.4	16.5
Papua New Guinea	100.0	30.1	3.7	26.4
Paraguay	100.0	33.6	10.0	23.6
Peru	100.0	30.0	9.7	20.3
Philippines	61.8	23.4	5.8	17.6
Qatar	100.0	14.5	4.8	9.7
Romania	100.0	30.9	14.8	16.1
Russian Federation			11.1	
Rwanda	100.0	91.9	19.4	72.5
Saint Kitts and Nevis	97.6	70.8	8.6	62.2

	Binding Coverage	Average Bound Rate	Average Applied Rate	Difference Between Bound and Applied Rates
Saint Lucia	99.5	53.9	8.0	45.9
Saint Vincent and	99.7	54.5	8.9	45.6
Saudi Arabia	100.0	10.5	4.8	5.7
Senegal	100.0	30.0	11.6	18.4
Sierra Leone	100.0	48.5	13.1	35.4
Singapore	64.5	6.3	0	6.3
Solomon Islands	100.0	79.6	14.1	65.5
South Africa	96.1	15.7	7.9	7.8
Sri Lanka	28.3	19.6	9.2	10.4
Sudan			18.5	
Suriname		17.1		
Swaziland	96.1	15.7	7.8	7.9
Switzerland	99.7	2.6	2.1	0.5
Chinese Taipei	100.0	4.8	4.7	0.1
Tajikistan			7.4	
Tanzania	0.1	120.0	11.7	108.3
Thailand	70.9	25.5	8.2	17.3
Togo	0.8	80.0	11.6	68.4
Tonga			15.8	
Trinidad and Tobago	100.0	60.5	6.6	53.9
Tunisia	51.1	40.5	21.0	19.5
Turkey	42.5	17.0	4.7	12.3
Uganda	2.9	50.6	11.7	38.9
Ukraine			4.4	
United Arab Emirates	100.0	13.1	4.8	8.3
United States	100.0	3.3	3.3	0
Uruguay	100.0	31.2	10.7	20.5
Uzbekistan			15.1	.
Vanuatu			13.8	.
Viet Nam	100.0	10.4	15.7	-5.3
Yemen			6.6	.
Zambia	4.0	42.2	13.2	29.0
Zimbabwe		10.8		10.8

Source: WTO, *Tariff Profiles,* 2006.

APPENDIX B: Bindings and MFN Rates by MTN Sector, WTO Members Where Binding Coverage (BC) Is Less than 35% (percent)

	MTN Sector	Average WTO Developing Country Binding	Average MFN Rate, BC<35%
	Non-Agricultural Sectors		
01	Wood, pulp, paper & furniture	28.02	19.42
02	Textiles & clothing	33.08	21.45
03	Leather, rubber, footwear & travel goods	31.03	17.97
04	Metals	28.80	13.41
05	Chemicals and photographic supplies	26.40	9.71
06	Transport equipment	33.84	13.25
07	Non-electric machinery	26.93	7.97
08	Electric machinery	26.84	14.05
09	Minerals products, stones and metals	31.00	15.47
10	Manufactured articles n.e.s.	29.92	17.57
11	Fish and fish products	32.19	17.33
97	Petroleum	37.89	15.23
	Agricultural Sectors		
12	Fruit & vegetables	53.69	30.73
13	Coffee, tea, mate, & cocoa	54.16	25.89
14	Sugars	64.80	23.33
15	Spices, cereal and other food preparations	53.69	23.10
16	Grains	55.33	15.17
17	Animal Products	52.91	19.13
18	Oilseeds, fats, & oils	52.38	14.26
20, 22	Beverages and tobacco	67.03	39.73
21	Dairy products	62.82	24.89
19, 23	Plants, other agricultural products	40.55	14.11
	TOTAL trade	32.24	15.81
	NAMA average	29.82	15.24

Source: World Bank/UNCTAD WITS database (2008), based on WTO tariff schedules.

APPENDIX C: Bindings and MFN Rates by GTAP Sector, WTO Members Where Binding Coverage (BC) Is Less than 35%

GTAP Sector	Average WTO Developing Country Binding	Average MFN Rate, BC<35%
01 PDR - Paddy rice	59.84	20.25
02 WHT - Wheat	50.87	6.52
03 GRO - Cereal grains n.e.c.	50.94	14.79
04 V_F - Vegetables, fruit, nuts	53.27	29.61
05 OSD - Oil seeds	48.11	10.87
06 C_B - Sugar cane, sugar beet	52.38	14.04
07 PFB - Plant-based fibers	36.10	9.73
08 OCR - Crops n.e.c.	45.00	18.49
09 CTL - Cattle, sheep, goats, horses	50.73	13.77
10 OAP - Animal products n.e.c.	41.06	16.62
12 WOL - Wool, silk-worm cocoons	34.04	8.03
13 FRS - Forestry	**35.21**	**19.59**
14 FSH - Fishing	**33.23**	**15.72**
15 COA - Coal	**30.52**	**8.52**
16 OIL - Oil	**35.99**	**6.61**
17 GAS - Gas	**34.17**	**10.95**
18 OMN - Minerals n.e.c.	**29.86**	**7.85**
19 CMT - Bovine meat prods	59.65	20.21
20 OMT - Meat products n.e.c.	60.19	25.90
21 VOL - Vegetable oils and fats	56.65	17.64
22 MIL - Dairy products	62.82	24.89
23 PCR - Processed rice	66.45	23.57
24 SGR - Sugar	71.71	27.30
25 OFD - Food products n.e.c.	50.19	23.64
26 B_T - Beverages and tobacco products	67.03	39.73
27 TEX - Textiles	**31.45**	**17.66**
28 WAP - Wearing apparel	**38.78**	**31.41**
29 LEA - Leather products	**31.81**	**20.29**
30 LUM - Wood products	**30.15**	**23.12**
31 PPP - Paper products, publishing	**27.38**	**15.69**
32 P_C - Petroleum, coal products	**37.89**	**15.23**
33 CRP - Chemical, rubber, plastic products	**27.12**	**10.15**
34 NMM - Mineral products n.e.c.	**31.39**	**19.14**
35 I_S - Ferrous metals	**26.16**	**11.86**

	GTAP Sector	Average WTO Developing Country Binding	Average MFN Rate, BC<35%
36	**NFM - Metals n.e.c.**	**28.40**	**9.44**
37	**FMP - Metal products**	**31.98**	**18.86**
38	**MVH - Motor vehicles and parts**	**37.59**	**16.39**
39	**OTN - Transport equipment n.e.c.**	**28.49**	**9.45**
40	**ELE - Electronic equipment**	**24.60**	**13.99**
41	**OME - Machinery and equipment n.e.c.**	**27.61**	**10.80**
42	**OMF - Manufactures n.e.c.**	**33.68**	**23.00**
43	**ELY - Electricity**	**33.26**	**7.89**
44	**GDT - Gas manufacture, distribution**	**34.18**	**10.30**
	TOTAL trade	32.24	15.81

NAMA products in bold.

Source: World Bank/UNCTAD WITS database (2008), based on WTO tariff schedules.

APPENDIX D: Countries in Table Groupings

Other High Income - Australia, New Zealand, Hong Kong, Korea, Chinese Taipei, Singapore, Mexico, Switzerland, Norway, Iceland (i.e., the OECD plus Singapore, Hong Kong and Chinese Taipei)

Other Europe –Albania, Belarus, Bosnia and Herzegovina, Ukraine, Moldova Andorra, Croatia, Faroe Islands, Gibraltar, Macedonia, the former Yugoslav Republic, Monaco, San Marino, Serbia and Montenegro

Other ASEAN –Cambodia, Indonesia, Malaysia, Philippines, Thailand, Rest of Southeast Asia (Brunei, Laos, Myanmar, East Timor)

Other South Asia – Pakistan, Sri Lanka, Rest of South Asia (Afghanistan, Bhutan, Maldives, Nepal)

Other Central and West Asia – Kazakhstan, Kyrgyzstan, Rest of Former Soviet Union (Tajikistan, Turkmenistan, Uzbekistan). Armenia, Azerbaijan, Georgia, Iran, Turkey, Rest of Western Asia (Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Palestinian Territory, Occupied, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen), Other Asia (Macau, Mongolia, North Korea)

Other Latin America – Rest of North America (Bermuda, Greenland, Saint Pierre and Miquelon), Chile, Colombia, Paraguay, Uruguay, Venezuela, Rest of South America (Falkland Islands (Malvinas), French Guiana, Guyana, Suriname), Nicaragua, Rest of Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Panama), Caribbean (Saint Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos, Anguilla, Antigua & Barbuda, Aruba, Bahamas, Barbados, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Netherlands Antilles, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Virgin Islands, British, Virgin Islands, U.S.)

Other Northern Africa – Morocco, Tunisia, Rest of North Africa (Algeria, Libya)

Other Southern Africa – Rest of Western Africa (Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea. Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Saint Helena, Sierra Leone , Togo), Central Africa (Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Sao Tome and Principe), South-Central Africa (Angola, Congo, Democratic Republic of the), Uganda, Rest of Eastern Africa (Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Mayotte, Reunion, Rwanda, Seychelles, Somalia, Sudan), Botswana, Rest of South Africa Customs Union.

Least Developed Countries: Currently, 32 United Nations-defined least-

developed countries are WTO Members:

Angola
Bangladesh
Benin
Burkina Faso
Burundi
Cambodia
Central African Republic
Chad
Congo, Democratic Republic of the
Djibouti
Gambia
Guinea
Guinea Bissau
Haiti
Lesotho
Madagascar
Malawi
Maldives
Mali
Mauritania
Mozambique
Myanmar
Nepal
Niger
Rwanda
Senegal
Sierra Leone
Solomon Islands
Tanzania
Togo
Uganda
Zambia

Ten additional least-developed countries are in the process of accession to the WTO. They are:

Afghanistan
Bhutan
Cape Verde
Ethiopia
Laos
Sao Tome & Principe
Samoa
Sudan
Vanuatu and
Yemen.