
Market Access for Nonagricultural Products: In Search of a Formula

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Developing countries' exports of nonagricultural products have risen rapidly in recent years, with manufactures leading the way (World Bank 2003). Nonagricultural products now constitute the overwhelming majority of merchandise exports from developing countries.¹ In East Asia, the share of manufactures in total exports has risen from 50 to 90 percent in the past two decades; in Latin America and the Caribbean, it has risen from 20 to 60 percent. Even in Sub-Saharan Africa the share of manufactures has risen from 10 to 25 percent. Other non-agricultural products, such as resources and fishery products, are also important to many developing countries. While many of these exports are subject to low tariffs in the major industrial-country markets, some are subject to high peak tariffs that sharply restrict market access.

The early stages of the Doha negotiations were marked by a flurry of tariff-cutting proposals for nonagricultural market access (NAMA)—among them very concrete proposals from China, the European Union, India, and the United States. Building on these proposals, particularly the proposal from China, the Chairman of the Negotiating Group for NAMA of the World Trade Organization (WTO) proposed in May 2003 the application of a Swiss formula (see equation 1 below and Francois and Martin 2003) that would impose a ceiling tariff based on each country's original average tariff. These proposals were coupled with other proposals for complete elimination of tariffs in certain sectors.

In considering any formula approach to liberalization, WTO members must weigh the formula's implications for their own tariff structure and for their market-access opportunities abroad. Although tariff reductions are based on bound tariffs, which can be substantially above the tariff rates actually applied, countries usually have little trouble assessing the implications of a proposal for their own applied tariffs. Such an evaluation can be undertaken using widely-available software such as EXCEL, and information on bound tariffs (the limits, agreed and recorded at WTO, above which applied tariffs cannot be increased), and applied tariffs. Assessing the implications for tariff revenues is a little more difficult, but still relatively manageable. By contrast, it is a major task for countries to assess a formula's likely effects on their market-access opportunities, since these depend on a range of factors including the nature of the formula; the average and distribution of tariffs; and the importance of exports to *each of the country's export markets*. A particular challenge is posed by the gaps between tariff bindings and the tariffs actually applied. A further complication results from the preferences available on some

developing country exports, and the increasing number of preferential trade arrangements, both of which cause applied tariff rates to fall below the scheduled most-favored-nation (MFN) rates on some trade.

Earlier work (World Bank 2003: 89–98) reviewed the key proposals for reform of nonagricultural market access at that time and provided a broad assessment of their market-access implications for several key countries. This note updates that review and assesses the likely effects of current proposals on market access for each developing-country region. Each country’s situation will differ from the broad averages that we are able to consider in this note, but we hope these broad assessments will provide an initial guide, and provide an illustration of what can be done in making these assessments.²

Three formulas under discussion within WTO

Three formula approaches (modalities) are currently under consideration in the current WTO negotiations on nonagricultural market access (WTO 2005a):

- A single Swiss formula with flexibilities for developing countries,
- A Swiss formula with two coefficients—one for industrial and one for developing countries,
- A Swiss formula with coefficients based on countries’ average tariffs.

The Swiss formula has a long history in the multilateral trading system, having been applied in the Tokyo Round of negotiations in the 1970s (Laird and Yeats 1987). It involves setting new tariffs, t_1 , using equation (1):

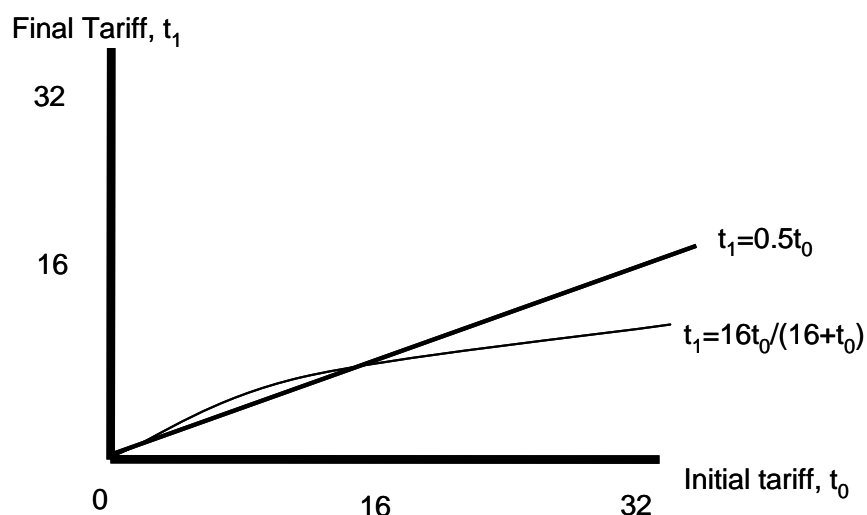
$$(1) \quad t_1 = \frac{a \cdot t_0}{a + t_0}$$

Where t_0 is the base tariff, and a is the “ceiling” parameter that determines the highest possible tariff in the new tariff schedule. This function has the property of reducing higher tariffs by more than lower tariffs—with extremely high tariffs being reduced to just below the ceiling. It also makes smaller cuts in low tariffs than would a proportional formula—a feature that helps preserve tariff revenues, since low-tariff, high-volume items are often important sources of government revenue.

A stylized representation of the impact of a Swiss formula on tariffs is given in figure 1. The figure is drawn for a ceiling parameter of 16 percent, a value that played an important role in the Tokyo Round (Baldwin 1986). The figure shows three broad features of the formula—small tariffs are cut by less than with a proportional cut that would provide the same reduction in average tariffs; high tariffs are cut more than proportionally; and an initial tariff equal to the coefficient is reduced to half the coefficient value. Three examples are useful to illustrate the potential strength of these effects. By applying the formula illustrated, with a coefficient of 16 percent, an initial tariff of 1 percent would be reduced to 0.94 percent—a 6 percent reduction.

Figure 1. A Swiss formula cuts higher tariffs more

Impacts of a Proportional and a Swiss Formula for Tariff Cutting



By contrast, an initial tariff of 1,000 percent would be reduced to 15.7 percent—a reduction of more than 98 percent. An initial tariff of 16 percent would be reduced by half.

The top-down nature of the Swiss formula means that it automatically tends to lessen two major concerns of developing countries—tariff peaks and tariff escalation. Its effectiveness in lowering peak tariffs and reducing tariff escalation is consistent with the requirements of WTO’s July 2004 Framework (WTO 2004). And it is particularly important for tariff reduction in industrial countries, where average tariffs are low but peak tariffs burden many products of interest to developing countries—among them textiles, clothing, and footwear.

Most attention in the current negotiations seems to be focused on the second and third of the approaches (modalities) under consideration. Pakistan (WTO 2005a) has advocated the second, with the ceiling parameter for industrial and developing countries based on the average bound tariffs in each group—rounded to 6 and 30 percent. Some developed countries, while agreeing with Pakistan’s broad approach, seek lower coefficients, particularly for developing countries. Other countries, including Argentina, Brazil, and India (WTO 2005b) favor an approach based on earlier proposals by China and the former chair of the WTO’s Negotiating Group for NAMA, in which ceiling parameters are based on average tariffs in individual countries.

Another key issue under discussion is the treatment of tariffs that are currently unbound. Most nonagricultural tariffs are now bound in the industrial countries, but in developing countries binding coverage varies widely. Blackhurst, Enders, and Francois (1996) reported that the import coverage of tariff bindings on industrial products in developing countries rose from 13 to 61 percent as a result of the Uruguay Round, with many countries committing to 100 percent binding. However, coverage rates remain below 10 percent in Mauritius, Zimbabwe, and many other countries.

The binding of tariffs has value, even if applied tariffs are not actually reduced (Francois and Martin 2004), because binding rules out subsequent increases in tariffs, and particularly increases that create costly tariff peaks. With broad agreement on the desirability of achieving 100 percent coverage of tariff bindings in NAMA, as in agriculture, there have been several proposals for dealing with unbound tariffs in the formulas. These include the original proposal by the NAMA chair to use twice the applied rate as the base for cutting and binding tariffs. Another, proposed by Canada, Hong Kong (China), New Zealand, and Norway (CHNN), is to allow countries to add 5 percentage points to each currently applied tariff. A third, proposed by Pakistan, is to add 30 percentage points to each tariff (WTO 2005a).

Effects of NAMA proposals on developing countries' market access

To help relieve the uncertainty surrounding the outcome of the negotiations on binding rates, we experimented with setting the base rates from which cuts are to be made at different multiples of bound rates. Given these choices, we examined the implications of the competing formulas for market access. Our analysis was done using UNCTAD's TRAINS database, taking into account the preferential treatment provided unilaterally by Australia, Canada, the European Union, Japan and the United States. While most earlier studies ignore preferences and hence exaggerate the market access gain from liberalization, our analysis overstates these gains to some degree by assuming full preference utilisation. Our use of weighted average tariffs also understates the benefits since highly restricted products have small initial trade shares.

Highly summarized results are expressed in table 1 as the average tariff facing exporters from each developing-country region, and as the coefficient of variation of those tariffs—a measure that provides an indication of the prevalence of tariff peaks and escalation relative to the mean tariff. The results were obtained (as in World Bank 2003) by cutting bound rates and then assessing the impacts on the corresponding applied rates. Only when bound rates fall below initial applied rates are applied rates cut, and then by only as much as is needed to keep the applied rate at or below the bound rate. In contrast with our earlier results, however, we focus here on the implications for export-market access, rather than on countries' own tariffs.

In generating the numbers presented in the table, we used three basic options that cover the range of possibilities for tariff-cutting formulas and treatment of unbound rates. These range from the Chairman's Proposal to a proposal that provides for much deeper cuts in developing country tariffs through a lower ceiling and smaller increase in unbound tariffs prior to cutting.

Option proposed by the former chair of WTO NAMA Negotiating Group

- Unbound tariffs are first bound at twice the country's applied MFN average.
- Cuts are made using a Swiss formula with a coefficient equal to the country's tariff base average. Least developed countries and those with less than 35 percent coverage do not make cuts.

Option proposed by Pakistan

- Unbound tariffs are bound at MFN rate plus 30 percentage points.
- Cuts use a Swiss formula with a coefficient of 6 for developed countries and 30 for developing countries. Least developed countries and those with less than 35 percent binding coverage do not make cuts.

Option represented by authors' combination of proposals from CHNN and Industrial Countries

- Unbound tariffs are bound by MFN rate plus 5 percentage points.
- Swiss-formula cuts use a coefficient of 5 for developed countries and 15 for developing countries. Least developed countries and those with less than 35 percent binding coverage do not make cuts.

Table 1. Implications of different formula options for average tariffs facing developing countries

(Percent)	Pre				Post			
			Chair		Pakistan		CHNN-Industrial	
	Average	CV	Average	CV	Average	CV	Average	CV
Sub-Saharan Africa	2.3	560	1.9	510	1.4	340	1.1	270
East Asia, Pacific	3.9	380	2.6	290	1.9	240	1.6	180
Europe, Central Asia	3.6	420	2.6	330	1.9	240	1.6	180
Latin America	4.1	370	2.8	300	2.2	290	1.9	220
South Asia	6.0	420	4.1	330	3.0	290	2.6	240
Mid. East, N. Africa	2.0	400	1.6	360	1.3	290	1.0	200

CHNN = Canada, Hong Kong (China), New Zealand, Norway.
CV = coefficient of variation.

Shaving tariff peaks

Key features of table 1 are the relatively low unweighted average tariffs facing most developing regions once preferences in key markets are taken into account. The very high coefficients of variation of tariffs facing exporters, however, hint at the presence of serious tariff peaks on some products. For Sub-Saharan Africa, for example, the coefficient of variation is 560 percent of the mean, implying a substantial share of tariffs that are five or more times the mean tariff. Many of these are associated with peak tariffs, on which preferences are not available, in key industrial-country markets.

The three proposals all reduce average tariffs and the coefficient of variation of tariffs. However, it is clear that the two proposals that use a single ceiling parameter for developing countries—the Pakistan and U.S.–CHNN approaches—are more effective in reducing the barriers facing developing countries than is the proposal from the former chair of the WTO Market Access Committee, in which the ceiling parameter is based on each country's average tariff.

The CHNN Industrial approach is more effective in reducing market-access barriers than is Pakistan's approach. While Pakistan's proposal would reduce the *pain* that developing countries face in their home markets, it would also reduce their *gain* in market access. The sharp reduction in the coefficient of variation in the tariffs facing each country bears testimony to the success of the approach in reducing tariff peaks and escalation.

Effects on the distribution of high tariffs

Additional insights into the effects of the proposals on the barriers facing each country are given in six plots, one for each region (figure 2). These show the value of trade subject to each level of tariffs. Because tariff peaks reduce the volume of trade in high-tariff categories, we have first estimated the trade that would exist in each category under free-trade conditions, and then plotted those values against the tariff rates.³ While the precise pattern varies among regions, a key feature of the initial distribution of tariffs is sizeable numbers of tariffs at or close to zero and some peaks associated with rates well above zero. For exporters from Sub-Saharan Africa, for example, there is a substantial peak in the value of exports of products that face tariffs between 30 and 35 percent.

When the tariff-cutting formulas are applied, the entire distribution of tariffs shifts to the left, increasing the share of trade that is subject to tariffs of close to zero. In many cases, that shift is much less marked under the former chair's formula than under the other two.

The difference between the Pakistan and CHNN Industrial proposals in lowering tariffs on large traded-goods categories differs substantially among regions. In South Asia, for instance, the CHNN Industrial proposal is much more effective

in reducing high tariffs than the other proposals: virtually all exports from the region would face tariffs of 7.5 percent or less. Pakistan's proposal brings a much smaller fraction of exports into this category. By contrast, in East Asia, all three proposals generate surprisingly similar results, and all are quite effective at reducing the share of exports subject to high tariffs.

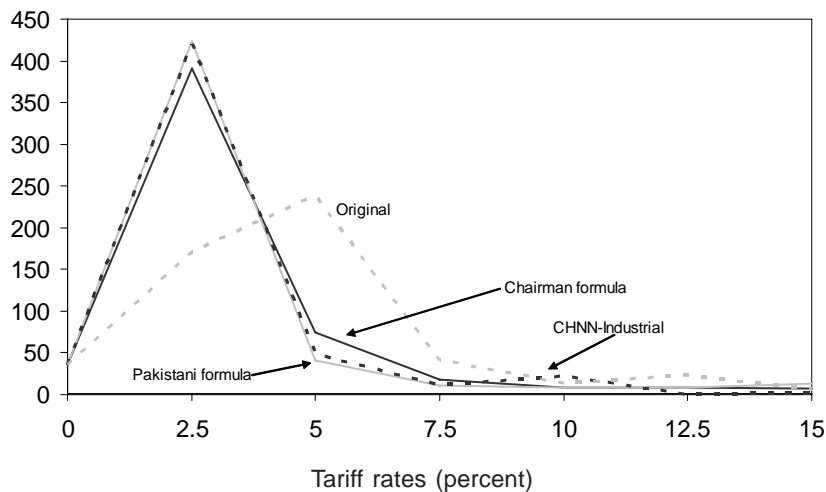
Conclusion

The objectives of this note were to provide an outline of the approaches to reform being considered in the ongoing negotiations on nonagricultural market access and to provide some simple estimates of the likely effectiveness of those approaches in expanding market access for developing countries. The results indicate that all of the approaches would have some effect in expanding market access and reducing peak tariffs. The two more aggressive approaches, however, would be more effective in reducing barriers. Although regional averages do not accurately represent the situation of any individual country, the results presented here do illustrate what can be done for any individual country seeking to assess the implications of alternative formulas for market access. They also show that raising the level of ambition in the negotiations on nonagricultural market access has the potential to provide important market access gains to developing countries as a group.

Figure 2: Value of exports by tariff rate by region:

Value of exports by tariff rate from East Asia

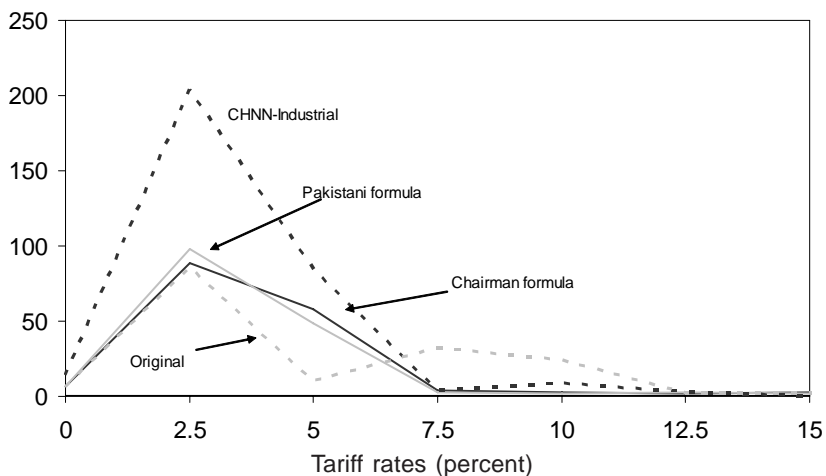
Value (in US \$ billion)



Source: Authors' calculations.

Value of exports by tariff rate from East Europe, Central Asia

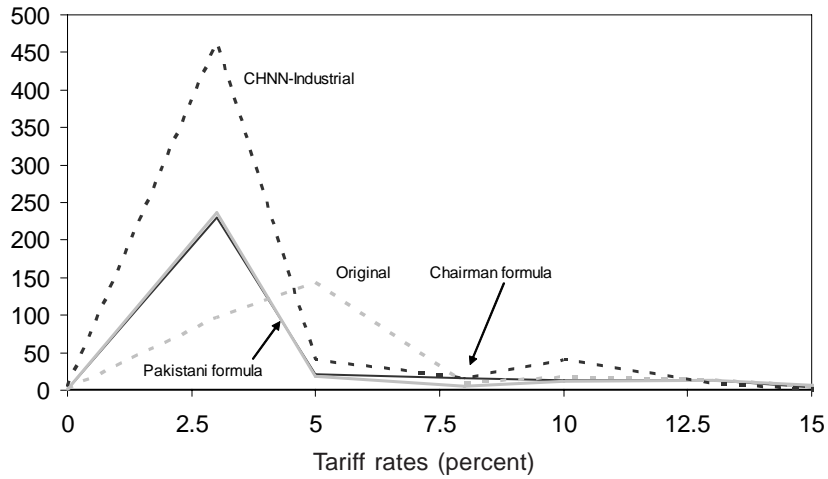
Value (in US \$ billion)



Source: Authors' calculations.

Value of exports by tariff rate from Latin America

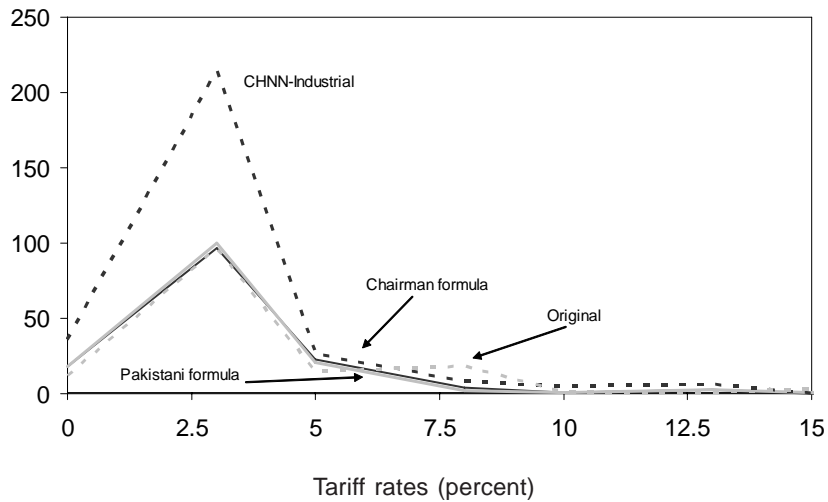
Value (in US \$ billion)



Source: Authors' calculations.

Value of exports by tariff rate from Middle East, North Africa

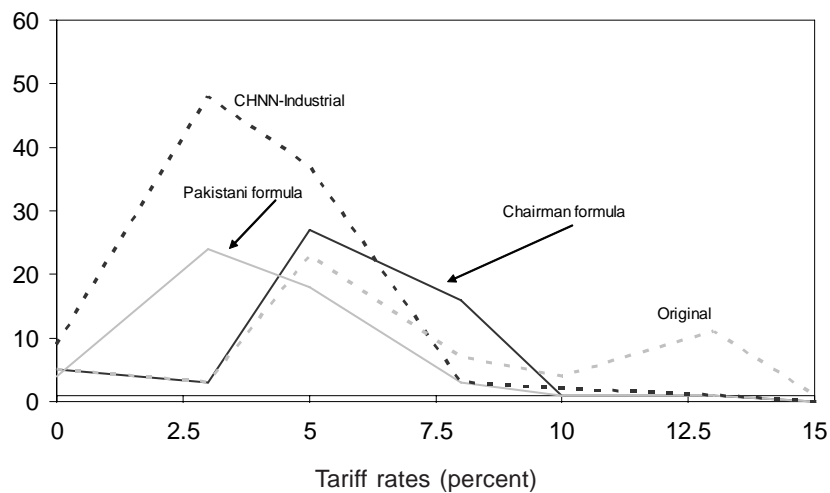
Value (in US \$ billion)



Source: Authors' calculations.

Value of exports by tariff rate from South Asia

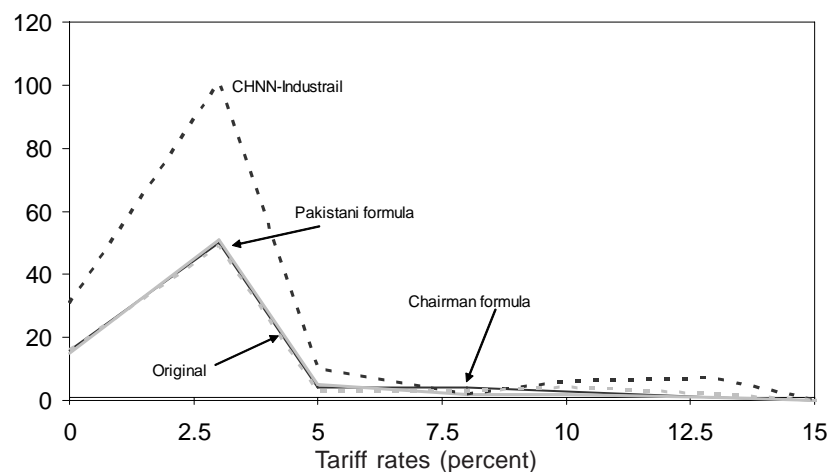
Value (in US \$ billion)



Source: Authors' calculations.

Value of exports by tariff rate from Sub-Saharan Africa

Value (in US \$ billion)



Source: Authors' calculations.

Notes

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2. The World Bank and the United Nations Conference on Trade and Development (UNCTAD) have produced a software program—World Integrated Trade Solutions (WITS)—that allows anyone with knowledge of trade and tariff statistics (plus a computer and access to the Internet) to assess the implications of proposed formulas for their own trade regime, and for their market-access opportunities. See <http://wits.worldbank.org/witsweb> for more information.

3. This adjustment was made using a Constant Elasticity of Substitution demand function with an elasticity of substitution of 3, and taking the tariffs to zero before calculating the country's export volumes.

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