

# A User's Guide to Uruguay Round Assessments<sup>1</sup>

Joseph, F. Francois  
*World Trade Organization and CEPR*

Bradley McDonald  
*World Trade Organization*

Håkan Nordström  
*World Trade Organization and CEPR*

May 1996  
(revised)

**key words:** Uruguay Round, CGE Modelling, Trade Liberalization, GATT, WTO

**JEL classification:** [F13 ],[F47 ]

---

<sup>1</sup> This paper represents the opinion of the authors, and not of the WTO, CEPR, or any other organization with which they may happen to be affiliated.

## ABSTRACT

### A User's Guide to Uruguay Round Assessments

In this paper, we provide a broad overview of the computable general equilibrium (CGE) literature on the Uruguay Round, detailing the policy experiments of various studies and differences in model structures and relating these to the overall pattern of results. We supplement this overview with discussion of implementation and offsetting factors. Overall, the literature points to significant potential gains from the Uruguay Round, particularly from NTB liberalization. Strict monitoring and enforcement of NTB-related provisions would yield significant benefits, while lax implementation would imply significant missed opportunities.

**key words:** Uruguay Round, CGE Modelling, Trade Liberalization, GATT, WTO

**JEL classification:** [F13 ],[F47 ]

**Keywords:** trade and investment; trade and capital accumulation

**JEL categories:** [F13], [F4], [F47]

Joseph Francois  
WTO, ERAD  
Rue de Lausanne 154  
CH-1211 Geneva 21  
Switzerland  
phone: +41 22 739 52 78  
fax: +41 22 739 57 62  
email:  
joseph.francois@wto.org

Bradley McDonald  
WTO, TPRM  
Rue de Lausanne 154  
CH-1211 Geneva 21  
Switzerland  
phone: +41 22 739 50 80  
fax: +41 22 739 57 62  
email:  
bradley.mcdonald@wto.org

Håkan Nordström  
WTO, ERAD  
Rue de Lausanne 154  
CH-1211 Geneva 21  
Switzerland  
phone: +41 22 739 52 57  
fax: +41 22 739 57 62  
email:  
hakan.nordstrom@wto.org

## NONTECHNICAL SUMMARY

There is now a sizeable empirical literature on the Uruguay Round Agreements. Most of the larger international organizations have produced or sponsored their own assessments, often focusing on issues and areas with ramifications for their own activities. The academic community has also contributed its share. While this literature has certainly contributed to an understanding of the complex issues at hand, the sheer volume of analysis and sometimes conflicting results can be somewhat bewildering.

In this paper, we provide a broad overview of the existing body of computable general equilibrium (CGE) assessments of the Uruguay Round. Our objectives are twofold: to extract a set of qualitative findings from the broad set of numerical studies; and to otherwise explain differences in the range of results. We supplement this overview with a discussion of implementation and offsetting factors.

The goals set for the Uruguay Round were ambitious. They included efforts to broaden the world trading system to include services and intellectual property rights, and efforts to achieve a full return of agriculture, textiles and clothing to the system. Quantitative studies influenced this process, from the setting of the agenda to the ratification process. For example, early agricultural studies had an impact on the Punta del Este Declaration, while work at the OECD Development Centre signalled the potentially adverse impact of agricultural liberalization on net food importers and helped lead to the Agreement on Agriculture being supplemented at the conclusion of the Uruguay Round with a "Decision on Measures Concerning the Possible Negative Effects of the Reform Program on Least-Developed and Net Food-Importing countries." In addition, research on the multi-fibre arrangement (the MFA) signalled the importance of textile and clothing liberalization, providing a measure of the potential gains from progress in this difficult area.

Quantitative assessments also may have had a negative effect on the pattern of final offers. The Punta de Este declaration repeated, almost exactly, the language of the relevant sections of the enabling clause drawn up at the end of the Tokyo Round calling for special and differential treatment for developing countries. Modelling results raised questions about the implications of the Round for the least developed countries, and hence provided implicit support for continuing this tradition of granting developing countries special and differential treatment in the GATT. While these concessions might have been politically expedient, and perhaps even necessary to get all countries on board, they obscured an important point -- countries that liberalize the most tend to gain the most. Indeed, in the literature, there is a strong positive relationship between own-liberalization and estimated welfare gains from the Round. Seeing emphasis placed on the relatively higher gains for OECD and high income developing countries, which not coincidentally were those that tabled the most ambitious liberalizations, "losing" governments might have found it easier to offer even less.

We do not identify a "best" or "preferred" set of estimates from the literature regarding the impact of the Round. The results of all the studies are sensitive to model structure and one cannot, in our view, say which specification or study is "best." The results of the Round itself will also depend on the actual pattern of implementation. However, on a qualitative level we believe the pattern of estimates identifies a set of important issues, and lends some useful insight into the implications of the Round and the possible pattern of implementation.

At one level, the results in the literature simply indicate possible shifts in production and trade as the Round is implemented. For example, on this basis, the literature identifies a basic pressure for

resources to shift into textiles and clothing in the developing countries (particularly Asia). Among the developing countries, there is likely to be a shift in textile and clothing production toward China and South Asia. The mirror image is strong pressure for contraction of textile and apparel production in the OECD. This leads to a second method of interpreting the pattern of results found in the literature.

The Uruguay Round assessments we review may also provide an indication of sectors likely to lobby for contingent protection following implementation. In all of the CGE simulations reviewed, various measures of contingent protection are held constant throughout the simulations. This is unrealistic. If one believes there is some inertia in the overall level of sectoral protection, one means of protection may be partially offset by another. Contingent protection offers such a route. Moreover, it is unclear that most existing industrial NTBs (outside of textiles and clothing) will even be modified from their current form. Based on notifications, very few of the grey area measures modelled in the literature technically exist, or at least they do not exist in the realm covered by the strictures on grey area measures. Overall, then, while the literature points to significant potential gains from the Uruguay Round, particularly from industrial NTB liberalization, lax implementation of the prohibition on grey area measures, and delays in the phase-out of restrictions on textiles and clothing, would imply significant squandered gains. The primary gains would then be related to institutional and other unquantified changes.

## **1. Introduction**

There is now a sizeable empirical literature on the Uruguay Round Agreements. Most of the larger international organizations have produced or sponsored their own assessments (FAO, OECD, UNCTAD, World Bank, WTO, to mention a few), often focusing on issues and areas with ramifications for their own activities. The academic community has also contributed its share (Brown et al, 1995; Hertel et al, 1995; Haaland and Tollefsen, 1994; Yang 1994, Nguyen et al, 1993). While this literature has certainly contributed to an understanding of the complex issues at hand, the sheer volume of analysis and sometimes conflicting results can be somewhat bewildering.

In this paper, we provide a broad overview of the existing body of computable general equilibrium (CGE) assessments of the Uruguay Round. Our objectives are twofold: to extract a set of qualitative findings from the broad set of numerical studies; and to otherwise explain differences in the range of results. We supplement this overview with a discussion of implementation and offsetting factors.

The goals set for the Uruguay Round were ambitious. They included efforts to broaden the world trading system to include services and intellectual property rights, and efforts to achieve a full return of agriculture, textiles and clothing to the system. Quantitative studies influenced this process, from the setting of the agenda to the ratification process. For example, early agricultural studies had an impact on the Punta del Este Declaration (Tyers and Anderson, 1986), while work at the OECD Development Centre signalled the potentially adverse impact of agricultural liberalization on net food importers (Goldin et al , 1993) and helped lead to the Agreement on Agriculture being supplemented at the conclusion of the Uruguay Round with a "Decision on Measures Concerning the Possible Negative Effects of the Reform Program on Least-Developed and Net Food-Importing countries" (WTO, 1994). In addition, research on the multi-fibre arrangement (the MFA), including Hamilton (1986, 1990) and Trela and Whalley (1990), signalled

the importance of textile and clothing liberalization, providing a measure of the potential gains from progress in this difficult area.

Quantitative assessments also may have had a negative effect on the pattern of final offers. The Punta de Este declaration repeated, almost exactly, the language of the relevant sections of the enabling clause drawn up at the end of the Tokyo Round calling for special and differential treatment for developing countries (Croome 1995).<sup>2</sup> Modelling results raised questions about the implications of the Round for the least developed countries, and hence provided implicit support for continuing this tradition of granting developing countries special and differential treatment in the GATT. While these concessions might have been politically expedient, and perhaps even necessary to get all countries on board, they obscured an important point -- countries that liberalize the most tend to gain the most. Indeed, as Martin and Winters (1995) have emphasized, there is a strong positive relationship between own-liberalization and estimated welfare gains from the Round. Seeing emphasis placed on the relatively higher gains for OECD and high income developing countries, which not coincidentally were those that tabled the most ambitious liberalizations, "losing" governments might have found it easier to offer even less.<sup>3</sup>

We have organized this paper along the following lines. We start with a short review of those aspects of the Uruguay Round generally covered by numerical assessments -- mainly tariffs, NTBs, the MFA agreement, and agriculture. We then detail the policy experiments of various

---

<sup>2</sup> The 1986 Ministerial Declaration at Punta Del Este stated that "developed countries do not expect developing countries, in the course of trade negotiations, to make contributions which are inconsistent with their individual development, financial, and trade needs." (Part I.B(v)).

<sup>3</sup> The practice of providing developing country preferences also reinforces this view. By making "preference erosion" possible, preference schemes make multilateral liberalization appear to be an injurious process for developing countries, and particularly for LLDCs. This perception lends weight to continued protection by low income countries, and to limited or even no active participation in the multilateral system, which is then painted as harming LLDCs.

studies and differences in model structures, relating these to the overall pattern of results. The modelling of an ongoing policy process suffers from the inherent problem of "shooting at a moving target." Given production time lags, assumptions have to be made about where the negotiations are heading, and assumed policy scenarios may in the end bear only a slight resemblance to the final outcome. For the sake of brevity, and since the target is now known, we have excluded studies made previous to the 1991 Draft Final Act (also known as the Dunkel draft, after the GATT Director-General at the time) from the overview of modelling results. We then turn to other, less readily quantifiable aspects of the Round. We pay particular attention to implementation issues and the importance of rules and enforcement mechanism in preventing "back sliding." Our conclusions are offered in the final section.

## **2. The Uruguay Round: A Short Review of Quantifiable Aspects**

The overall target for tariff reductions was set at 36 percent (on a trade weighted basis) for industrial countries and two-thirds of that (24 percent) for developing countries. Starting from a relatively high level, many Asian and Latin American developing countries managed to cut their tariffs on industrial products substantially, often by 10 percentage points or more. As a group, the least developed countries, many in Africa, did not. At the high level of aggregation in global CGE models, African tariffs were in most sectors reduced by less than half of one percentage point.

As a result of the Round, the industrial tariffs of the developed countries are now normally below 5 percent (10 percent in the case of Australia/New Zealand). Tariffs on textiles and clothing, which average from 10 to 30 percent, are an exception. The industrial tariffs of developing countries are generally higher and vary substantially between regions (as well as within regions). On a regional basis, East Asian developing countries impose tariffs ranging, on average, from 5 to 15 percent; Latin America, Africa and the Middle East from 10 to 25 percent; and South Asia (the

Indian sub-continent) from 10 to 60 percent. Developing countries tend to protect manufactures more heavily than primary goods, while developed countries tend to protect their base industries (primary good processing industries) more heavily than other manufactures. Looming behind all of these tariffs and associated peak rates in manufactures are the Himalayas of agricultural protection.

### *Textiles and clothing*

The Uruguay Round Agreement on Textiles and Clothing requires a gradual phase out of the quota restrictions carried over from the MFA regime. Products covered by the Agreement are to be integrated in three stages under a ten year transition period. The first stage called for Members to integrate products comprising at least 16 percent of the total volume of each member's 1990 imports of textile and clothing products. A further 17 percent of products are to be integrated in 1998 and an additional 18 percent of products must be integrated in 2002. Products that remain restricted during the transition period are subjected to progressively increasing import quotas. At the end of the ten year transition period, all remaining quantitative restrictions on textiles and clothing are to be terminated. By leaving the integration of nearly half of textiles and clothing products until the end of the transition, much of the MFA liberalization has been backloaded until the very end of the 10 year phase-in period. This backloading may create substantial problems in the last stage, an issue to which we will return.

### *Other industrial QRs*

Quantitative restrictions are in principle prohibited by Article XI of the GATT framework. However, several exceptions exist to the general principle, and will continue to exist under the new Uruguay Round Agreements. (See Finger, 1995). For instance, given certain conditions, developing countries may continue to impose (temporary) quantitative restrictions in order to

safeguard their external financial positions and balance of payments.<sup>4</sup> Quantitative safeguard measures provided for under Article XIX (or not provided for at all under GATT 1947) -- ranging from outright import quotas to "voluntary" export restraints (VERs) -- are, however, to be phased out before the turn of the century as part of the new Safeguard Agreement.

### *Agriculture*

The Uruguay Round Agreement on Agriculture provided for the conversion of NTBs to tariff equivalents. The converted NTBs and previously bound or applied tariffs are to be reduced on a simple unweighted average basis by 36 (24) percent, with a minimum of 15 (10) percent for each tariff line. (Developing country provisions within parenthesis. Least developed countries are generally exempted). In addition, the budget outlay on export subsidies is to be reduced by 36 (24) percent, and the volume of subsidized exports by 21 (14) percent. The Aggregate Measure of Support (AMS), a measure of domestic support, is also to be reduced 20 (13 ) percent. Exempted are measures with "no, or at most minimal, trade distortion effects or effects on production." Such "green box" measures are also non-actionable for purposes of countervailing duties. Finally, the agreement includes new minimum market access opportunities at reduced tariff rates for products where there were previously no significant imports. The minimum market access is set to 3 percent of domestic consumption at the outset, rising to 5 percent at the end of the implementation period. Commitments not to erode current market access are meant to limit the scope for increased protection through "dirty tariffication," which involves the conversion of NTBs to even more restrictive import tariffs. The agreed reductions in tariffs, domestic support and export subsidies

---

<sup>4</sup> However, price-based measures are to be given preferences over quantitative measures. In those cases in which a Member applies quantitative restrictions, it shall provide justification as to the reasons why price-based measures are not an adequate instrument to deal with the balance-of-payment situation. (Understanding on Balance-of-Payments Provisions of the General Agreement on Tariffs and Trade 1994, Article 2 and 3).

are to be implemented during a transition period of six years for developed countries, and ten years for developing countries.

### *Looking under the lamppost*

The above aspects of the Round -- tariff cuts, the phase out of the MFA and other industrial QRs, and agriculture liberalization -- are those generally covered by CGE studies. Of course, there are many other elements to the Uruguay Round Agreements, but those outlined above are the most readily quantifiable (although not necessarily the most important). As in the story of the man looking for his keys under the lamppost (instead of in the dark where they were actually lost), the modelling community has exhibited a tendency to look under the analytical lamppost, modelling what it is comfortable with, while suffering from the nagging suspicion that it may be looking in the wrong place. For example, contingent protection is an important source of erosion of most-favoured nation (mfn)-based trade liberalization, and there were substantive changes in the rules governing contingent protection. (See Finger 1995). However, contingent protection is either fixed or ignored in the Uruguay Round modelling literature. In addition, the literature largely ignores services liberalization, though Brown et al (1995) provide evidence that the effects of such liberalization could swamp the effects of further merchandise liberalization. Highlighting a tendency to use the tools at hand, the results of agriculture-focused studies have been used in the policy community as a basis for policy assessments of liberalization centred outside of agriculture.

### **3. CGE Assessments of the Round**

Like the North American Free Trade Agreement and the EC's single market program, the Uruguay Round has been the subject of many CGE-based assessments. The coverage, features, and key results of these studies are summarized in Table 1. Using relatively standard neoclassical

structures, these models tend to assume constant returns to scale technologies and perfect competition, with some variety in terms of intra-regional factor mobility. While some produce estimates projected over a number of years, all emphasize the impact of trade liberalization on resource allocation, directly through efficiency gains, and sometimes also indirectly, as through related income-induced changes in capital accumulation rates. A subset of these models incorporate scale economies or imperfect competition, sometimes in conjunction with accumulation effects.

#### *Base year and numeraire*

The breadth of estimates in Table 1 derives from three sets of factors. The first is the choice of base year and numeraire. During the close of the Round and the subsequent ratification debate in many countries, the press emphasized the dollar impact of the Round, while ignoring the need to make comparisons in a common numeraire. The assessments covered in Table 1 refer to different time periods and different dollars: \$212 billion at 1990 in 1986 dollars; \$213 billion at 2002 in 1992 dollars; \$510 billion at 2005 in 1990 dollars; \$146 billion at 1992 in 1992 dollars, etc. The different bases yield a false sense of disagreement in the estimates. On the contrary, when expressed as percentages of baseline (status quo) GDP, the numbers are surprisingly comparable. The table presents comparable estimates from alternative studies, controlling for differences in base years (to the extent they are reported in the original studies or were easily calculated from given data.)

#### *Policy experiments*

A second, more substantive set of factors relates to the definition of policy experiments. Specifically, the various studies reported in the Table cover different aspects of the Round. Generally speaking, the more provisions of the Round that are covered, the higher the estimated

global gain. For instance, Brandão and Martin (1993) limit their attention to the agriculture agreement, while Nguyen, Perroni, and Wigle (1993) cover almost all components of the market access package of the Round, including the elimination of industrial NTBs under the new Safeguard agreement (assuming a 40% cut in tariff-equivalents), and the liberalization of services trade under the GATS agreement (assuming a 40% cut in tariff-equivalents). Brown et al (1995) also focus on services liberalization, while Goldin and van der Mensbrugge (1995) emphasize agricultural liberalization and industrial tariff liberalization. The reported welfare gains of these studies differ. However, if we narrow the comparison to individual elements of the Uruguay Round Agreements, the sub-estimates are similar. For instance, the Agreement on Agriculture is worth \$72.3 billion, equal to approximately 0.38% of base GDP, according to Nguyen et al, with Brandão and Martin reporting a similar estimate in terms of percentage of base GDP. The estimates reported by Goldin and van der Mensbrugge, as a percentage of global GDP, are also in this range.

### *Model Structure*

Turning now to the third set of factors, these can be traced to fundamental differences in model structure, such as (i) sectoral and regional aggregation, (ii) the treatment of competitive structure and scale economies, and (iii) the treatment (or disregard) of accumulation effects.

The sectoral and regional aggregation of a model is in practice mainly determined by the objective of the study, data availability, and computational complexity. For instance, the Rural-Urban-North-South (RUNS) model of the OECD and the World Bank -- Goldin et al (1993) and Goldin and van der Mensbrugge (1995)-- was designed specifically to study agricultural reforms. This is reflected in the sectoral aggregation, where 15 of the 20 sectors represent various agricultural products, while three other sectors (fertilizers, energy, and equipment) are important

agricultural inputs. This structure is very useful in studying the agricultural parts of the Round. However, it is much less useful for assessing industrial sector liberalization, since most of the industrial action is taking place within one sector; "other manufactures." This means, for instance, that the RUNS model is not built to assess the economic benefits of the phase out of MFA quotas (textiles and clothing are "hidden" within other manufactures), or other industrial quantitative restrictions. Moreover, it is likely to understate the effects of industrial tariff cuts because of the high level of industrial aggregation.

The regional and sectoral structure of the model determines which effects are caught. In this regard, the aggregation structure can be compared to *maskevidden* (the Norwegian word for the weave of a fish net). In casting a narrow-meshed net on agricultural products and a wide-meshed net on industry, you can expect to catch the agricultural effects but miss the industrial effects, and vice versa. Computer, software, data, and time constraints, along with the disadvantages of overly complex models (which tend to become "black boxes"), simply prohibit one from casting a fine-meshed net everywhere. Indeed, in RUNS-based estimates reported at the close of the Uruguay Round, about 85 percent of the global welfare gains were derived from agricultural reforms, while other models with emphasis on industrial sectors found that agricultural reforms contributed less than 50 percent of the gains from the Round (and sometime less than 10 percent). A model's *maskevidden* can lead to significant differences in overall results, due to variations in regional or sectoral aggregation, and related interactions with sectoral or regional peaks in protection.

Equally important is the issue of theoretical model structure. Two dimensions can be identified. The first separates models with perfect competition and constant returns to scale from models that address scale economies and imperfect competition. The second separates static models, with a fixed resource base, from models that include income-investment linkages. Studies that incorporate scale economies and imperfect competition tend to identify stronger effects

following trade liberalization. Similarly, accumulation of resources can magnify the static impact of trade liberalization exercises.<sup>5</sup>

In terms of the studies covered in Table 1, Haaland and Tollefsen (1994), Yang (1994), Francois et al (1994, 1995), Brown et al (1995), and Harrison et al (1995) incorporate alternative specifications of internal and external scale economies and imperfect competition. Models with accumulation effects include Haaland and Tollefsen, Francois et al (1994, 1995), Harrison et al, and Goldin et al (1993). Controlling for the aspects of the Round covered, and the varied mix of model features, the welfare estimates of these studies are again (perhaps surprisingly) quite consistent.<sup>6</sup> For instance, under external scale economies, Yang (1994) and Francois et al (1994) report global income effects of .62 percent and .63 percent of global GDP, respectively. The results of Harrison et al under regional monopolistic competition (which also exhibits regional "external" scale effects in reduced form) are near the external scale results reported by Yang (1995).

Another important aspect of model structure that follows from the specification of competition relates to the modelling of trade flows. Homogeneous goods models are consistent with basic trade theory, but inconsistent with the reality of two-way trade within product categories. Two common conceptual frameworks are used to account for two-way trade. One

---

<sup>5</sup> Scale economies, imperfect competition, and investment effects are an important feature of the literature on the U.S.-Canada Free Trade Agreement (Cox and Harris 1986), the NAFTA (Francois and Shiells 1994), and European Integration (Venables and Smith 1986 and Baldwin 1992). It is fairly well understood that they can dominate static, constant returns effects related to efficient resource reallocation. (Francois and Roland-Holst 1996). Yet, with a few exceptions (see Table 1), these effects have either been left out of assessments of multilateral liberalization altogether, or else misunderstood and viewed as misleading.

<sup>6</sup> All models accounting for accumulation effects assume that the world, and its regional sub-components, are initially in steady state. That is, they are travelling along their long-run growth path. As shown by Francois, Nordström, and Shiells (1996), policy reforms that takes place during transition to steady state may spur accelerated transitional growth, allowing the fruits of development to be realized at an earlier stage. Trade policy reforms (or any other reform that enhance the efficiency of an economy) can therefore be, in a sense, relatively more valuable for developing countries (in transition to steady state) than for developed countries at, or closer to, the steady state growth path. In retrospect, therefore, we regard the implications of the Round related to accumulation effects to be underestimated for developing countries.

explains two-way trade by assuming that products within the same product-category, but originating in different nations, are imperfect substitutes (the so-called "Armington" assumption). German automobiles, hence, are treated as different from U.S. automobiles. As a result, Germany and the U.S. will trade with each other for automobiles. The Armington assumption is consistent with perfect competition. Another approach recognizes that products differ between firms as well as between countries. As a result, Hondas are treated as being different from Toyotas, even when both are produced in Japan. Both may be specified as competing directly with Chryslers. This approach raises questions about the relevant market structure. If products are differentiated over producers, it means that individual firms have some market power over their own prices. This implies imperfect competition.

Models with Armington specifications yield smaller trade and output effects than models with either homogeneous goods (like the RUNS model) or models with firm-level product differentiation (like Haaland and Tollefsen).<sup>7</sup> In the studies covered in Table 1, national product differentiation implies trade effects in the range of 8 to 10 percent of base period exports, while monopolistic competition implies trade effects more in the range of 20 to 30 percent. The implied adjustment costs of trade liberalization are hence much greater in both homogenous goods models and firm-level product differentiation models than in Armington models.

### *The Overall Pattern of Results*

Overall, the ex-post studies find that agricultural liberalization will matter much less, empirically, than was indicated in earlier ex-ante studies based on more ambitious scenarios. While agriculture matters less than earlier studies suggested, the studies in Table 1 also imply that industrial NTBs

---

<sup>7</sup> An exception is Hertel et al (1995). Basically, because quotas are expected to be more restrictive in 10 years than today, their trade effects are greater than those benchmarked to 1992.

and tariffs clearly matter more. A particularly important feature of the Uruguay Round will be the MFA phase-out. The potential gains are substantial, as are the potential adjustment costs. In those studies that highlight textiles and clothing, it is evident that this liberalization may lead to very large shifts in production and trade. Such an adjustment will not only relate to North-South trade flows, but may also lead to a substantial reallocation of production and export shares within developing countries. China and South Asia, in particular, may gain significant market share at the expense of other developing country producers.

#### **4. Implementation**

##### *The MFA*

The backloading of the textiles and clothing agreement may prove to be a significant implementation problem. In their projections of the global economy in 2005, Hertel et al (1995) find that the MFA will be even more restrictive in 2005, absent liberalization, than it is today. Even though products that remain restricted during the transition period benefit from a progressively increasing quota, the increase in growth rates still may not be enough to keep up with projected changes in the global economy. The remaining quotas will therefore tend to become more restrictive over time. This suggests that the adjustment costs, and hence the political obstacles, will be even greater if most liberalization is delayed until 2005, as seems to be the case.<sup>8</sup> Significant safeguard actions, or other forms of contingent protection, may then follow, effectively transforming the current system into something similar under a new name.

---

<sup>8</sup> An UNCTAD (1995) study reports that "the integration programmes may not bring about any immediate trade liberalization. This is mainly because the Annex to the Agreement contains many HS (Harmonized Commodity Description and Coding System) lines which have never been specifically restricted in any country, so that the major restraining countries can fulfil their obligations under the Agreement in the first two stages without affecting the MFA quotas. Thus, a modest dimension of trade expansion may only become perceptible from the beginning of the third stage, in the year 2002. " (Paragraph 33, UNCTAD (1995)).

*Contingent protection*

Participating governments were required to accept nearly the entire Uruguay Round package. As a result of this "single undertaking," several of the Tokyo Round plurilateral codes were replaced by multilateral agreements under the umbrella of the WTO.<sup>9</sup> A byproduct has been the accelerated spread of antidumping regimes to the developing countries. In the 1980s, antidumping remedies were primarily imposed by four developed parties -- the United States, Canada, the European Union, and Australia. Since then, developing countries have been implementing dumping regimes as part of their broader legislative implementation of the Uruguay Round Agreements and liberalization of other restrictions. The spread of antidumping regimes, as of early - 1996, is documented in Table 2. The pattern of actions is illustrated in Figure 1. Clearly, the OECD is still the dominant player in the antidumping game. However, an important recent change is that Latin America is also a significant user. With the additional systems now being put in place (only 10 members have notified the WTO that they will not implement an antidumping regime), the practice will likely spread to the other developing regions as well.

The growth of antidumping regimes beyond the core OECD practitioners has important implications. Dumping duties were an important growth sector in the protection industry, as practised by the developed countries, in the 1980s. The Uruguay Round Agreements largely legitimize these practices (Finger 1995), and developing countries are copying the technology of administrated protection developed in the OECD. Indeed, they get technical assistance from international organizations when doing so. This proliferation of trade weapons may prove

---

<sup>9</sup> However, the Tokyo Round Agreements on Government Procurement (which will be superseded by a new Agreement), the Civil Aircraft Agreement (where negotiations on a new Agreement are continuing) and the Arrangements on Dairy and Bovine Meat will retain their plurilateral status. The new Agreement on Government Procurement came into force on 1 January 1996, and expands the existing agreement by requiring bid-challenge procedures, and by increasing the coverage of procurement subject to the rules by a factor of about ten to an amount of several hundred billion dollars.

innocuous, if developing countries do not impose many dumping remedies. This would be consistent with the assumption in the CGE literature that contingent protection remains unchanged. However, even the threat of action can serve as an effective protection instrument (Winters 1994). Alternatively, therefore, it may be that contingent protection and the related issue of international competition policy dominate the agenda within 10 years.

### *Grey Area Measures*

The new WTO Agreement on Safeguards broke new ground in establishing prohibitions against "grey area" measures. The agreement stipulates that "a Member shall not seek, take or maintain any voluntary export restraints (VERs), orderly marketing arrangements (OMAs) or any other similar measures on the export or import side."<sup>10,11</sup> Any such measure in effect on the date of entry into force of the WTO Agreements shall be brought into conformity with this Agreement or phased out in accordance with paragraph 2." (Article 11.1(b)). The time table was set to four years, except for one measure which was allowed one year delayed termination (Article 11.2). Moreover, Members were requested to notify to the WTO committee on Safeguards whether or not they had any such measures.

Table 3 reports summary information on the notifications in this area to the WTO as of early 1996. Of the reporting Members, it was only the European Community, the Republic of Korea, Slovenia, the Republic of South Africa, and Thailand that reported imposing such measures, and

---

<sup>10</sup> However, the provision is qualified by attached footnote 3, reading: "An import quota applied as a safeguard measure in conformity with the relevant provisions of GATT 1994 and this Agreement may, by mutual agreement, be administered by the exporting Member."

<sup>11</sup> The attached footnote 4 clarifies the meaning of "similar measures." It reads: "Examples of similar measures include export moderation, export-price or import-price monitoring systems, export or import surveillance, compulsory import cartels and discretionary export or import licensing schemes, any of which afford protection."

then only on a very limited scale. There is some inconsistency. Korea reports VERs with the European Union, while the European reports none involving Korea. The United States reported that they did not maintain any such measures, while Japan and most other Members had yet to report. Based on these notifications, it is fair to say that the modelling community (as summarized in Table 1) was overoptimistic about the scope of industrial NTBs that will be subjected to liberalization.<sup>12 13</sup> A large share of the gains reported in Table 1 is based on the elimination of non-tariff barriers, including both the MFA and barriers like those reported in Table 3. Some of these gains followed from import barriers, which, according to WTO Member notifications, do not exist.

## 5. Conclusions

In this paper we have provided a critical overview of the Uruguay Round quantitative assessment literature. Our objective has not been to identify a "best" or "preferred" set of estimates regarding the impact of the Round. The results of all the studies are sensitive to model structure and one cannot, in our view, say which specification or study is "best." The results of the Round itself will also depend on the actual pattern of implementation. However, on a qualitative level we believe the pattern of estimates identifies a set of important issues, and lends some useful insight into the implications of the Round and the possible pattern of implementation.

---

<sup>12</sup> The following quote from the 1995 annual report of the WTO Director-General summarizes well the concerns about under-reporting. "Concerns have also been expressed regarding the completeness and comparability of notifications in some areas, and the potential need for strengthening verification mechanisms. To give one example, several Members have notified that they have no (or perhaps one or two) subsidy programs, while other Members have notified a considerable number of such programs. This may simply reflect differences in use of subsidies among Members, but it may also reflect differences in interpretations of the Agreement. In either case, the issue of completeness and comparability of notifications and accuracy of the current verification mechanisms may deserve further attention." (Paragraph 15, WTO (1995)).

<sup>13</sup> Notwithstanding the safeguard agreement, the Antidumping code provides legal cover for "voluntary" import restraints and undertakings negotiated as part of suspension agreements during dumping investigations. Such measures are enforced by the threat of renewed antidumping action if the suspension agreements are themselves suspended.

At one level, these results simply indicate possible shifts in production and trade as the Round is implemented. For example, on this basis, the literature identifies a basic pressure for resources to shift into textiles and clothing in the developing countries (particularly Asia). Among the developing countries, there is likely to be a shift in textile and clothing production toward China and South Asia. The mirror image is strong pressure for contraction of textile and apparel production in the OECD. This leads to a second method of interpreting the pattern of results found in the literature.

The Uruguay Round assessments reviewed here may also provide an indication of sectors likely to lobby for contingent protection following implementation. In all of the CGE simulations reviewed, various measures of contingent protection are held constant throughout the simulations. This is unrealistic. If one believes there is some inertia in the overall level of sectoral protection, one means of protection may be partially offset by another. Contingent protection offers such a route. Moreover, it is unclear that most existing industrial NTBs (outside of textiles and clothing) will even be modified from their current form. Based on notifications, very few of the grey area measures modelled in the literature technically exist, or at least they do not exist in the realm covered by the strictures on grey area measures. Overall, then, while the literature points to significant potential gains from the Uruguay Round, particularly from industrial NTB liberalization, lax implementation of the prohibition on grey area measures, and delays in the phase-out of restrictions on textiles and clothing, would imply significant squandered gains. The primary gains would then be related to institutional and other unquantified changes, including the bicycle effect.

## References

- Baldwin, R.E. (1992) "Measureable Dynamic Gains From Trade." *Journal of Political Economy* 100 (February): 162-174.
- Brandao, A.S. and W. Martin (1993). "Implications of Agricultural Trade Liberalization for the Developing Countries." World Bank working paper (March).
- Brown, D.K., Deardorff, A., Fox, A.K., and R.M. Stern (1995). "Computational Analysis of Goods and Services Liberalization in the Uruguay Round." in W. Martin and L.A. Winters, eds., *The Uruguay Round and the Developing Economies*, World Bank discussion paper 307.
- Cox, D. and Harris, R. 1985. "Trade Liberalization and Industrial Organization: Some Estimates for Canada," *Journal of Political Economy* vol 93, 115-145.
- Croome, J. (1995). *Reshaping the World Trading System: A History of the Uruguay Round*. World Trade Organization, Geneva.
- Finger, J.M. (1995). "Legalized Backsliding: Safeguard Provisions in GATT." in W. Martin and L.A. Winters, eds., *The Uruguay Round and the Developing Economies*, World Bank discussion paper 307.
- Francois, J.F., McDonald, B., and H. Nordström (1995). "Assessing the Uruguay Round." in W. Martin and L.A. Winters, eds., *The Uruguay Round and the Developing Economies*, World Bank discussion paper 307.
- Francois, J.F., McDonald, B., and H. Nordström (1994). "The Uruguay Round: A Global General Equilibrium Assessment." CEPR discussion paper.
- Francois, J.F., McDonald, B., and H. Nordström (1993). "Economywide Effects of the Uruguay Round." Uruguay Round background paper, GATT, Geneva.
- Francois, J.F. and D.W. Roland-Holst (1996). "Trade Policies, Scale Economies, and Imperfect Competition in Applied Trade Policies." in J.F. Francois and K.A. Reinert, eds., *Applied Methods for Applied Commercial Policy Analysis: A Handbook*, Cambridge University Press: forthcoming.
- Francois, J.F., Nordström, H. and C.R. Shiells (1996). "Getting There is Half the Fun: Policy Reform and Transitional Growth." CEPR discussion paper.
- Francois, J.F. and C.R. Shiells (1994). *Modelling Trade Policy: Applied General Equilibrium Models of North American Free Trade*, Cambridge University Press.
- Goldin, I. and D. van der Mensbrugghe (1995). "The Uruguay Round: An Assessment of Economywide and Agricultural Reforms." in W. Martin and L.A. Winters, eds., *The Uruguay Round and the Developing Economies*, World Bank discussion paper 307.

- Goldin, I., Knudsen, D. and D. van der Mensbrugghe (1993). "Trade Liberalization: Global Economic Implications." OECD and the World Bank, Paris.
- Haaland, J. and T.C. Tollefson (1994). "The Uruguay Round and Trade in Manufactures and Services. General Equilibrium Simulations of Production, Trade, and Welfare Effects of Liberalization." CEPR discussion paper 1008.
- Hamilton, C. (1986), "An Assessment of Voluntary Restraints on Hong Kong's Exports to Europe and the United States," *Economica*, vol 35, August.
- Hamilton, C. ed., (1990), *Textiles Trade and the Developing Countries: Eliminating the Multi-Fibre Arrangement in the 1990s*, World Bank, Washington DC.
- Harrison, G.W., Rutherford, T.F., and D.G. Tarr (1995). "Quantifying the Uruguay Round." in W. Martin and L.A. Winters, eds., *The Uruguay Round and the Developing Economies*, World Bank discussion paper 307.
- Hertel, T., Martin, W., Yanagishima, K. and B. Dimaranan (1995). "Liberalizing Manufactures in a Changing World Economy." in W. Martin and L.A. Winters, eds., *The Uruguay Round and the Developing Economies*, World Bank discussion paper 307.
- Martin, W. and L.A. Winters (1995). "Executive Summary." in W. Martin and L.A. Winters, eds., *The Uruguay Round and the Developing Economies*, World Bank discussion paper 307.
- Nguyen, T.T., Perroni, C., and R.M. Wigle (1993). "An Evaluation of the Draft Final Act of the Uruguay Round." *The Economic Journal* 103(421): 1540-1558.
- Trela, I. and J. Whalley (1990). "Global Effects of Developed Country Trade Restrictions on Textiles and Apparel," *The Economic Journal* 100(403): 1190-1205.
- Tyers, R. and K. Anderson (1992). "Distortions in World Food Markets: A Quantitative Assessment." background paper for the World Bank's *World Development Report*, Washington DC.
- UNCTAD (1995), "Identification of New Trading Opportunities Arising from the Implementation of the Uruguay Round Agreements in Selected Sectors and Markets," TD/B/WG.8/2, 19 June 1995.
- Venables, A. and Smith, A. (1986), "Trade and Industrial Policy Under Imperfect Competition," *Economic Policy* vol 1, 622-672.
- Winters, L.A. (1994). "Import Surveillance as a Strategic Trade Policy." in P. Krugman and A. Smith, eds., *Empirical Studies of Strategic Trade Policy*, University of Chicago press: Chicago.
- WTO (1994), "The Results of the Uruguay Round of Multilateral Trade Negotiations: The

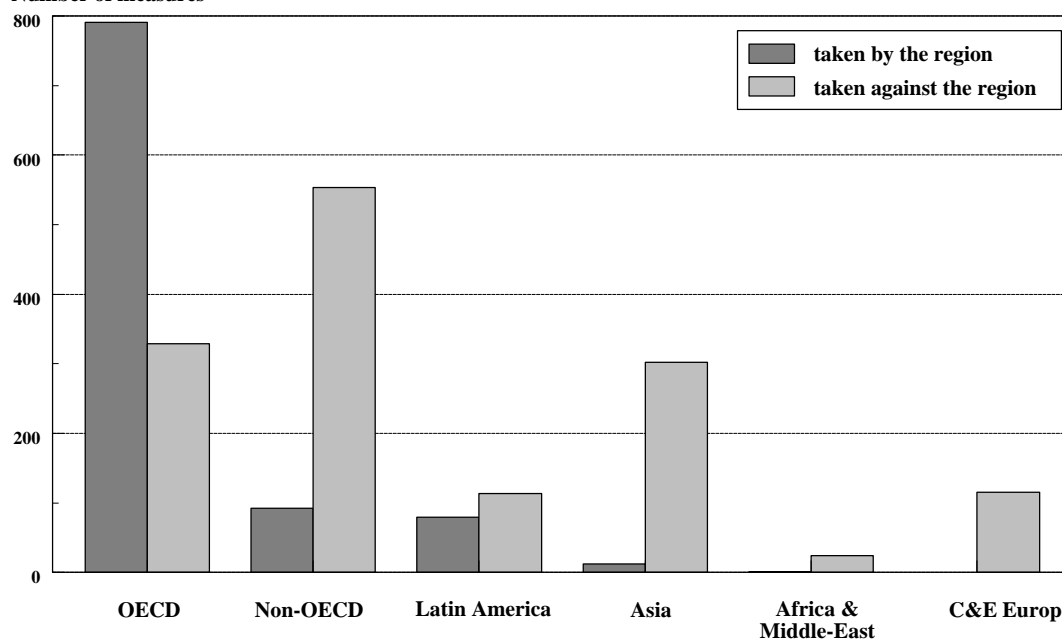
Legal Text."

WTO (1995), "Overview of Developments in International Trade and the Trading System: Annual Report by the Director-General," WT/TPR/OV/1.

Yang, Y. (1994). "Trade Liberalization and Externalities: A General Equilibrium Assessment of the Uruguay Round," Australian National University, mimeo.

## Final measures in force by and against regions, June 1995

Number of measures



Source: Trade Policy Review Division, based on information contained in WTO members' semi-annual notifications to the WTO.

**Figure 1**  
**Antidumping remedies**

**Table 2**  
Implementation of anti-dumping and countervailing duty regimes

---

<i>OECD</i>	10
<i>non-OECD</i>	
Latin America	21
Asia	10
Africa and Middle East	9
Central & Eastern Europe	6

---

Note: notifications are through the beginning of 1996. Only 10 ( 1 OECD, 9 non-OECD) have notified the WTO that they have no legislation and also have not indicated an intention to implement such legislation.

**Table 3. Notifications of VERs, OMAs and Similar Measures**

	<b>VERs, OMAs and Similar Measures (Article 11.1(b))</b>	<b>Delayed Termination</b>
<b>Canada</b>	None	N.A.
<b>Colombia</b>	None	N.A.
<b>Costa Rica</b>	None	N.A.
<b>Cyprus</b>	None	N.A.
<b>EC (and member states).</b>	Import restrictions in Spain on live bovine animals, swine and meat thereof, Rabbit meat, potatoes and coal. Import restrictions in Austria on Lignite. Global quotas in the Community on preserved sardines and tuna.	VERs with Japan on Autos
<b>Indonesia</b>	None	N.A.
<b>India</b>	None	N.A.
<b>Korea</b>	VERs on microwave ovens (EC), colour picture tubes (EC), stainless steel flatware (UK), oysters in airtight containers (all), and chestnuts (Japan).	N.A.
<b>Mauritius</b>	None	No
<b>Malaysia</b>	None	N.A.
<b>Pakistan</b>	None	N.A.
<b>Peru</b>	None	N.A.
<b>Singapore</b>	None	N.A.
<b>Slovenia</b>	Export taxes on certain wood and metal products	N.A.
<b>South Africa</b>	Import licensing on petroleum and petroleum products like tires	N.A.
<b>Switzerland</b>	None	N.A.
<b>Thailand</b>	VERs with EC on Manioc (cassava)	N.A.
<b>USA</b>	None	N.A.
<b>Venezuela</b>	None	N.A.

Note: Table only covers WTO Member Countries that actually have notified in accordance with the Agreement on Safeguards.

**Table 1. Overview of computable general equilibrium (CGE) assessments of the Uruguay Round**

Study	Base/ Evaluation	Policy Experiments (Coverage)	Model Structure	Results	
				Income	Trade
<p><b>Brown, Deardorff, Fox, and Stern (1995)</b></p> <p>(The Michigan Model)</p>	<p>1990/1990</p>	<p><b>Four liberalization scenarios based on combinations of the below ingredients:</b></p> <p><b>Industrial Tariffs:</b></p> <ul style="list-style-type: none"> <li>• Cut according to schedules.</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• Tariffs incl. NTB-equivalents cut according to the difference between estimated base rate and final offer rate.</li> </ul> <p><b>Services:</b></p> <ul style="list-style-type: none"> <li>• NTB tariff-equivalents cut by 25%. (The tariff-equivalents are estimated from coverage ratios, see Hoekman 1995).</li> </ul> <p>Note: Industrial NTBs, such as the MFA, are not covered. The service liberalization scenario represents hypothetical post-Uruguay Round liberalizations.</p>	<p><b>The model:</b></p> <ul style="list-style-type: none"> <li>• Agriculture: Constant Returns to Scale, Perfect Competition, Products differentiated by country of origin (Armington).</li> <li>• Manufactures and Services: Increasing Returns to Scale, Monopolistic Competition. Services are treated as tradables.</li> <li>• The variety effect on utility and scale economies is dampened by 50% compared to the original Dixit-Stiglitz spec.</li> <li>• Labour mobile between sectors, while capital is specified as sector-specific.</li> </ul> <p><b>Aggregation:</b></p> <ul style="list-style-type: none"> <li>• 29 Sectors (1 Ag., 1 proc. food, 1 Prim. 20 Manuf., 6 Services), 9 Regions.</li> </ul> <p><b>Dynamics:</b></p> <ul style="list-style-type: none"> <li>• Static model</li> </ul>	<p><b>Disaggregated income effects of Industrial, Service, and full liberalization: (% of GDP).</b></p> <p>USA • (0.3%, 0.7%, 0.9%)</p> <p>Canada • (0.4%, 1.6%, 2.0%)</p> <p>Europe • (0.3%, 0.6%, 0.9%)</p> <p>Japan • (0.6%, 0.8%, 1.4%)</p> <p>Australia &amp; New Zealand • (1.2%, 2.8%, 3.6%)</p> <p>Asian NICs • (2.4%, 1.1%, 3.6%)</p> <p>Mexico • (0.1%, 2.7%, 2.8%)</p> <p>Other Major Trading Nat. • (0.0%, 1.0%, 1.0%)</p>	<p><b>Export effects of industrial tariff cuts.</b></p> <p>USA • 2.9%</p> <p>Europe • 3.2%</p> <p>Japan • 3.3%</p>
<p><b>Francois, McDonald, and Nordström (1995)</b></p> <p>(WTO/GATT)</p>	<p>1992/1992 (1992 dollars)</p> <p>(The model is a steady-state model benchmarked to 1992).</p>	<p><b>Textiles and clothing:</b></p> <ul style="list-style-type: none"> <li>• MFA quotas are lifted</li> <li>• Tariffs cut according to schedules</li> </ul> <p><b>Other Industrial Goods:</b></p> <ul style="list-style-type: none"> <li>• Tariffs cut according to schedules</li> <li>• NTBs (except dumping) are phased out.</li> </ul> <p><b>Non-agricultural primary goods:</b></p> <ul style="list-style-type: none"> <li>• Tariffs cut according to schedules</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• Export subsidies cut 36 (24%) (Developing countries within parenthesis)</li> <li>• Import liberalization is limited to minimum market access commitments</li> </ul> <p>note: quotas are modelled as quantity constraints (not as taxes) for MFA and agriculture. Minimum access in agriculture involves expansion of tariff-quotas.</p>	<p><b>Model 1:</b></p> <ul style="list-style-type: none"> <li>• Constant Returns to Scale (CRTS), Perfect Competition (PC), Products differentiated by origin (Armington).</li> </ul> <p><b>Model 2:</b></p> <ul style="list-style-type: none"> <li>• Increasing Returns to Scale (IRTS), Ethier/Krugman type monopolistic competition.</li> </ul> <p><b>Aggregation:</b></p> <ul style="list-style-type: none"> <li>• 19 Sectors (3 Ag., 3 Primary, 12 Manufactures, Services), 13 Regions. (Based on augmented GTAP 1992 SAM).</li> </ul> <p><b>Dynamics:</b></p> <ul style="list-style-type: none"> <li>• (Accumulation Effects)</li> <li>• Fixed savings rate (F).</li> <li>• Endogenous savings rate (E). (The return to capital must be equal to the rate of time preferences in equilib.).</li> </ul>	<p><b>World:</b> 0.17%, (0.29%) F (0.45%) E</p> <p><b>World:</b> 0.44%, (0.85%) F (0.94%) E</p> <p>(Medium-run dynamic specification within parenthesis).</p> <p><b>Disaggregated income effects, model 2:</b></p> <ul style="list-style-type: none"> <li>• Canada (0.67%) E</li> <li>• USA (0.62%) E</li> <li>• EFTA (0.18%) E</li> <li>• EU (0.48%) E</li> <li>• A&amp;NZ (0.43%) E</li> <li>• Japan (0.40%) E</li> <li>• China (3.97%) E</li> <li>• Latin America (1.68%) E</li> <li>• East Asia (3.15%) E</li> <li>• South Asia (3.07%) E</li> <li>• Africa (1.41%) E</li> <li>• Transition Ec. (0.42%) E</li> </ul> <p><b>Disaggregated real wage effects, model 2:</b></p> <ul style="list-style-type: none"> <li>• Canada 0.67-1.12 F-E</li> <li>• USA 0.45-0.62 F-E</li> <li>• EFTA 0.31-0.44 F-E</li> <li>• EU 0.45-0.53 F-E</li> <li>• A&amp;NZ 0.42-0.89 F-E</li> <li>• Japan 0.23-0.39 F-E</li> <li>• China 4.01-1.68 F-E</li> <li>• Latin America 0.96-1.86 F-E</li> <li>• East Asia 3.27-1.61 F-E</li> <li>• South Asia 4.65-2.02 F-E</li> <li>• Africa 1.29-1.09 F-E</li> <li>• Transition Ec. 0.34-0.43 F-E</li> </ul>	<p><b>World:</b> 5.7-6.3%</p> <p>• 13.6% - 14.5%</p>

Table 1. (--continued--)

Study	Base/ Evaluation	Policy Experiments (Coverage)	Model Structure	Results			
				Income	Trade		
<p><b>Harrison, Rutherford, and Tarr (1995)</b></p> <p>(World Bank)</p>	<p>1992/1992 (1992 dollars)</p>	<p><b>Industrial Tariffs:</b></p> <ul style="list-style-type: none"> <li>• Cut according to schedules</li> </ul> <p><b>Industrial QRs:</b></p> <ul style="list-style-type: none"> <li>• VERs (unspecified) are eliminated.</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• Tariffs incl. NTB-equivalents cut according to schedules. (See Ingco (1994) for details on estimation of ad valorem equivalents of specific tariffs).</li> <li>• Export subsidies cut 36 (24)%</li> <li>• Domestic support cut 20 (13)% (Developing countries within parenthesis)</li> </ul> <p><b>Textiles and clothing:</b></p> <ul style="list-style-type: none"> <li>• MFA quotas are lifted</li> </ul> <p>note: reductions in textile and clothing tariffs are included in "Industrial Tariff" liberalization for decomposition purposes.</p> <p>note: quotas are modelled as taxes, constraints (not as taxes).</p>	<p><b>The base model:</b></p> <ul style="list-style-type: none"> <li>• Constant Returns to Scale (CRTS), Perfect Competition (PC), Products differentiated by origin (Armington).</li> </ul> <p><b>Model 2:</b></p> <ul style="list-style-type: none"> <li>• Hybrid Armington - Monopolistic Competition (AMC) model. Intra-regional monopolistic competition. Inter-regional competition between sectoral Armington-composites. (exhibits properties of a model with regional external scale effects for production of Armington composites)</li> </ul> <p><b>Aggregation:</b></p> <ul style="list-style-type: none"> <li>• 22 Sectors (5 Ag., 3 proc. food, 3 Prim. 9 Manuf., 2 Services), 24 Regions. (Based on GTAP 1992 SAM).</li> </ul> <p><b>Dynamics:</b></p> <p>(<b>Accumulation Effects</b>)</p> <ul style="list-style-type: none"> <li>• Endogenous savings rate. (The return to capital must be equal to the rate of time preferences in equilib.).</li> </ul>	<p><b>World:24 Reg Base Model</b></p> <ul style="list-style-type: none"> <li>• 0.405% (0.712%)</li> </ul> <p><b>World:12 Reg Base Model</b></p> <ul style="list-style-type: none"> <li>• 0.407%, (0.699%)</li> </ul> <p><b>World:24 Reg Hybrid Model</b></p> <ul style="list-style-type: none"> <li>• 0.418%, (N/A)</li> </ul> <p>(Steady-state dynamic specification within parenthesis).</p> <p><b>Disaggregated income effects, "long-run" model:</b> (from Table 13)</p> <ul style="list-style-type: none"> <li>• <b>OECD (0.631%)</b></li> <li>• USA (0.449%)</li> <li>• EU (0.743%)</li> <li>• EFTA (0.733%)</li> <li>• Japan (0.638%)</li> <li>• <b>LDC (1.199%)</b></li> <li>• China (0.451%)</li> <li>• Latin America (1.720%)</li> <li>• MEast/Nafrica (0.260%)</li> <li>• SS Africa (-0.399%)</li> <li>• South Asia (2.032%)</li> <li>• Transition (0.138%)</li> <li>• East Asia (3.130%)</li> </ul>	<p>N.A.</p>		
<p><b>Hertel, Martin, Yanagishima, and Dimaranan (1995)</b></p> <p>(GTAP Model)</p>	<p>1992/2005* (1992 dollars)</p> <p>*(The model is calibrated to 1992. However, the base for the UR-assessment is a projected world economy in 2005).</p>	<p><b>Industrial Tariffs:</b></p> <ul style="list-style-type: none"> <li>• Cut according to schedules</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• According to the Agreement on Agriculture.</li> </ul> <p><b>Textiles and clothing:</b></p> <ul style="list-style-type: none"> <li>• MFA quotas are lifted.</li> </ul> <p>note: reductions in textile and clothing tariffs are included in "Industrial Tariff" liberalization for decomposition purposes.</p> <p>note: quotas are modelled as quantity constraints.</p>	<p><b>The model:</b></p> <ul style="list-style-type: none"> <li>• Constant Returns to Scale (CRTS), Perfect Competition (PC), Products differentiated by origin (Armington).</li> </ul> <p><b>Aggregation:</b></p> <ul style="list-style-type: none"> <li>• 10 Sectors (1 Ag., 1 proc. food, 1 Prim. 5 Manuf., 2 Services), 15 Regions. (Based on GTAP 1992 SAM).</li> </ul> <p><b>Dynamics:</b></p> <ul style="list-style-type: none"> <li>• Using exogenous projections of each regions growth of physical capital, human capital, state of technology, population, labour force and arable land, the world economy is projected with and without the Uruguay Round policy changes from 1992 to 2005.</li> </ul>	<p><b>World (% of GDP)</b></p> <ul style="list-style-type: none"> <li>• 0.89%</li> </ul> <p><b>Disaggregated income effects, base model:</b></p> <ul style="list-style-type: none"> <li>• US&amp;Canada 0.40%</li> <li>• EU 0.72%</li> <li>• Japan 1.04%</li> <li>• NICs 3.82%</li> <li>• China 1.46%</li> <li>• Indonesia 2.94%</li> <li>• Malaysia 21.38%</li> <li>• Phillipines 6.63%</li> <li>• Thailand 4.54%</li> <li>• Latin America -0.08%</li> <li>• Sub-Sah. Afr. -0.51%</li> <li>• South Asia 1.93%</li> <li>• ROW 0.03%</li> </ul> <p>note: global results were reported incorrectly as 0.42 percent in the original paper.</p>	<p><b>Change in exports (based on bilateral effects.)</b></p> <ul style="list-style-type: none"> <li>• 48.01%</li> <li>• 41.91%</li> <li>• 22.33%</li> <li>• 118.63%</li> <li>• 217.35%</li> <li>• (ASEAN)</li> <li>• 142.72%</li> <li>• 63.31%</li> <li>• 60.52%</li> <li>• 94.00%</li> <li>• 34.83%</li> <li>• <b>World</b> 58.88%</li> </ul>		



Table 1. (--continued--)

Study	Base/ Evaluation	Policy Experiments (Coverage)	Model Structure	Results		
				Income	Trade	
<p><b>Halland and Tollefsen</b> (1994)</p> <p>(Haaland and Norman Model)</p>	<p>1985/1992* (1985 ECU)</p> <p>*The model is calibrated to 1985. However, the base for the UR-assessment is a simulated "after-1992" equilibrium in which EU and EFTA have formed the EEA.</p>	<p><b>Industrial Tariffs:</b></p> <ul style="list-style-type: none"> <li>• 33% across-the-board tariff cut.</li> </ul> <p><b>Industrial NTBs:</b></p> <ul style="list-style-type: none"> <li>• 33% across-the-board cut of NTBs (tariff equivalents) on non-agricultural goods.</li> </ul> <p><b>Services:</b></p> <ul style="list-style-type: none"> <li>• 33% cut in NTBs (tariff equivalents) of financial and transportation services.</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Does not cover agricultural reforms and MFA. (Trade between the OECD and developing countries is held constant).</li> </ul>	<p><b>Model:</b></p> <ul style="list-style-type: none"> <li>• Cournot competition in market for final demand.</li> <li>• Monopolistic competition in market for intermediate demand.</li> <li>• Economies of scale.</li> </ul> <p><b>Aggregation:</b></p> <ul style="list-style-type: none"> <li>• 15 Sectors (12 Manf., 2 Serv., 1 NT),</li> <li>• 4 Regions (EU, EFTA, USA, Japan).</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• Developing countries are not covered by the study.</li> </ul> <p><b>Dynamics:</b></p> <ul style="list-style-type: none"> <li>• Fixed interest rate. Savings and investment are determined by the condition that returns on capital must equal the fixed interest rate in equilibrium.</li> </ul>	<p><b>World (GDP-weighted)</b></p> <ul style="list-style-type: none"> <li>• 0.17%, (0.21%)</li> <li>• EU 0.11%, (0.16%)</li> <li>• EFTA 0.14%, (0.19%)</li> <li>• USA 0.05%, (0.11%)</li> <li>• Japan 0.62%, (0.63%)</li> </ul> <p>(Medium-run dynamic specification within parenthesis).</p>	<p><b>Total</b></p> <ul style="list-style-type: none"> <li>• 33.3%</li> <li>• 18.5%</li> <li>• 3.4%</li> <li>• 39.9%</li> <li>• 39.7%</li> </ul>	<p>•</p> <p>•</p>
<p><b>Yang (1994)</b> (GTAP Model)</p>	<p>1992/1992 (1992 dollars)</p>	<p><b>Industrial Tariffs:</b></p> <ul style="list-style-type: none"> <li>• Cut according to GATT(1993).</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• Tariffs incl. NTB-equivalents cut 36 (24)%</li> <li>• Export subsidies cut 36 (24)%</li> <li>• Domestic support cut 20 (13.3)% (Developing countries within parenthesis)</li> </ul> <p><b>Textiles and clothing:</b></p> <ul style="list-style-type: none"> <li>• MFA quotas are lifted</li> </ul>	<p><b>Model 1:</b></p> <ul style="list-style-type: none"> <li>• CRTS, PC, Armington</li> </ul> <p><b>Model 2:</b></p> <ul style="list-style-type: none"> <li>• Regional "External" scale economies depending on aggregate export of the sector, PC, Armington.</li> </ul> <p><b>Aggregation:</b></p> <ul style="list-style-type: none"> <li>• 10 Sectors (1 Ag., 8 Manf., 1 Serv.),</li> <li>• 10 Regions.</li> <li>(Based on GTAP 1992 SAM).</li> </ul> <p><b>Dynamics:</b></p> <ul style="list-style-type: none"> <li>• Static model</li> </ul>	<p><b>World: \$69 bn</b></p> <ul style="list-style-type: none"> <li>• (Approximately 0.30% of world GDP 1992).</li> </ul> <p><b>World: \$146 bn</b></p> <ul style="list-style-type: none"> <li>• (Approximately 0.63% of world GDP 1992).</li> </ul>	<p>N.A.</p>	<p>•</p> <p>•</p> <p>•</p> <p>•</p> <p>•</p>
<p><b>Francois, McDonald, and Nordström</b> (1993)</p> <p>(GATT)</p>	<p>1990/2005 (1992 dollars)</p>	<p><b>Industrial Tariffs:</b></p> <ul style="list-style-type: none"> <li>• Cut according to offers as of 19/11/93.</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• Tariffs incl. NTB-equivalents cut 36 (24)%</li> <li>• Export subsidies cut 36 (24)%</li> <li>• Domestic support cut 20 (13.3)% (Developing countries within parenthesis)</li> </ul> <p><b>Textiles and clothing:</b></p> <ul style="list-style-type: none"> <li>• MFA quotas are lifted</li> </ul>	<p><b>Model:</b></p> <ul style="list-style-type: none"> <li>• CRTS, PC, Armington</li> </ul> <p><b>Aggregation:</b></p> <ul style="list-style-type: none"> <li>• 10 Sectors (1 Ag., 1 Prim., 7 Manufact., 1 Services), 7 Regions.</li> <li>(Based on GTAP 1990 SAM).</li> </ul> <p><b>Exogenous Dynamics:</b></p> <ul style="list-style-type: none"> <li>• Medium-run dynamics calculated based on aggregate "a" of 1/3. Applying Baldwin (1992) formula, medium-run dynamics add 50% to static income gain.</li> </ul>	<p><b>World:</b></p> <ul style="list-style-type: none"> <li>• 0.45%, (0.67%)</li> </ul> <p>(Medium-run dynamic specification within parenthesis).</p>	<p><b>World:</b></p> <ul style="list-style-type: none"> <li>• 12.4%</li> </ul>	<p>•</p>

:::

**Table 1. (--continued--)**

Study	Base/ Evaluation	Policy Experiments (Coverage)	Model Structure	Results		
				Income	Trade	
<p><b>Goldin, Knudsen, and van der Mensbrugge (1993)</b></p> <p>(RUNS Model)</p>	<p>1985/2002* (1992 dollars)</p> <p>*(The 1985-1990 period is used to validate the model to observable data. Projections are made for the period 1990-2002).</p>	<p><b>Industrial Tariffs:</b></p> <ul style="list-style-type: none"> <li>• 30% across-the-board tariff cut.</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• Tariffs incl. NTB-equivalents cut 30%</li> <li>• Export subsidies cut 30%</li> <li>• Input subsidies cut 30%</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• No distinction in cuts between developed and developing countries, nor between signatories and non-signatories to GATT.</li> </ul>	<p>• <b>Base version of the Rural/Urban-North/South (RUNS) model:</b></p> <ul style="list-style-type: none"> <li>• Two types of households: Urban manufacturing and Rural farming.</li> <li>• CRTS, PC.</li> <li>• Manufactured products differentiated by origin (Armington).</li> <li>• Agricultural products are treated as perfect substitutes.</li> <li>• <b>Aggregation:</b></li> <li>• 20 Sectors (15 Ag, Fertilizers, Energy, Equipment, Services, Other Manufact.)</li> <li>• 22 Regions.</li> <li>• <b>Dynamics:</b></li> <li>• Recursive dynamic structure (with separate static and dynamic relations) using exogenous regional forecasts of population and labour force growth, productivity trends in various sectors, energy prices, and foreign transfers.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>World</b> 0.7%</li> <li>• Africa (net-food imp.) -0.3%</li> <li>• Low Income Asia, China plus India 1.7%</li> <li>• Latin America 0.3%</li> <li>• Other Developing 0.8%</li> <li>• OECD 0.8%</li> <li>• Other 0.1%</li> </ul>	<p>N.A.</p>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> </ul>
<p><b>Nguyen, Perroni, and Wigle (1993)</b></p>	<p>1986/1990 (1986 dollars)</p>	<p><b>Industrial Tariffs:</b></p> <ul style="list-style-type: none"> <li>• 30-50% cut depending on product category and region.</li> </ul> <p><b>Industrial NTBs:</b></p> <ul style="list-style-type: none"> <li>• 40% cut of tariff equivalent of NTBs.</li> </ul> <p><b>Textiles &amp; Clothing:</b></p> <ul style="list-style-type: none"> <li>• MFA phased out.</li> </ul> <p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• Boarder measures cut 40 (20)% (developing countries within parenthesis).</li> <li>• Domestic support cut 20% (No cuts in centrally planned economies).</li> </ul> <p><b>Services:</b></p> <ul style="list-style-type: none"> <li>• 40% cut of tariff equivalent of NTBs.</li> </ul>	<p><b>Model structure</b></p> <ul style="list-style-type: none"> <li>• CRTS, PC, Armington.</li> </ul> <p><b>Aggregation:</b></p> <ul style="list-style-type: none"> <li>• 9 Sectors (1 Ag., 2 Prim., 5 Manf., 1 Services).</li> <li>• 10 Regions. (EU, EFTA, USA, Japan, Australia and New Zealand, Canada, middle income ag. exporters (AGX), middle income ag. importers (AGM), centrally planned economies (CNP), and ROW).</li> </ul> <p><b>Note:</b></p> <p>Policy-data for Post-Tokyo Round.</p> <p><b>Dynamics:</b></p> <ul style="list-style-type: none"> <li>• Static model</li> </ul>	<ul style="list-style-type: none"> <li>• <b>World</b> 1.1%</li> <li>• EU 1.8%</li> <li>• EFTA 2.1%</li> <li>• USA 0.8%</li> <li>• Japan 2.0%</li> <li>• Aus&amp;NZ 1.1%</li> <li>• Canada 0.9%</li> <li>• AGX 0.9%</li> <li>• AGM 1.9%</li> <li>• CNP 0.9%</li> <li>• ROW 0.6%</li> </ul>	<p>• 20.2%</p>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>
<p><b>Brandao and Martin (1993)</b></p> <p>(RUNS Model)</p>	<p>1985/2002 (1992 dollars)</p>	<p><b>Agriculture:</b></p> <ul style="list-style-type: none"> <li>• Tariffs incl. NTB-equivalents cut 36 (24)%</li> <li>• Export subsidies cut 36 (24)%</li> <li>• Domestic support cut 20 (13.3)% (Developing countries within parenthesis)</li> </ul>	<p><b>The RUNS model:</b></p> <p>(See above under Goldin et al, 1993)</p>	<ul style="list-style-type: none"> <li>• <b>World</b> \$88.8 bn</li> <li>• <b>OECD</b> \$63.3 bn</li> <li>• <b>Non-OECD</b> \$19.8 bn (by 2002)</li> <li>• EU 0.6%</li> <li>• EFTA 1.2%</li> <li>• USA 0.2%</li> <li>• Japan 0.6%</li> <li>• Low Inc Asia 0.2%</li> <li>• Upp. Inc Asia 1.1%</li> <li>• China 0.1%</li> <li>• India 0.4%</li> <li>• Latin America 0.7%</li> <li>• Africa -0.1%</li> <li>• Maghreb -0.1%</li> <li>• Mediterranean -0.3%</li> <li>• East Europe 0.4%</li> </ul>	<p>N.A.</p>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>

**Abbreviations:** PC = Perfect Competition, CRTS = Constant Returns To Scale, Armington = Product differentiation based on origin, IRTS = Increasing Returns to Scale, MC = monopolistic competition