Liberalizing Quotas on Textiles and Clothing:

Has the ATC Actually Worked?

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Abstract: We explore the evolution of market access conditions in the textile and clothing sectors (T&C). Working with bilateral trade data on textile and clothing trade, underlying tariffs, and the coverage of quotas under the WTO's Agreement on Textiles and Clothing (ATC) we first develop a non-linear least squares estimation framework for calculating the tax equivalent of ATC quota restrictions on bilateral trade. We also compare these non-tariff barrier estimates to earlier estimates for the years since the inception of the ATC, to gauge the extent to which the ATC has actually led to quota liberalization.

Keywords: Market Access, Textiles and Clothing, WTO accession, quotas, ATC, non-tariff barriers

1. Introduction

The Ministerial Declaration at Punta Del Este that launched the Uruguay Round stated that the "Negotiations in the area of textiles and clothing shall aim to formulate modalities that would permit the eventual integration of this sector into GATT on the basis of strengthened GATT rules and disciplines." In plain language, this means that quotas on textiles and clothing were to be eliminated. The negotiations launched at Punta Del Este led to the Agreement on Textiles and Clothing (ATC), an attempt to end almost 40 years of discriminatory protection in violation of the basic precepts of the GATT system.

The textile and clothing (T&C) sectors had previously been treated as a special case within the world trading system, with their own regulatory framework. This was first institutionalized in the beginning of the 1960s with the Short Term Arrangements (STA) regarding international trade in cotton textiles. The STA aimed at an orderly opening of restricted markets to avoid (for importing countries) detrimental market disruptions. The definition of "market disruption" adopted by the Contracting Parties in 1960 entailed the possibility of singling out imports of particular products from particular countries as the disrupting source. This opened the door for the series of bilaterally negotiated quota restrictions that became the rule in the following the Long Term Arrangement (LTA) in 1962. Details on the subsequent evolution of the system are provided in Table 1.

[Table 1 about here]

By the start of the 1970s, it had become apparent that the multiplicity of makeshift arrangements protecting the T&C industries would have to be replaced. Ultimately the Multifibre Arrangement (MFA) was agreed upon and put into effect as of 1/1/1974. Its product coverage was extended to non-cotton textiles and clothing. The final MFA (i.e. # IV) was extended several times until the Agreement on Textiles and Clothing as an integrated part of the Uruguay Round agreement came into force.

Like the preceding arrangements, the MFA provided rules for the imposition of quotas, either through bilateral agreements or unilateral actions, when surges of imports cause market disruption, or the threat thereof, in importing countries. In the years leading up to the Uruguay Round Agreements, six developed participants actively applied quotas under the MFA — the EU, the U.S., Canada, Norway, Finland and Austria. These were applied almost exclusively on imports from developing countries. Sweden liberalized its textile and clothing regime in 1991 and withdrew from the MFA agreement. However, it effectively

rejoined this regime when it joined the European Union. Two other developed country participants, Japan and Switzerland, did not impose MFA quotas, but instead restricted themselves to "signalling" a readiness to apply quotas by the act of being signatories to the MFA agreement, combined with (active) import surveillance. As shown by Winters (1994), import surveillance can, at least in concentrated industries, induce a fall in import levels as producers are trying to forestall explicit quotas. The restrictiveness of the applied MFA quotas, since replaced by the ATC regime, varies from product to product, and from supplier to supplier, and aggregate measures are highly uncertain.

The Uruguay Round Agreement on Textiles and Clothing (ATC) has required a gradual phase out of the quota restrictions carried over from the MFA regime, as detailed in Table 2. The integration of the products covered by the agreement was to be achieved in three stages under a ten-year transition period. The first stage called for the integration of products comprising not less than 16 percent of the total volume of each member's 1990 imports of the products listed in the annex to the Agreement. The second stage, beginning in year 4, required the integration of a further 17 percent. The third stage, beginning in year 8, required that another 18 percent of imports be brought under normal GATT rules.

[Table 2 about here.]

Unfortunately, each importing country was free to choose the products it would integrate at each stage, the only constraint being that they had to encompass products from each of the four groupings: tops and yarn, fabrics, made-up textile products, and clothing. Products that remained restricted during the transition period were to benefit from a progressively increasing quota. The previously applied MFA quota annual growth rates were to be scaled up by a factor of 16 percent in the first stage — for instance, from 3% to (3×1.16 =) 3.48% — an additional 25 percent in the second stage, and yet another 27 percent in the third stage. This turned a 3% initial annual growth rate to 5.52% in the third stage.

In theory, at the end of the ten-year transition period, all remaining quantitative restrictions on textiles and clothing (carried over from the MFA regime) are to be terminated. The process was meant to be smooth, with a gradual phase-out of restrictions. *In reality*, there has been worry in policy communities that much of the quota liberalization has been backloaded until the very end of the 10-year phase-in period. This is due partly to disingenuous graduation (i.e. the graduation of products not actually restricted) in the first phases of the ATC.

2.   Quota Rents and Effective Preference Erosion

In addition to backloading, an additional area of concern related to the implementation of the ATC and associated Uruguay Round MFN-tariff reductions has been the scope for preference erosion, especially for the least developed African countries. Virtually all African countries have entered into contractual preference arrangements with the European Union, and obtain preferential treatment for certain exports in the United States and Japan, as well as in other developed country markets under GSP schemes.[1] There has consequently been a concern that implementation of the market access results of the Uruguay Round would diminish rather than augment their trade and economic prospects (Blackhurst et al 1996).

The actual scope for general preference erosion for African Lomé (now Cotonou) countries is very limited. Over half of the EU's imports from African countries are petroleum and other fuels, already bound duty-free, and agricultural and industrial products divide the rest. Access for industrial products is the main area where the EU's MFN-tariff reductions will have any impact. Even here, almost three-quarters of African exports to the European Union already enter at rates of less than 3 per cent, and this percentage will rise to 80 per cent. For these products, the margin of preference afforded under Lomé is likely to be consumed in large part by associated administrative costs.[2]

Though not through tariffs, there is scope for relative preference erosion of another sort under the ATC. This is because at the start of the ATC phase-out, some countries and regions faced much greater restrictions than others. The lower-income suppliers in India and elsewhere in South Asia, in particular, faced negative preferences, in the sense that they faced greater effective restrictions than suppliers from East Asia and elsewhere. The distributional effect of the MFA restrictions was thus to discriminate between developing countries, and against suppliers like India and Pakistan. Even where some least developed countries were favoured by preferential access, this was been largely at the expense of other least developed countries.

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[1]   The ACP-EC Fourth Lomé Convention covers Sub-Saharan African countries with the exception of South Africa and "free trade" agreements cover North African countries. These arrangements are detailed in GATT (1993a, pp. 44-46). In 1993, about two-thirds of Africa's exports were shipped to the European Union. The Lomé Convention has since been renegotiated/replaced.

[2]   The Uruguay Round negotiating group on market access considered that tariffs at or below 3 per cent were "nuisance" tariffs. Herin (1986) found that the costs associated with meeting the origin requirements for EFTA exporters to the European Union led to payment of MFN duties on one-quarter of EFTA's exports to the EU. Manchin (2004) reports similar results, at a 4% threshold, for EU trade preferences under Cotonou.

The European Union has addressed the problem of relative preference erosion following ATC quota elimination, to some extent, with the "Everything But Arms" initiative.[3] With the exclusion of agricultural trade, the poorest developing countries now receive duty-free access to the European market, though the value of these preferences is questionable. (See Manchin 2004). Most other developing countries also receive some preferences, with the result that several Latin American countries (Mexico, Caribbean producers) also receive or are soon to receive steep preferences. This pattern is illustrated in Tables 3 and 4. These tables offer a "best guess," based on data derived from WTO MFN schedules, European Union data, and U.S. tariff data, of the pattern of tariffs on textiles and clothing trade that will prevail in the brave new world of post-ATC T&C trade. We have also assumed in the Table that the Free Trade Area of the Americas (FTAA) is implemented.

[Table 3 and 4 about here.]

The pattern that emerges is as follows. The elimination of ATC quotas, and the accession of China to the WTO, means that textile and clothing trade is likely to shift dramatically toward both China, and also the Indian sub-continent. The MFA and ATC have, in effect, been serving as a negative preference system, helping other developing country suppliers at the expense of these two potentially dominant suppliers. The system of preferences in place on tariffs will, to some extent, compensate for the loss of implicit margins provided by the ATC quotas. However, we can also expect that, with further reductions in T&C tariffs under Doha negotiations, the shift of T&C trade will be accelerated. The next section examines the magnitude of T&C quota wedges, and their evolution since the end of the Uruguay Round.

3.   A Quantitative Assessment of ATC Quota Margins

We next turn to an estimation of the price effects of the ATC quotas. Our data are for the value of bilateral trade in textiles and in clothing between the high-income OECD countries

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[3] Because of agricultural product exclusions, the joke has been that this is better called Everything but Farms.

as importers and 86 countries and regions as exporters.[4] We also have data on trade-weighted tariffs (adjusted for trade preferences as well as we can) for this set of importer-exporter pairings. Trade data are drawn from GTAP6, while protection data come from a mix of WTO, UNCTAD, and CEPII data on tariffs, augmented to reflect U.S. preference schemes in the Western hemisphere.

Our approach is to first assume CES import demand. From the first order conditions, this implies the following as a functional determinant of imports of good x from country i and into country j.

$$x_{ij} = \left[\frac{a_{ij}}{P_{ij}}\right]^{s} P_j^{\,s-1} E_j \tag{1}$$

In equation (1), P_{ij} is the price of x_{ij} while P_j is the CES price index, E_j is country j expenditure on all imports of x and s is the elasticity of substitution. From equation (1), relative import demands can then be written as a function of relative prices and CES expenditure weights a. This is shown in equation (2).

$$\frac{x_{ij}}{x_{kj}} = \left[\frac{a_{ij}}{a_{kj}}\right]^{s} \left[\frac{P_{kj}}{P_{ij}}\right]^{s}$$
$$= \left[\frac{a_{ij}}{a_{kj}}\right]^{s} \left[\frac{t_{kj} P_{kj}^{*}}{t_{ij} P_{ij}}\right]^{s} \tag{2}$$

In equation (2), the t term is a composite of any factors driving a wedge between world prices P^* and internal prices P.

To arrive at our estimating equation, we take logs of equation (2), and add terms for tariffs $(1+t)$ and ATC quota price margins Ω in place of the generic trading cost term τ. This yields equation (3).

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[4] The regions are: Australia; New Zealand; Rest of Oceania; China; Hong Kong; Japan; Korea; Taiwan; Rest of East Asia; Indonesia; Malaysia; Philippines; Singapore; Thailand; Vietnam; Rest of Southeast Asia; Bangladesh; India; Sri Lanka; Rest of South Asia; Canada; United States; Mexico; Rest of North America; Colombia; Peru; Venezuela; Rest of Andean Pact; Argentina; Brazil; Chile; Uruguay; Rest of South America; Central America; Rest of Latin America; Rest of the Caribbean; Austria; Belgium; Denmark; Finland; France; Germany; United Kingdom; Greece; Ireland; Italy; Luxembourg; Netherlands; Portugal; Spain; Sweden; Switzerland; Rest of EFTA (basically Norway); Rest of Europe; Albania; Bulgaria; Croatia; Cyprus; Czech Republic; Hungary; Malta; Poland; Romania; Slovakia; Slovenia; Estonia; Latvia; Lithuania; Russian Federation; Rest of Former Soviet Union; Turkey; Rest of Middle East; Morocco; Rest of North Africa; Botswana; South Africa; Rest of South African Customs Union; Malawi; Mozambique; Tanzania; Zambia; Zimbabwe; Rest of SADC; Madagascar; Uganda; Rest of Sub Saharan Africa

$$\ln(x_{ij}) - (\ln x_{kj}) = \boldsymbol{s}\left[\ln(\boldsymbol{a}_{ij}) - \ln(\boldsymbol{a}_{kj})\right] + \boldsymbol{s}\left[\ln(1 + t_{kj}) - \ln(1 + t_{ij})\right] + \boldsymbol{s}\left[\ln(\Omega_{kj}) - \ln(\Omega_{ij})\right] + \boldsymbol{e}_{ik,j} \quad (3)$$
where $\Omega \geq 1$

We estimate equation (3) using non-linear least squares, on the assumption that relative expenditure weights are comparable across OECD countries, once we control for trading costs. This involves minimizing equation (3), including the imposition of our lower bounds on the Ω terms and our assumption about the $\boldsymbol{a}$ terms, as shown in equation (4).

$$\min \sum_{j, j \neq i, k} \sum_{h} (\boldsymbol{e}_{h,j})^2 \qquad (4)$$
s.t. $\quad \{\ln(x_{ij}) - (\ln x_{kj})\} - \{\boldsymbol{s}\left[\ln(\boldsymbol{a}_i) - \ln(\boldsymbol{a}_k)\right] + \boldsymbol{s}\left[\ln(1 + t_{kj}) - \ln(1 + t_{ij})\right] + \boldsymbol{s}\left[\ln(\Omega_{kj}) - \ln(\Omega_{ij})\right]\} = \boldsymbol{e}_{ik,j}$
$\quad \ln(\Omega_{ij}) \geq 0$

In equation (4), the error terms are indexed over the set of possible exporter pairings *ik*. We have implemented the estimation problem in GAMS.

The regression results and the estimated values of the Ω coefficients are reported in Tables 5 and 6.

[Tables 5 and 6 about here]

ATC coefficients are only reported for countries where quotas are actually in place, and where such quotas are at least 50% filled across some product categories. Hence we do not measure the impact of monitoring or similar regimes. We have estimated these values both with an unrestricted substation elasticity (i.e. where we estimate the substitution elasticity σ in addition to the ATC coefficients and expenditure weights) and also with the additional restriction that the substitution elasticities equal the new set of GTAP elasticities (Hertel, Hummels, Ivanic and Keeney 2003). While we reject this restriction based on an F-test, these values are relevant for those working with the standard GTAP model and parameter set.

The ATC coefficients are converted to ad valorem equivalents in Table 7 and compared to country values for 1997 from Dimaranan and McDougal (2002). A further comparison is made to 1992 estimates on a regional basis, again using the Dimaranan and McDougal value, and also Francois, McDonald, and Nordstrom (1995) in Table 8. The clear pattern is one of general liberalization since the beginning of the ATC process, with a few notable exceptions. Most notable is China. Both the EU and the United States have estimated tax equivalent rates that are the same for clothing as at the start of the 1990s. In

addition, the regime for textiles is even more restrictive for textiles than it was in the early 1990s. This implies that quota growth rates under the ATC have simply failed to keep up with the mix of supply and demand side growth since the liberalization process started. In addition, Vietnam, which was not a major player in world markets in 1992, now faces far greater restrictions from the United States. In part, this reflects changes in the U.S.-Vietnam relationship. In 1992, Vietnam was still subject to Smoot-Hawley (column 2) tariff rates. With the implementation of the U.S.-Vietnam agreement in 2001-2002, and subsequent action by the U.S. to limit textile and clothing trade, new quotas, in all likelihood offering the same rate of overall protection, have essentially replaced the old tariffs. Another notable increase is North American protection against textiles and clothing from Central Europe. Again, in 1992 these countries were emerging from the fog of communism, and were not major players on world markets. Examination of the quota and trade categories involved shows that the North American regimes are protecting domestic producers of wool fabrics, suits, and related items. This protection is quite high. Finally, several countries have been largely graduated toward a liberal trade regime. This includes many of the lower income Asian and African suppliers.

[Tables 7 and 8 about here]

5.   Summary and Conclusions

The paper has examined the evolution of the ATC through 2001. The ATC quotas have been in phase-out mode since 1995. A key message from these calculations is that the problem of China's (PRC) T&C sector integration has been deferred. This means that the potential still exists for a substantial surge in China's exports after 2005. Such a surge in Chinese exports would of course mean lost market share for most other developing countries. Of course, this will only happen if other economies do not attempt to take advantage of specific contingent protection rules included in China's protocol of accession. These permit other WTO members to keep protectionist pressure up against China (PRC) for 15 years. They cover special anti-surge clauses for T&C products (4 years), general anti-surge clauses (12 years) and treatment of China as "a non-market economy" in antidumping cases (15 years). Icing the cake is the fear that anti-dumping measures against China (PRC) will also be on the increase. The pattern of ATC quotas across regions suggest that the next few years will be very interesting indeed.

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Table 1:   A Progression of Acronyms from STA to ATC

Date	Action taken
1955: December	Japan (MITI) unilaterally restrains exports of cotton fabrics and clothing to USA "to promote mutually beneficial relations".
1957: January	Five year agreement reached with Japan on limiting overall textile exports to USA.
1958: November	United Kingdom signs "voluntary" limitation on cotton T&C products with Hong Kong, by threatening otherwise imposition at lower than prevailing volume levels.
1959: September	United Kingdom signs similar restraint agreements with India and Pakistan.
1960: November	GATT Contracting Parties recognize the problem of "market disruption", even if it is just threatened; serves as "excuse" for establishing future NTBs.
1961: July	The Short Term Arrangement (STA) is agreed.
1962: February	The Long Term Arrangement (LTA) is agreed, to commence October 1, 1962, and last for five years.
1963–64	The United States tries and fails to secure an international agreement on wool products.
1965: June	The United States tries and fails to negotiate restraints on Japanese wool products.
1966: June	The United Kingdom implements a global quota scheme in violation of the LTA – the LTA providing only for product-specific restraints.
1967: April	Agreement is reached to extend the LTA for three years.
1969–71	United States negotiates VERs with Asian suppliers on wool and man-made fibers.
1970: October	Agreement is reached to extend the LTA for three years. It was later extended three months more, to fill the gap until the MFA came into effect.
1973: December	The MFA is agreed, to commence January 1, 1974, and to last for four years.
1977: July–December	The European Economic Community and the United States negotiate bilateral agreements with developing countries prior to agreeing to extension of the MFA.
1977: December	The MFA is extended for four years.
1981: December	The MFA is renewed for five years. The USA, under pressure from increased imports resulting from dollar appreciation, negotiates tough quotas.
1986: July	The MFA is extended for 5 years, to conclude with Uruguay Round.
1991: July	The MFA is extended pending outcome of the Uruguay Round negotiations.
1993: December	The Uruguay Round (UR) draft final act provides for a 10-year phase-out of all MFA and other quotas on textiles in ATC. MFA extend until UR comes into force.
1995: January 1	1st ATC tranche liberalized by importing countries – 16% of 1990 import volume.
1998: January 1	2nd ATC tranche liberalized by importing countries – 17% of 1990 import volume.
2002: January 1	3rd ATC tranche liberalized by importing countries – 18% of 1990 import volume.
2005: January 1	4th ATC tranche liberalized by importing countries – 49% of 1990 import volume.

Source: Based on Francois, Glisjman, and Spinanger (2000).

TABLE 2 Integration Scheme for Textiles and Clothing

	Integration	Growth rate of residual quotas
	(Base: 1990 import volume of the products listed in annex)	(Base: Previously agreed MFA growth rates of quotas)
Stage I.	16%	16% higher growth rate than initially
(January 1, 1995)		(Ex: 3% to 3.48%)
Stage II.	Further 17% (total 33%)	Increase by 25%
(January 1, 1998)		(Ex: 3.48% to 4.35%)
Stage III.	Further 18% (total 51%)	Increase by 27%
(January 1, 2002)		(Ex: 4.35% to 5.52%)
End of the 10 year transition period (January 1, 2005)	Remaining 49% (total 100%)	

Table 3

Bi-lateral Tariffs for Textiles Trade: MFN basis and including major regional agreements and preference schemes as of 2001.													
Importing Region ?													
Exporters	Australia	New Zealand	China	Hong Kong	Japan	Korea	Taiwai	ASEAN5	Vietnam	Bangladesh	India	South Asia	Canada
Australia	0.0	0.0	15.6	0.0	0.4	2.6	1.7	5.1	33.3	18.1	23.0	50.0	10.7
New Zealand	0.0	0.0	15.6	0.0	0.8	2.9	0.7	4.6	7.6	15.6	20.1	3.2	2.4
China	24.6	16.6	0.0	0.0	10.0	9.5	7.8	13.9	36.4	36.1	33.8	26.7	18.3
Hong Kong	13.0	5.1	25.6	0.0	12.3	8.3	12.6	19.3	35.1	35.7	36.8	28.9	21.4
Japan	14.5	2.6	27.7	0.0	0.0	8.0	5.9	11.9	36.6	30.6	32.3	37.4	13.9
Korea	17.7	4.3	26.6	0.0	9.1	0.0	6.0	15.4	33.8	33.7	37.2	32.3	14.8
Taiwai	12.9	5.5	26.6	0.0	6.1	7.4	0.0	15.6	31.2	34.4	37.5	44.9	17.0
ASEAN5	10.6	5.3	22.3	0.0	6.4	7.5	4.2	9.7	22.2	27.6	34.5	32.3	16.6
Vietnam	23.2	19.4	21.9	0.0	9.5	8.0	7.7	8.5	0.0	10.4	31.0	28.2	19.6
Bangladesh	0.9	8.1	8.8	0.0	5.8	7.8	5.0	8.0	13.6	0.0	40.0	48.5	21.3
India	12.4	7.5	11.6	0.0	6.4	8.0	4.2	8.7	13.6	10.4	0.0	23.5	15.0
South Asia	21.4	6.0	13.3	0.0	4.4	8.0	3.5	8.0	13.6	10.6	37.4	19.9	15.2
Canada	7.5	6.6	15.5	0.0	10.9	8.0	6.8	12.2	0.4	37.5	36.8	49.2	0.0
Mexico	13.5	14.1	15.2	0.0	10.0	7.9	2.6	11.4	40.0	10.4	30.5	62.3	0.0
USA	12.6	5.4	17.8	0.0	9.1	7.7	5.1	10.6	26.8	31.6	36.6	40.3	0.0
Caribbean Basin Initiative	27.3	23.5	33.3	0.0	12.8	8.0	12.6	14.3	13.6	10.4	40.0	1.4	21.1
Andean Trad Pact	23.2	10.2	18.7	0.0	5.6	5.5	6.2	17.2	12.6	6.6	26.7	5.7	15.1
Brazil	18.3	0.3	19.4	0.0	0.8	23.3	7.7	5.8	0.0	0.0	30.2	34.5	14.2
MERCOSUR	13.4	5.2	15.1	0.0	0.4	5.1	1.5	2.7	13.4	10.4	23.3	4.9	10.4
Chile	20.0	12.1	16.9	0.0	0.6	4.6	10.3	11.7	15.0	10.4	31.0	7.6	13.3
Other Latin America	8.8	0.4	15.8	0.0	4.4	7.4	3.3	2.2	13.6	10.4	28.4	1.5	16.6
European Union	12.2	5.8	21.6	0.0	7.9	7.7	8.0	9.8	31.4	31.6	32.9	37.6	12.7
Turkey	13.9	11.1	16.2	0.0	8.9	8.0	4.2	5.7	40.0	32.5	22.6	31.8	15.5
Africa and Middle East	12.6	9.8	12.4	0.0	6.3	5.6	5.5	6.2	26.1	7.5	33.2	51.9	13.5
Rest of World	25.0	14.0	21.8	0.0	8.6	7.9	8.9	9.0	28.8	37.4	32.4	37.5	16.1
simple average	14.4	8.0	18.2	0.0	6.3	7.4	5.7	9.9	21.5	20.0	30.7	29.7	13.4

TABLE 3: continued

Exporters	Importing Region ?												
	Mexico	USA	Caribbean Basin Initiative	Andean Trade Pact	Brazil	MERCOSUR	Chile	Other Latin America	European Union	Turkey	Africa and Middle East	Rest of World	Simple Average
Australia	4.3	9.5	0.0	10.8	17.0	18.7	11.0	18.9	2.2	1.2	7.2	16.5	11.1
New Zealand	1.6	4.1	11.7	10.0	10.9	9.3	11.0	18.5	0.2	0.1	1.2	26.1	7.1
China	18.8	8.7	12.3	17.7	17.9	18.9	11.0	14.7	9.5	9.7	18.2	15.6	16.3
Hong Kong	26.1	12.3	18.5	18.0	18.0	19.4	11.0	16.4	12.5	9.3	17.0	9.2	17.7
Japan	14.8	10.8	8.7	14.8	15.9	16.3	11.0	12.4	7.9	8.7	10.6	8.9	14.5
Korea	14.9	13.2	13.2	16.4	16.1	17.1	11.0	16.2	10.2	9.2	14.8	11.3	15.8
Taiwai	15.5	12.4	12.6	15.3	17.0	17.8	11.0	17.3	10.3	9.3	18.3	11.6	16.3
ASEAN5	14.3	12.6	9.4	16.4	16.5	16.8	11.0	17.4	10.0	9.0	14.1	10.6	14.3
Vietnam	26.9	8.1	0.0	6.3	19.1	18.2	11.0	18.3	8.8	9.4	10.2	10.9	13.4
Bangladesh	21.6	12.1	19.9	11.9	14.3	8.5	11.0	17.4	0.0	0.5	10.6	9.3	12.2
India	16.4	7.7	9.1	16.5	16.4	16.5	11.0	17.8	7.0	5.5	16.7	9.6	10.9
South Asia	17.4	10.5	20.0	19.8	17.5	18.3	11.0	17.4	7.7	7.5	17.4	11.3	13.5
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	8.3	10.2	8.2	12.4
Mexico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.6	7.4	8.4	13.0
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	8.2	16.4	9.9	13.6
Caribbean Basin Initiative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	8.0	9.5	14.6
Andean Trad Pact	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	14.8	7.1	12.3
Brazil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	5.8	20.3	8.7	10.7
MERCOSUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	3.4	9.4	8.4	8.9
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	7.8	24.3	0.7	12.3
Other Latin America	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	7.8	6.7	0.5	9.9
European Union	15.8	9.5	13.8	15.5	14.6	15.4	11.7	16.0	0.0	8.5	25.2	9.4	15.0
Turkey	14.5	12.2	10.7	14.8	16.4	18.6	11.0	15.1	0.0	0.0	15.8	12.5	14.1
Africa and Middle East	15.2	11.8	7.6	14.4	15.5	14.6	11.0	13.4	0.0	0.0	18.2	7.8	13.3
Rest of World	16.0	11.8	16.1	15.2	15.8	17.0	11.0	14.6	7.3	7.1	13.2	11.1	16.1
simple average	13.8	8.7	12.9	14.6	14.8	16.0	10.6	16.6	5.4	6.7	13.8	10.1	13.2

TABLE 4

Bi-lateral Tariffs for Clothing Trade: MFN basis and including major regional agreements and preference schemes as of 2001.												
Importing Region ?												
Exporters	Australia	New Zealand	China	Hong Kong	Japan	Korea	Taiwai	ASEAN5	Vietnam	Bangladesh	India	South Asia	Canada
Australia	0.0	0.0	28.5	0.0	13.2	6.0	12.3	8.1	45.5	10.2	9.4	34.8	14.1
New Zealand	0.0	0.0	23.3	0.0	14.4	5.6	11.0	4.1	2.9	10.2	4.6	17.7	8.7
China	29.8	25.2	0.0	0.0	12.5	8.0	11.2	8.9	49.9	37.4	34.4	44.3	20.5
Hong Kong	27.1	24.1	32.2	0.0	13.2	8.0	13.1	14.8	49.3	36.5	38.4	20.5	21.8
Japan	25.5	23.4	33.0	0.0	0.0	8.0	13.7	18.6	49.9	10.2	40.0	47.4	19.6
Korea	25.1	24.1	31.2	0.0	12.3	0.0	13.0	17.5	49.5	37.4	40.0	34.5	21.7
Taiwai	15.6	21.6	32.3	0.0	10.7	8.0	0.0	14.7	46.7	37.3	39.8	61.4	21.8
ASEAN5	30.4	25.1	32.6	0.0	11.5	8.0	13.0	4.6	46.8	34.5	35.7	31.9	22.0
Vietnam	32.1	25.6	30.9	0.0	12.4	8.0	13.4	2.3	0.0	10.2	40.0	2.2	21.2
Bangladesh	29.8	22.4	31.4	0.0	13.2	8.0	13.5	0.4	29.4	0.0	40.0	49.6	21.9
India	31.0	25.9	32.2	0.0	12.0	7.8	12.4	8.1	29.4	10.2	0.0	34.6	21.5
South Asia	26.8	23.4	29.4	0.0	11.8	7.9	6.0	5.7	29.4	10.2	22.3	32.5	21.5
Canada	26.5	24.8	28.4	0.0	14.3	6.2	13.8	16.2	50.0	10.2	40.0	17.1	0.0
Mexico	25.7	25.5	0.0	0.0	12.7	8.0	14.6	9.0	29.4	0.0	0.0	19.2	0.0
USA	23.8	23.0	28.8	0.0	12.5	7.2	13.0	14.1	49.8	37.3	40.0	40.1	0.0
Caribbean Basin Initiative	31.8	26.3	31.0	0.0	12.1	8.0	12.5	1.8	29.4	10.2	0.0	18.0	22.0
Andean Trad Pact	27.8	22.0	0.0	0.0	12.0	8.0	11.0	2.3	29.4	10.2	0.0	14.3	22.0
Brazil	24.6	26.5	30.5	0.0	13.1	5.3	13.1	10.4	29.4	10.2	0.0	18.0	19.1
MERCOSUR	6.5	2.3	22.2	0.0	15.9	5.4	9.6	5.6	29.4	7.7	1.6	38.1	11.9
Chile	13.1	0.0	0.0	0.0	12.3	5.0	0.0	0.5	29.4	10.2	0.0	19.4	16.4
Other Latin America	2.1	0.0	0.0	0.0	-2.4	7.4	11.3	4.5	29.4	10.2	0.0	18.0	21.8
European Union	25.2	24.2	28.7	0.0	12.6	6.8	13.4	12.5	46.3	35.2	26.8	39.7	20.7
Turkey	31.6	26.0	22.0	0.0	13.0	5.7	12.6	11.8	29.4	10.2	31.6	50.2	21.7
Africa and Middle East	30.2	25.9	9.7	0.0	12.4	7.6	9.0	4.0	39.9	17.0	9.1	36.1	21.3
Rest of World	32.3	25.8	29.6	0.0	13.2	6.9	13.3	2.9	35.4	9.0	17.3	35.0	21.8
simple average	23.0	19.7	22.7	0.0	11.6	6.8	11.2	8.1	35.4	16.9	20.4	31.0	17.4

TABLE 4: continued

Exporters	Importing Region ?												
	Mexico	USA	Caribbean Basin Initiative	Andean Trad Pact	Brazil	MERCOSUR	Chile	Other Latin America	European Union	Turkey	Africa and Middle East	Rest of World	Simple Average
Australia	33.6	9.7	0.0	6.5	15.7	23.3	11.0	19.3	8.1	3.1	17.4	30.1	14.4
New Zealand	10.1	5.6	0.0	6.1	20.0	22.7	11.0	9.0	6.2	3.9	11.7	25.1	9.4
China	29.1	11.3	14.2	19.4	20.2	20.9	11.0	20.3	11.1	7.4	22.1	19.1	19.5
Hong Kong	34.8	12.7	11.4	20.0	20.1	20.7	11.0	20.0	12.5	7.0	28.0	14.5	20.5
Japan	34.8	11.5	10.7	19.9	19.9	20.0	11.0	19.4	11.7	9.7	20.6	15.2	19.7
Korea	33.9	14.9	22.4	19.9	20.0	20.9	11.0	20.5	10.6	6.8	20.7	20.7	21.1
Taiwai	32.6	15.3	24.6	18.7	20.0	20.7	11.0	21.2	11.4	7.5	27.6	12.3	21.3
ASEAN5	34.1	14.5	12.5	18.9	20.1	21.0	11.0	19.7	12.2	9.7	19.2	17.0	20.2
Vietnam	34.0	15.3	25.0	20.0	20.1	20.2	11.0	8.0	10.1	13.4	13.7	12.7	16.1
Bangladesh	30.7	12.5	25.0	19.8	23.8	20.2	11.0	8.9	0.0	12.5	15.7	16.7	18.3
India	34.9	12.8	16.8	20.0	20.0	20.5	11.0	20.4	8.6	11.0	17.7	16.3	17.4
South Asia	34.4	13.9	24.5	17.3	20.0	22.0	11.0	19.8	8.9	8.7	15.8	18.6	17.7
Canada	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	9.5	19.5	21.0	16.8
Mexico	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	13.2	13.5	16.7	12.2
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4	12.2	22.0	12.9	18.6
Caribbean Basin Initiative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	4.3	12.3	15.3
Andean Trad Pact	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	11.7	12.1	13.7
Brazil	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	2.3	20.2	4.8	13.3
MERCOSUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.3	2.6	8.5	11.7
Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	2.1	10.7	4.7	10.8
Other Latin America	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	9.9	8.0	3.4	11.7
European Union	34.6	12.4	17.4	19.2	19.9	21.0	11.1	20.2	0.0	8.4	28.2	11.1	19.8
Turkey	33.6	12.8	20.9	18.2	20.0	16.4	11.0	0.2	0.0	0.0	24.2	22.3	17.8
Africa and Middle East	33.2	12.9	9.5	17.3	19.2	19.6	11.1	6.8	0.0	0.0	19.0	14.7	16.1
Rest of World	34.0	14.9	23.5	11.2	19.2	20.0	9.6	12.4	12.2	8.3	18.2	17.9	17.8
simple average	28.5	10.5	17.3	17.1	18.3	20.0	10.5	17.4	7.2	7.8	17.3	15.2	16.5

Table 5: NLS Estimates of ATC Price Wedges for Textiles

		preferred -- unrestricted model, estimated sigma=4.3			restricted model, imposed sigma=7.5		
		can	usa	EU15	can	usa	EU15
chn	China	1.332	1.508	1.883	1.166	1.262	1.402
hkg	Hong Kong	1.000	1.000	1.423	1.000	1.000	1.204
kor	South Korea	1.000	1.049	1.407	1.000	1.019	1.184
twn	Taiwan	1.000	1.000	1.000	1.000	1.000	1.000
xea	Rest of South East Asia	1.000	1.000	1.211	1.000	1.000	1.103
idn	Indonesia	1.224	1.290	1.437	1.130	1.150	1.216
mys	Malaysia	1.199	1.231	1.483	1.110	1.115	1.229
phl	Philippines	1.018	1.000	1.454	1.026	1.000	1.231
sgp	Singapore	1.000	1.000	1.000	1.000	1.000	1.000
tha	Thailand	1.133	1.080	1.400	1.071	1.042	1.187
vnm	Vietnam †	1.000	1.485	0.000	1.000	1.260	1.000
bgd	Bangladesh	1.000	1.000		1.000	1.000	
ind	India	1.000	1.148	1.190	1.006	1.096	1.082
lka	Sri Lanka	1.000	1.000		1.000	1.000	
xsa	Rest of South Asia	1.028	1.070	1.382	1.014	1.037	1.211
col	Columbia		1.000			1.000	
per	Peru			1.000			1.000
arg	Argentina			1.000			1.000
bra	Brazil	1.000	1.000	1.000	1.000	1.000	1.000
ury	Uruguay	1.000	1.000		1.000	1.000	
xca	Rest of Central America	1.000	1.000		1.000	1.000	
xcb	Rest of Caribbean	1.000	1.000		1.000	1.000	
xfa	Rest of FTAA	1.000	1.000		1.000	1.000	
bgr	Bulgaria		1.033			1.002	
cze	Czech Republic	1.115	1.419		1.052	1.212	
hun	Hungary	1.511	1.538		1.251	1.257	
pol	Poland		1.471		1.000	1.234	
rom	Romania	1.137	1.179		1.064	1.079	
svk	Slovakia	1.595	1.809		1.301	1.387	
tur	Turkey	1.135	1.065		1.057	1.019	
xme	Rest of Middle East		1.000			1.000	
zaf	South Africa	1.000			1.000		
xsc	Rest of SACU	1.000			1.000		
xsd	Rest of SADC	1.123	1.000		1.066	1.000	
xss	Rest of Sub-Saharan Africa		1.151			1.070	
		R-squared .781, Obs 66516, F 1466.178 (Pr>F, 0.000)			R-squared .780, Obs 66516, F 1467.766		
		Note: F statistic for restriction on sigma is 267.973, (Pr>F, 0.00)					

note: all estimates involve NLS estimates, based on pair-wise regressions of textile imports for 2001 into high income OECD countries. The set of ATC coefficients, in both regressions, is significant at the .001 level. The unrestricted model fits the data better, also at the .001 level. Restricted values are from Hertel, Hummels, Ivanic, and Keeney (2003). Quotas are treated with a price effect only if some categories have at least 50% quota fill rates. Blank values indicate no regime, or monitoring only. A value of 1 indicates non-binding regime.

†Vietnam in 2000 had negotiated a trade treaty with the U.S. However, this was not approved until later 2001, and implemented in 2002. Hence, Vietnam is subject here to column 2 (non-MFN) tariffs, combined with other monitoring requirements and restrictions on investment and trade. The Vietnam estimates represent the impact of this treatment, vis-à-vis mfn tariffs.

Table 6:   NLS Estimates of ATC Price Wedges for Clothing

		preferred -- unrestricted model, estimated sigma=5.1			restricted model, imposed sigma=7.4		
		can	usa	EU15	can	usa	EU15
chn	China	1.309	1.590	1.573	1.204	1.376	1.339
hkg	Hong Kong	1.000	1.000	1.130	1.000	1.000	1.078
kor	South Korea	1.000	1.000	1.363	1.000	1.000	1.214
twn	Taiwan	1.000	1.000	1.000	1.000	1.000	1.000
xea	Rest of South East Asia	1.000	1.000	1.093	1.000	1.000	1.056
idn	Indonesia	1.000	1.000	1.176	1.000	1.000	1.108
mys	Malaysia	1.000	1.000	1.192	1.000	1.000	1.116
Phl	Philippines	1.000	1.000	1.403	1.000	1.000	1.248
sgp	Singapore	1.000	1.000	1.000	1.000	1.000	1.000
tha	Thailand	1.006	1.022	1.265	1.010	1.019	1.162
vnm	Vietnam †	1.000	1.563	1.000	1.000	1.368	1.000
bgd	Bangladesh	1.000	1.000		1.000	1.000	
ind	India	1.000	1.096	1.117	1.000	1.072	1.072
lka	Sri Lanka	1.000	1.000		1.000	1.000	
xsa	Rest of South Asia	1.000	1.000	1.174	1.000	1.000	1.148
col	Columbia		1.000			1.000	
per	Peru			1.000			1.000
arg	Argentina			1.000			1.000
bra	Brazil	1.184	1.080	1.000	1.119	1.050	1.000
ury	Uruguay	1.000	1.009		1.000	1.007	
xca	Rest of Central America	1.000	1.000		1.000	1.000	
xcb	Rest of Caribbean	1.000			1.000	1.000	
xfa	Rest of FTAA	1.000	1.000		1.000	1.000	
bgr	Bulgaria		1.043			1.018	
cze	Czech Republic	1.046	1.378		1.019	1.234	
hun	Hungary	1.000	1.149		1.000	1.090	
pol	Poland		1.487			1.302	
rom	Romania	1.266	1.322		1.164	1.200	
svk	Slovakia	1.257	1.353		1.148	1.211	
tur	Turkey	1.000	1.024			1.011	
xme	Rest of Middle East		1.000			1.000	
zaf	South Africa	1.000					
xsc	Rest of SACU	1.000			1.000		
xsd	Rest of SADC	1.000	1.000		1.000	1.000	
xss	Rest of Sub-Saharan Africa		1.000			1.000	
		R-squared .738, Obs 66204, F 1170.288 (Pr>F, 0.000)			R-squared .737, Obs 66204, F 1171.196		
		Note: F statistic for restriction on sigma is 270.794, (Pr>F, 0.00)					

note: all estimates involve NLS estimates, based on pair-wise regressions of clothing imports for 2001 into high income OECD countries. The set of ATC coefficients, in both regressions, is significant at the .001 level. The unrestricted model fits the data better, also at the .001 level. Restricted values are from Hertel, Hummels, Ivanic, and Keeney (2003). Quotas are treated with a price effect only if some categories have at least 50% quota fill rates. Blank values indicate no regime, or monitoring only. A value of 1 indicates non-binding regime.

†Vietnam in 2000 had negotiated a trade treaty with the U.S. However, this was not approved until later 2001, and implemented in 2002. Hence, Vietnam is subject here to column 2 (non-MFN) tariffs, combined with other monitoring requirements and restrictions on investment and trade. The Vietnam estimates represent the impact of this treatment, vis-à-vis mfn tariffs.

Table 7:   Comparison of Country Estimates: 1997 and 2001

ATC Export Tax Equivalent Rate, fraction of *f.o.b.* value (world prices)

United States

	Textiles		Clothing	
	1997	2001	1997	2001
China	20.0	20.8	33.0	27.3
Hong Kong	1.0	0.0	10.0	0.0
South Korea	2.4	1.9	1.9	0.0
Taiwan	2.2	0.0	7.5	0.0
Indonesia	8.1	13.0	7.8	0.0
Malaysia	8.1	10.3	7.8	0.0
Philippines	6.5	0.0	7.8	0.0
Singapore	0.0	0.0	0.6	0.0
Thailand	8.3	4.0	13.2	1.9
Vietnam †	6.9	20.6	7.1	26.9
India	9.8	8.8	34.2	6.7
Sri Lanka	15.3	0.0	8.1	0.0
Latin America	7.2	0.0	5.3	0.7
Central European Associates	6.9	16.3	5.0	15.0
Turkey	7.0	1.9	4.9	1.1

European Union

	Textiles		Clothing	
	1997	2001	1997	2001
China	12.0	28.7	15.0	25.3
Hong Kong	1.0	16.9	10.0	7.2
South Korea	1.6	15.5	0.6	17.6
Taiwan	6.9	0.0	5.9	0.0
Indonesia	6.3	17.7	6.0	9.7
Malaysia	6.3	18.7	6.0	10.4
Philippines	5.7	18.7	6.0	19.9
Singapore	0.6	0.0	0.2	0.0
Thailand	6.4	15.8	7.8	14.0
Vietnam	7.5	0.0	7.2	0.0
India	12.0	7.6	15.2	6.7
Sri Lanka	5.5	0.0	6.4	0.0
Latin America	3.1	0.0	5.2	0.0
Central European Associates	0.0	0.0	0.0	0.0
Turkey	1.5	0.0	0.0	0.0

Source: 2001 estimates are from author's calculations, 1997 estimates are Francois and Spinanger (2002) as summarized in Dimaranan et al (2002). 2001 estimates are based on the restricted elasticity columns in Tables 3 and 4.

†Vietnam in 2000 had negotiated a trade treaty with the U.S. However, this was not approved until later 2001, and implemented in 2002. Hence, Vietnam is subject here to column 2 (non-MFN) tariffs, combined with other monitoring requirements and restrictions on investment and trade. The Vietnam estimates represent the impact of this treatment, vis-à-vis mfn tariffs. Since the U.S. imposed quotas immediately after implementing the trade agreement, these also provide a rough approximation of current import quota price effects.

Table 8: Comparison of Regional Estimates: 1992, 1997 and 2001

ATC Export Tax Equivalent Rate, fraction of *f.o.b.* value (world prices)

United States	textiles			clothing		
	1992	1997	2001	1992	1997	2001
China	15.5	20.0	20.8	28.7	33.0	27.3
East Asia	8.5	4.8	5.5	19.8	7.1	3.2
South Asia	15.5	12.6	4.4	28.7	21.2	3.4
Latin America	8.6	7.2	0.0	16.8	5.3	0.7
Middle East/Africa	4.4	0.5	0.2	7.7	0.6	0
Eastern Europe	6	6.9	16.3	11.9	5.0	15.0
ROW	3.6	7.0	1.9	6.7	4.9	1.1

European Union	textiles			clothing		
	1992	1997	2001	1992	1997	2001
China	21.5	12.0	28.7	26.5	15.0	25.3
East Asia	11.5	4.7	11.5	19.9	5.5	8.8
South Asia	21.5	8.8	3.8	26.5	10.8	3.4
Latin America	12.4	3.1	0.0	15	5.2	0.0
Middle East/Africa	6.0	0.3	0.0	7.2	0.0	0.0
Eastern Europe	8.6	0.0	0.0	10.8	0.0	0.0
ROW	5.2	1.5	0.0	6.7	0.0	0.0

Source: 2001 estimates are from author's calculations, 1997 estimates are Francois and Spinanger (2002) as summarized in Dimaranan et al (2002), and 1992 estimates are from Chyc et al (1994) and USITC (1993) as summarized in Francois, McDonald and Nordstrom (1995). 2001 estimates are based on the restricted elasticity columns in Tables 3 and 4.