

Rags in the High Rent District: Rhetoric and Reality in the Elimination of Textile and Clothing Quotas

Joseph Francois
*Erasmus University Rotterdam **

Julia Woerz
wiiw - The Vienna Institute for International Economic Studies

September 2005

Abstract: Since the 1950s, global trade in textiles and clothing has seen the evolution of a global system of bilateral quotas governing North-South trade in textiles and wearing apparel. As of 2005, these have been removed under the terms of the 1995 Agreement on Textiles and Clothing. In theory, the ATC was to have led to a smooth and progressive liberalization in the sector. In reality and especially when looking at trade flows from China, it appears that political leaders throughout the ATC period instead backloaded the problem of adjustment, delaying much of it until the very end of the ATC. In this paper, we explore econometrically the evolution of market access conditions in the textile and clothing sectors (T&C). Working with a panel of bilateral trade data on textile and clothing trade, underlying bilateral tariffs, and the coverage of quotas under the WTOs Agreement on Textiles and Clothing (ATC) we first develop an estimation framework for calculating the tax equivalents of ATC quota restrictions on bilateral trade. Within this framework, we track the price impact of the quotas through the ten year phase-out period. We also discuss the impact of quota elimination on market access for LDC exporters. Finally, as these quotas are a potentially significant omitted variable, the ATC episode provides us with an opportunity to examine the impact of bilateral quotas on the econometric estimation of trade elasticities.

Keywords: trade policy, ATC, MFA, textiles and clothing, import quotas

JEL classification: F13,

*This research has benefitted from support from the EU RTN program on "Trade and Industrialization," DFID, and the World Bank. Address correspondence to: J. Francois, Tinbergen Institute, Erasmus University Rotterdam, Burg Oudlaan 50-H8-18, 3000 DR Rotterdam NETHERLANDS, email: francois@few.eur.nl

”She that from whom we all were sea-swallowed, though some cast again, and, by that destiny, to perform an act whereof what’s past is prologue, what to come, in yours and my discharge.” William Shakespeare, *The Tempest* (Antonio at II, i)

”The world is weary of the past, Oh, might it die or rest at last!” Percy Bysshe Shelly, *A New World*

1 Introduction

Textiles and clothing are the most prominent early industries in the process of economic development. The sector’s importance for less developed, industrializing countries is high for two reasons: On the one hand, it offers low skill demanding employment opportunities on a large scale while on the other hand, modern, productivity increasing technology can be used at low investment and training costs. Therefore, low trade barriers in this sector are especially attractive for less developed countries. Despite substantial trade liberalization in manufactured goods through the GATT (and later the WTO) in general, textile and clothing has remained up to date a highly protected industry in many highly industrialized countries. Although tariff barriers have been reduced according to GATT / WTO rules, non-tariff barriers remain high in the sector. Quotas on textiles and clothing trade have been a basic feature of the modern trade landscape since the late 1950s.

Given that these sectors are also the most important export category for many developing countries, like Bangladesh, these quotas have also been the single most obvious thorn in the side of North-South trade relations. 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 meant that quotas on textiles and clothing were finally going to be eliminated. The negotiations launched at Punta Del Este led to the Agreement on Textiles and Clothing (ATC) in 1995, an attempt to end almost 40 years of quotas in an orderly process involving the gradual expansion of quotas and deliberate

graduation of whole product categories from the regime. The agreement was flagged as a major source of potential gains from the Uruguay Round Agreements. (See Harrison, Rutherford and Tarr 1995; and Francois, McDonald and Nordstrom 1995; Hertel et al. 1995).

In this paper, we explore the evolution of textile and clothing trade restrictions under the ATC. We start with a short discussion of the institutional context leading to the ATC in the next section. We then turn to estimating the price impact of quotas, working with a panel of bilateral trade data on textile and clothing trade, underlying bilateral tariffs, and the coverage of quotas under the ATC. We develop a new estimation framework for calculating the tax equivalents of quotas on bilateral trade. Within this framework, we track the price impact of the quotas throughout the quota phase-out period by allowing for a non-linear time trend. As these quotas are a potentially significant omitted variable, the ATC episode also provides us with an opportunity to examine the impact of bilateral quotas on the econometric estimation of trade elasticities. We conclude with a discussion of the implications for low-income country exports and further areas of concern.

2 Background

Like agriculture, the textile and clothing (TC) sectors emerged in the early years of the GATT system as politically sensitive sectors. As such, they have been treated as a special case within the world trading system, with their own regulatory framework. While technically in violation of the GATT, the quotas were first institutionalized in the beginning of the 1960s with the Short Term Arrangements (STA) for 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 a series of bilaterally negotiated quota restrictions that became the rule in the following Long Term Arrangement (LTA) in 1962. Details on the subsequent evolution of acronyms are provided in Table 1.

By the start of the 1970s, it had become apparent that the multiplicity of makeshift

arrangements protecting the textile and clothing industries had to be replaced. Resulting negotiations led to the Multifibre Arrangement (MFA), which went into effect in 1974. Over time, its product coverage was extended from cotton to non-cotton textiles and clothing. The final MFA (known as MFA IV) was extended several times, leading in the end to the Agreement on Textiles and Clothing in 1995.

Like the preceding arrangements, the MFA provided rules for the imposition of quotas, either through bilateral agreements or unilateral actions, whenever actual or perceived surges of imports caused market disruption. (Baughman et al 1997; Krishna and Tan 1997). This included the threat of a surge. 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 actually managed to withdraw from the MFA. Sadly, it was forced to rejoin 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, and subsequent ATC quotas, varied from product to product, and from supplier to supplier. Norway dropped the use of binding quotas with the shift from MFA to ATC.

The ATC called for a gradual phase out of the quota restrictions carried over from the MFA regime. 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. Furthermore, 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 percent to $(3 \times 1.16 =) 3.48$ percent - an additional 25 percent in the second stage, and yet another 27 percent in the third stage. This turned a 3 percent initial annual growth rate to 5.52 percent in the third stage.

3 Estimating Framework

3.1 Measurement of Quota Impact

The impact of quantitative restrictions like quotas on trade is measured through the price wedge introduced by binding restrictions over to the true, quota-free prices. A binding quota effectively limits the supply of the good in the importing market thus resulting in a price markup. This gives economic rents to those suppliers who have access to the market (i.e. who are able to export inside the quota). Since the quotas on textiles and clothing were administered as voluntary export restraints by the suppliers, these rents can alternatively be seen as an implicit tax on exporting. The effect of the quotas is consequently expressed as an “export tax equivalent” (ETE). Estimates of ETEs are often based on comparisons of per unit auction or license prices to export unit values (see among others Martin 2001, Andriamananjara et al. 2004). However, this method potentially underestimates the full impact of the quota since auction prices may be depressed if the importing agents have sufficient market power.

Another tradition estimates the ETEs using residual based methods, either based on data for non-tariff barriers (Leamer 1990 and Harrigan 1993) or based on trade and tariff data with the help of gravity-type models (Mayer and Zignano 2003). In the present paper we propose a new estimation of ETEs based on a gravity-type trade model. We improve on previous ETE estimations in three ways: First, we derive unbiased elasticities with respect to tariffs, distance, etc. by employing a 2-step estimation

Table 1: A March of Acronyms: the post-WWII evolution of quotas

<i>year</i>	<i>overview of events</i>
1955-57	U.S.-Japan dispute leads to a 5 year agreement limiting textile exports
1958	United Kingdom imposes "voluntary" limitation on cotton T&C products with Hong Kong, by threatening to otherwise impose quotas at levels lower than prevailing volumes.
1959	United Kingdom signs restraint agreements with India and Pakistan.
1960	GATT Contracting Parties recognize the problem of "market disruption" to serve as an "excuse" for establishing future NTBs.
1961	STA: The Short Term Arrangement (STA) is agreed.
1962	LTA1: The Long Term Arrangement (LTA) is agreed, to commence October 1, 1962, and last for five years.
1963-65	U.S. tries and fails to establish agreement on trade in wool products.
1966	The United Kingdom implements a global quota scheme in violation of the LTA. The LTA provides only for product-specific restraints.
1967	LTA2: 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	LTA3: 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	MFA I: The MFA is agreed, to commence January 1, 1974, and to last for four years.
1977	The European Economic Community and the United States negotiate bilateral agreements with developing countries prior to agreeing to extension of the MFA.
1977	MFA II: The MFA is extended for four years.
1981	MFA III: The MFA is renewed for five years. The USA, under pressure from increased imports resulting from dollar appreciation, negotiates tough quotas.
1986	MFA IV: The MFA is extended for 5 years, to conclude with the expected end of the Uruguay Round.
1991	MFA IV+: The MFA is extended pending outcome of the Uruguay Round negotiations.
1993	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 extends until UR comes into force. ATC allows credit for liberalization in products that are not actually restricted.
1995	ATC1: 1st ATC tranche liberalized 16% of 1990 import volume by importing countries.
1998	ATC2: 2nd ATC tranche liberalized 17% of 1990 import volume by importing countries.
2001	ATC3: 3rd ATC tranche liberalized 18% of 1990 import volume by importing countries.
2005	ATC4: 4th ATC tranche liberalized 49% of 1990 import volume by importing countries.

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

procedure. Second, we base our estimates on all available observations, using a newly available global panel data set on trade flows and tariffs in textiles and clothing over the full ATC period, which we obtained through the World Bank’s WITS system. This approach is an improvement over residual based methods, as we integrate the estimation process with the panel estimation of the underlying gravity model. In doing so, we further allow for a non-linear time trend in the ETEs. Third, we also impose non-linear constraints on the quotas, in effect allowing for the mixed-complimentarity aspect of the estimation problem.

3.2 Theoretical Derivation of the Estimating Equation

Our approach to estimating the impact of quotas involves first assuming CES import demand. As we are working with data that reflect actual trade flows and actual prices, and for which therefore price indexes can be taken as given in each cross-section, such an approach is consistent with either the Armington approach to modeling trade flows or Ethier/Krugman-type monopolistic competition based on CES demand for variety.

Formally, starting from CES preferences, if we take any importing country j , demand for imports from source country i can be written as follows:

$$m_{i,j} = E_j \left(\frac{p_{i,j}}{\alpha_{i,j}} \right)^{-\sigma} P_j^{\sigma-1} \quad (1)$$

where $m_{i,j}$ represents total imports by country j from country i , E_j is total expenditure on the product category, $p_{i,j}$ is the internal price index for goods imported from country i , $\alpha_{i,j}$ is the country weight P_j is the CES composite price index, and σ is the absolute value of the Allen-elasticity of substitution. We will later assume that the weights α are similar across OECD importers, so that we can drop the second subscript.

We can in turn map world price indexes for national varieties (or variety-scaled varieties with firm-level differentiation) as follows:

$$P_{i,j} = P_i * (1 + \tau_{i,j}) (1 + \omega_{i,j}) \gamma_{i,j} \quad (2)$$

In equation (2), P_i^* is the world price index for exports from country i , $\tau_{i,j}$ is the

bilateral tariff applied to imports from country i sold in country j , $\omega_{i,j}$ is the export tax equivalent of quantitative restraints, measuring the price impact of non-tariff barriers, and $\gamma_{i,j}$ measures transport costs following from goods moving between i and j . Such costs may be a function of geographic distance, for example, as is well established in the gravity equation literature. See for example Disdier and Head (2003).

To move from equations (1) and (2) to estimating equations, we first substitute equation (2) into equation (1), neglecting the quantitative constraints for a moment, and then take logs.

$$\begin{aligned} \log m_{i,j} = & \log E_j - \sigma \log P_i - \sigma \log (1 + \tau_{i,j}) \\ & - \sigma \log \gamma_{i,j} + \sigma \log \alpha_{i,j} + (\sigma - 1) \log P_j \end{aligned} \quad (3)$$

We normalize the world price indexes to unity, such that imports at world prices map to quantities. We also assume similar country weights α in the cross-section, and specify transport costs $\gamma_{i,j}$ as a function of both geographic distance $D_{i,j}$ and a dummy for common borders $B_{i,j}$. Finally, we can control for both the domestic internal price index P and the set of import CES weights by time-varying importer and exporter dummies X and M . Here we follow Matyas (1997) and include fixed importer and exporter effects. However we depart from his specification in that our importer and exporter dummies further include the time-varying gravity weights. For our panel of observations indexed over time t we therefore have:

$$\begin{aligned} \log m_{i,j,t} = & \beta_{tariff} \log T_{i,j,t} + \beta_{border} B_{i,j} + \beta_{dist} \log \delta_{i,j} \\ & + \beta_{time} t + X_{i,t} + M_{j,t} + e_{i,j,t} \end{aligned} \quad (4)$$

When we introduce quotas, we take advantage of the fact that in observed trade data, expenditures will reflect the price impact of the quotas. This allows us to estimate the manifestation of these price effects through the export-tax equivalent of the quota. However, it is then important to recognize that a quota is either binding, or not binding. This means that the export tax equivalents of the quota $\omega_{i,j}$ will be either positive or zero, but will not be negative. We have

$$\begin{aligned} \log m_{i,j,t} = & \beta_{tariff} \log T_{i,j,t} + \beta_{border} B_{i,j} + \beta_{dist} \log \delta_{i,j} \\ & + \beta_{tariff} \log \Omega_{i,j,t} + X_{i,t} + M_{i,t} + e_{i,j,t} \end{aligned} \quad (5)$$

where $\Omega_{i,j} = (1 + \omega_{i,j})$ and $\mathbf{\Omega} \geq 1$. The inequality constraint on the matrix of export tax equivalents $\mathbf{\Omega}$, combined with the equality of the tariff and quota price elasticity in equation (5), puts us in the realm of constrained non-linear econometrics when we focus on the estimation of quota price wedges.

4 The Evolution of Quota Rents

4.1 Data

To assess the evolution of textile and clothing quotas under the ATC, we work with trade and tariff data from UN's COMTRADE, UNCTAD's TRAINS database and the WTO's database of applied tariffs. These data were obtained through the UNCTAD/World Bank WITS data system, and yield trade and applied tariff data spanning from 1996 to 2004. For EU Members, we have had to combine common external tariff data with individual Member import data. Our trade and tariff data have been combined, in turn, with data on geographic distance taken from CEPII's recent compilation of various distance measures. See Clair et al. (2004). In total, this yields a database with 47,500 observations on bilateral textile trade flows and 44,452 observations on bilateral clothing trade flows, including 27,442 observations on OECD textile imports and 26,071 observations on OECD clothing imports. Annually, the data range between roughly 2,200 and 7,000 per year and sector.

For the period covered, import quotas were maintained by the United States, Canada, and the (then 15) Members of the European Union. The U.S. import quotas (not all involving WTO Members) cover 46 exporters. The European Union import quotas (again not all involving WTO Members) cover 20 exporters. Canadian quotas cover 43 exporters. In our sample, 18,412 of our textile data points involve imports by quota users, while 17,787 of our clothing datapoints involve imports by quota users.

4.2 Results

Tables 2 and 3 report OLS estimates of equation (4). The first column in both tables shows OLS results for the full sample, while the subsequent columns show OLS results

for the sub-samples of non-OECD countries, OECD countries, and OECD countries excluding quota users. As quantity constraints, by definition, limit price-sensitivity, we should expect this to bias downward any estimate of price sensitivity, corresponding to the tariff elasticity in the Tables. Indeed, the pattern is one of significantly different, and higher, tariff elasticities when we exclude the countries that utilize quotas. In addition, the non-OECD countries exhibit a somewhat higher (though not significantly different) degree of price sensitivity than the non-quota OECD sample

Table 2: Textile regressions

coefficient	All countries	Non-OECD importers	All OECD importers	Non-quota OECD
$\ln(1 + t)$	-5.43*** (-23.57)	-7.60*** (-24.64)	-3.11*** (-8.54)	-6.57*** (-13.24)
<i>distance</i>	-1.36*** (-82.95)	-1.50*** (-65.82)	-1.06*** (-40.23)	-1.13*** (-28.81)
<i>border</i>	0.79*** (11.92)	1.39*** (13.81)	0.37*** (4.50)	0.29** (1.97)
<i>EEA</i>	0.26*** (4.86)	0.81*** (13.81)	0.02 (0.27)	0.51*** (4.53)
<i>NAFTA</i>	0.08 (0.26)	.	1.55*** (5.50)	1.47*** (2.94)
<i>CBERA</i>	0.96*** (6.82)	.	1.85*** (13.96)	.
adj. R-sq:	0.735	0.694	0.812	0.811
obs:	46,672	19,235	27,437	9,030
df:	44,179	17,161	25,235	7,237
F:	52.92	22.07	49.34	22.60
Pr>F	0.00	0.00	0.00	0.00

Note: *** (**) denotes >.01 (.05) level of significance; t-values in parentheses.

Based on Tables 2 and 3, we expect our estimates of the price elasticity to be biased in the samples including quota imposing importers. In estimating quota price effects through equation (5), we therefore start by imposing the estimated elasticities reported

Table 3: Clothing regressions

coefficient	All countries	Non-OECD importers	All OECD importers	Non-quota OECD
$\ln(1 + t)$	-0.08 (-0.28)	-2.26*** (-4.65)	0.02 (0.04)	-2.09*** (-3.98)
<i>distance</i>	-1.39*** (-81.59)	-1.42*** (-58.07)	-1.08*** (-40.44)	-1.24*** (-32.38)
<i>border</i>	0.83*** (12.25)	1.35*** (12.72)	0.51*** (5.98)	0.56*** (3.62)
<i>EEA</i>	0.36*** (6.37)	0.72*** (7.35)	0.42*** (5.55)	0.10 (-0.92)
<i>NAFTA</i>	0.31 (1.02)	.	1.34*** (4.71)	1.35*** (2.78)
<i>CBERA</i>	0.14*** (9.23)	.	2.09*** (15.57)	.
adj. R-sq:	0.745	0.672	0.800	0.797
obs:	43,273	17,202	26,071	8,284
df:	40,811	15,251	23,884	6,578
F:	52.25	15.83	48.47	20.10
Pr>F	0.00	0.00	0.00	0.00

Note: *** denotes >.01 level of significance; t-values in parentheses.

in Tables 2 and 3 for the non-quota OECD sample on the full OECD sample. We then treat equation (5) as a constrained minimization problem, where we solve for the set of non-negative quota coefficients and importer and exporter dummies that minimize the sum of squared errors.¹ In estimating equation (5), we have allowed for a non-linear time trend of quota price effects.² This gives us a broad sense of the evolution of the quota wedges over the stages of the ATC phase-out period.

The R-squared for the full OECD sample without allowing for quotas, as reported in Tables 2 and 3, was .809 for textiles and .814 for clothing. For the same sample, with the inequality-constrained, non-linear least squares estimates based on equation (5), the corresponding values are .813 and .817. The results of this estimation are reported in Tables 4, 5, and 6. We only report country rates where we have estimated that there actually were binding quotas at some point during the ATC phase-out.

Based on our estimates, what can we say has happened to the quotas? Starting with Canada, in Table 4, Canadian quotas have generally followed the intended pattern of liberalization. In some cases, like clothing from China, the effect of quota expansion and graduation has been quite dramatic. While some substantial barriers still remained in the final stage of the ATC (2002-2004), they were for the most part against minor suppliers. We do however see confirmation of a pattern reported in Francois and Spinanger (2004). Canada, and the United States, maintained significant restraints on suppliers of wool products throughout the period. In particular, while East European exporter quotas are in narrow categories corresponding to wool-based clothing and fabrics, North American imports are significantly constrained. This is also apparent in Table 6.

Turning to the European Union, we see that liberalization has been more limited. Constraints against China have fallen by roughly half, but were still substantial (15.1 percent for textiles and 23.6 percent for clothing) at the end of the period. Imports

¹Our OLS results in Tables 2 and 3 were estimated in STATA, while the constrained least squares estimates of the quota premiums were estimated in GAMS.

²We also estimated three different sets of quota price effects mapped to ATC stages 1, 2 and 3 as indicated in Table 1. The fit of the regression is better when allowing for a more flexible, non-linear time trend over the whole period (specifically we were fitting a fourth order polynomial to the evolution of quota coefficients), though the results of both sets of estimation are qualitatively quite similar. Since many factors influencing the cost effects of the quotas (like for instance supplier capacity, tariffs, regional agreements, etc.) change annually and not with the different stages of the ATC, it seems to be reasonable to allow for greater flexibility in the estimation.

Table 4: Canada: NLS estimates of export tax equivalents

partner	1996	1997	1998	1999	2000	2001	2002	2003
<i>textiles</i>								
Argentina	27.6	14.3	8.3	4.9	2.2	0.0	0.0	5.8
Bangladesh	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Bulgaria	2.4	0.0	0.0	2.3	6.2	9.3	8.7	0.1
China	6.2	1.8	0.2	0.0	0.1	0.2	0.0	0.0
Costa Rica	0.0	1.7	0.0	0.3	4.5	11.2	14.9	5.5
Hungary	13.9	1.0	0.0	3.6	7.1	8.0	5.0	0.0
Jamaica	18.9	5.0	12.2	26.5	38.5	42.8	41.3	43.9
Cambodia	26.4	15.4	14.3	14.7	12.1	6.0	0.0	0.0
Lao PDR	19.0	0.8	0.0	4.2	6.7	5.2	2.3	4.9
Lebanon	50.5	10.2	0.0	0.0	1.9	1.9	0.0	0.0
Sri Lanka	2.3	0.8	0.2	0.0	0.0	0.0	0.0	0.0
Lesotho	60.0	19.0	4.4	0.3	0.0	0.3	0.0	0.0
Morocco	6.0	0.1	1.5	6.1	11.0	14.2	15.5	15.6
Malaysia	7.7	2.6	0.6	0.0	0.0	0.1	0.0	0.0
Oman	28.1	6.1	0.0	0.0	1.2	1.2	0.0	0.0
Pakistan	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Poland	0.0	0.0	0.0	0.4	1.4	2.4	2.8	1.4
Quatar	0.0	3.5	34.4	127.7	191.5	135.8	45.5	18.9
Romania	0.0	0.0	0.0	0.0	0.1	0.3	1.0	2.3
Russia	0.9	0.4	0.1	0.0	0.0	0.0	0.0	0.0
Singapore	3.8	1.3	0.3	0.0	0.0	0.0	0.0	0.0
Slovakia	0.8	0.0	4.2	9.2	12.0	10.8	6.2	0.0
<i>clothing</i>								
Brazil	34.6	7.4	0.0	0.0	1.4	1.4	0.0	0.0
China	52.0	16.2	3.4	0.0	0.0	0.3	0.0	0.0
Jamaica	26.6	25.0	42.2	47.8	30.3	5.8	0.0	63.1
Lebanon	132.6	21.8	2.8	2.9	3.0	0.0	4.5	50.1
Morocco	89.5	70.9	95.4	126.6	134.0	108.5	70.9	51.0
Poland	3.5	2.7	1.5	0.5	0.0	0.0	0.2	0.0
Romania	0.0	0.0	0.0	4.8	15.6	29.8	37.3	21.8
Slovakia	0.0	0.9	0.0	0.0	2.4	7.4	13.5	18.1
Syria	204.0	48.7	9.2	0.0	0.0	0.9	0.0	0.0
Turkey	5.3	1.4	0.1	0.0	0.2	0.2	0.0	0.0
Uruguay	57.1	17.5	3.7	0.0	0.0	0.4	0.0	0.0
Vietnam	64.9	24.0	23.0	31.4	33.9	24.2	8.5	0.0

R-squared for textile regression: .813

R-squared for clothing regression: .817

Table 5: EU: NLS estimates of export tax equivalents

partner	1996	1997	1998	1999	2000	2001	2002	2003
<i>textiles</i>								
Argentina	9.1	0.0	1.1	4.8	6.4	4.4	0.7	0.0
Belarus	0.0	5.7	4.9	5.2	9.5	16.5	20.0	8.3
Brazil	7.0	11.6	9.5	6.3	4.5	4.6	4.9	1.4
China	25.5	23.5	18.5	15.0	14.3	16.2	18.1	15.1
Hong Kong	9.6	11.6	8.7	4.9	2.6	2.3	2.4	0.0
Indonesia	4.7	5.3	5.4	5.0	4.0	2.5	1.0	0.0
India	8.9	9.6	7.0	4.2	2.8	2.9	3.0	0.4
South Korea	14.7	14.6	13.5	12.6	12.1	11.6	10.3	6.6
Sri Lanka	7.9	4.6	4.4	4.5	3.8	1.9	0.0	0.0
Malaysia	13.2	12.7	9.6	7.9	8.8	11.5	13.2	8.4
Pakistan	16.9	15.8	11.4	7.3	5.1	4.7	4.4	0.7
Peru	12.3	5.7	6.1	8.7	10.4	9.9	7.7	6.2
Philippines	3.8	0.9	0.0	0.0	0.2	0.2	0.0	0.0
Singapore	16.3	17.6	14.8	11.0	7.9	6.5	7.0	8.9
Thailand	8.2	6.6	4.4	3.4	4.3	6.1	6.5	1.7
Uzbekistan	14.5	9.2	8.1	7.6	6.0	2.9	0.0	0.0
Vietnam	24.0	24.7	21.0	16.0	11.9	9.5	9.2	10.1
<i>clothing</i>								
Brazil	26.4	5.3	0.0	0.0	0.5	0.0	0.0	5.3
China	90.8	64.4	39.9	24.2	17.9	19.1	23.7	23.6
Hong Kong	7.1	2.5	0.5	0.0	0.0	0.1	0.0	0.0
Indonesia	10.8	3.7	0.8	0.0	0.0	0.3	0.8	2.2
India	20.4	9.2	3.6	1.0	0.2	0.0	0.0	0.0
South Korea	67.5	48.7	35.9	28.7	25.9	25.9	26.0	22.8
Sri Lanka	30.3	14.9	4.4	0.0	1.1	5.9	10.4	8.0
Peru	23.7	22.8	17.2	10.3	4.8	4.0	12.1	37.2
Philippines	40.5	39.8	32.4	25.9	23.4	24.6	26.5	22.3
Singapore	17.4	1.9	0.0	2.3	3.9	2.7	0.0	0.0
Thailand	44.6	34.0	23.4	16.6	14.5	15.0	14.1	5.2
Uzbekistan	3.7	60.8	2.3	0.0	15.7	30.7	27.3	0.9
Vietnam	69.4	51.0	39.0	31.5	27.6	26.1	25.6	24.6

R-squared for textile regression: .813

R-squared for clothing regression: .817

Table 6: USA: NLS estimates of export tax equivalents

partner	1996	1997	1998	1999	2000	2001	2002	2003	2004
<i>textiles</i>									
Bangladesh	0.0	0.2	0.0	0.0	0.6	1.6	2.5	2.4	0.0
Belarus	0.0	1.1	0.0	0.0	2.4	7.1	11.6	11.3	0.0
Brazil	5.8	9.4	8.4	5.5	2.6	0.7	0.0	0.2	0.0
China	7.1	4.5	4.8	5.8	6.3	6.5	7.7	12.5	26.1
Colombia	13.2	3.8	0.0	0.0	2.4	6.5	11.3	16.5	21.5
Czech Republic	0.0	2.8	5.5	8.2	11.2	14.6	17.9	21.3	23.9
Hungary	0.0	0.1	6.1	13.5	19.2	21.7	21.4	21.9	28.7
Indonesia	0.4	0.8	2.4	3.9	4.5	4.4	4.3	5.7	11.1
India	4.0	4.4	4.0	3.1	2.1	1.4	1.4	2.7	6.1
Jamaica	0.0	0.4	0.0	0.0	1.0	2.7	4.4	4.3	0.0
Cambodia	106.7	22.0	1.2	0.0	4.3	6.8	4.6	0.0	0.0
South Korea	0.0	0.0	0.5	0.9	0.7	0.2	0.0	1.2	5.3
Lao PDR	0.0	0.0	2.9	9.5	19.4	29.7	34.9	26.6	0.0
Macedonia	100.4	29.8	6.4	0.0	0.0	1.2	1.2	0.0	0.0
Malaysia	0.0	0.0	0.1	0.1	0.0	0.1	0.8	2.6	6.6
Pakistan	5.4	1.6	0.2	0.0	0.0	0.0	0.0	0.6	3.0
Poland	4.1	12.3	15.5	16.4	17.4	19.5	22.5	25.1	24.6
Romania	4.4	2.0	0.2	0.0	1.9	5.8	10.4	14.0	13.2
Slovakia	4.6	20.9	30.3	33.9	34.0	32.8	32.8	35.9	44.6
Thailand	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	2.2
Turkey	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.4	3.0
Ukraine	0.0	0.0	0.0	0.7	2.8	7.4	15.7	29.8	53.3
Uruguay	0.0	0.0	1.5	2.7	3.0	3.1	5.4	13.8	36.1
Vietnam	79.1	101.2	95.4	73.2	47.0	24.2	8.2	0.0	0.0
<i>clothing</i>									
Bulgaria	0.0	0.0	0.5	0.5	0.0	0.0	2.3	10.0	28.9
Brazil	2.2	0.0	0.0	0.4	0.4	0.0	0.0	2.2	9.9
China	81.5	75.9	60.8	48.6	44.8	51.1	67.9	91.4	110.9
Czech Republic	5.2	29.8	44.6	55.3	68.7	92.1	133.0	202.2	313.7
Hungary	0.0	0.0	4.5	11.9	21.0	31.4	43.6	59.5	82.9
India	23.0	14.0	5.9	0.9	0.0	3.1	9.6	17.5	22.6
Cambodia	63.9	20.3	4.5	0.0	0.0	0.9	0.9	0.0	0.0
Lao PDR	0.0	12.5	16.5	38.1	99.8	221.6	350.9	267.7	0.0
Poland	13.5	61.8	82.0	86.6	91.2	102.2	116.6	117.9	80.9
Romania	13.5	15.3	23.9	38.7	59.4	84.8	111.7	134.4	144.7
Slovakia	0.0	0.0	0.0	4.3	15.7	35.8	63.9	93.3	106.7
Turkey	0.0	0.0	0.1	0.0	0.0	0.6	2.8	8.0	18.8
Uruguay	87.6	144.7	109.8	63.7	41.3	43.3	59.2	57.8	0.0
Vietnam	398.8	360.0	446.8	498.9	405.8	218.7	69.6	0.0	0.0

R-squared for textile regression: .813

R-squared for clothing regression: .817

from India had essentially been liberalized by 2003. Vietnam, an emerging player in the 1990s, also remained restricted at the end of the ATC, at rates comparable to those for China. Broadly speaking, the pattern is one of partial but not total liberalization, more or less consistent with the plan to leave half of liberalization until the end of the ATC.

Table 7: Cumulative Growth in per cent, 1994-2004

	quota growth				GDP growth	
	textiles		clothing		per-capita	total
	US	EU	US	EU		
<i>importer</i>						
USA					49	66
EU15					55	61
<i>exporter</i>						
Bangladesh	168	.	168	.	26	53
China	33	50	41	38	151	171
Hong Kong	37	16	17	22	1	16
India	141	50	116	79	57	84
Indonesia	134	83	133	117	19	35
South Korea	37	70	12	38	34	44
Pakistan	139	79	150	119	30	63
Sri Lanka	134	204	132	204	43	56
Philippines	134	112	119	112	1	21
Thailand	127	116	123	116	-10	-1

Source: Quota growth rates from Martin (2004), GDP growth rates from Eurostat, IFS, own calculations.

Finally, Table 6 reports our estimates for the United States. The most striking set of numbers, given political sensitivities, is the pattern of price wedges for China. We estimate that protection against China - after an initial tendency towards liberalization until the end of Stage 2 of the ATC - has actually gone up over the full ATC period, measured in terms of the price impact of the quotas. This means that, in some ways, the adjustment pressures from the recent final stage of the ATC may be as great as if the quotas had simply been eliminated all at once in 1995-96. This should not be surprising, as China grew much faster than the quota growth rates embodied in the ATC. Table 7 compares cumulative GDP growth rates as a proxy for the supply and demand potential of trading partners to quota expansion over the period 1994-2004. Basically, supply growth in China, and the growth in U.S. demand, appears to have outstripped

the expansion of the quotas under the ATC. (The same is true for the European Union, see Table 7.) Turning back to Table 6, we also see no real liberalization vis-a-vis India, while quotas became increasingly binding.

Note that in 2001-2002, Vietnam graduated from Smoot-Hawley to MFN tariffs. Vietnam's trade is mapped to MFN tariffs in the WITS database, so that the estimates for the initial years in the Table (broadly mapping to ATC Stages 1 and 2) reflect Smoot-Hawley tariffs. The move to MFN rates is reflected in the dramatic drop in Vietnam's price wedges moving into ATC Stage 3. Note again that, like Canada, the U.S. also has substantial protection against East European suppliers. This corresponds to a narrow set of wool-based products that were restricted by U.S. quotas. These quotas were not really an issue at the end of the Uruguay Round. In 1993, these countries were emerging from the fog of communism, and were not major players on world markets. Detailed 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, as reflected by their absence from the Tables.

4.3 Sensitivity Analysis

5 Conclusions

In this paper, we have examined the evolution of textile and clothing quota rents under the Uruguay Round Agreement on Textiles and Clothing (the ATC) through 2004. The ATC quotas have been in phase-out mode since 1995-96. A key message from our calculations is that the problem of China's (PRC) textile and clothing sector integration was basically deferred. This is not solely a result of the ATC itself, but still caused to a large extent by the existence of pre-defined quota expansion rates during a period of outstandingly strong expansion of China's supply potential. In practise, this means that the potential still exists for a substantial surge in Chinese exports after 2005.

The estimates of protection presented in this paper have serious implications for the

pattern of textile and clothing trade. Non-ATC suppliers, including U.S. FTA partner Mexico, EU customs union partner Turkey and the beneficiaries of EU trade preferences in Africa, will experience a dramatic erosion of competitive position in the immediate future. In the case of the United States, this implies a substantial shift of import demand for clothing toward China, Turkey, and India. In addition, sourcing of wool products can be expected to shift further out of North America. In the European Union, we should expect a large, but less so, shift of demand toward China as well. This is because the quota premium for China is less than the China premium for the United States. This will be accompanied by a further shift toward East Asian supplies, and the EU has higher East Asian premiums than the U.S. This means, of course, that in third markets, non-APC suppliers should pick up market share. This includes export markets like Australia, New Zealand, and Japan, in addition to the middle-income exporters.

In addition to backloading of liberalization, 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. 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 scope for relative preference erosion under the ATC is different from that related to tariff preferences. (See Francois, Hoekman, and Manchin 2005). It follows instead from the fact that 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 developing countries were favoured by preferential access, this has been largely at the expense of

other developing countries.

The European Union has addressed the problem of relative preference erosion following ATC quota elimination, to some extent, with the "Everything But Arms" initiative. With the exclusion of sensitive 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. See Francois and Spinanger (2004) for more on this.

The MFA and ATC have, in effect, been serving as a negative preference system, helping other developing country suppliers at the expense of two potentially dominant suppliers – India and China. 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 textile and clothing tariffs under Doha negotiations, the shift of textile and clothing trade will be accelerated. Such a surge in Chinese exports would of course mean lost market share for most other developing countries if other economies do not attempt to take advantage of specific contingent protection rules included in China's protocol of WTO accession. These permit other WTO members to keep protectionist pressure up against China (PRC) for 15 years. They cover special anti-surge clauses for textile and clothing products (4 years), general anti-surge clauses (12 years) and treatment of China as a "non-market economy" in antidumping cases (15 years). The US and the EU have meanwhile negotiated new quota limits on certain product categories with China. In the EU, these new quotas have already proven to be highly restrictive given that they were fully filled only two months after their implementation.

Icing the cake is the fear that anti-dumping measures against China will also rise. The pattern of ATC quotas across regions promises that the next few years will be very interesting indeed. The impression arises that the reservations against the integration of the textile and clothing sector into the GATT are mainly about two issues: China's supply potential and the willingness of the ATC importers to restructure their domestic

textile and clothing producing industries. The latter seems to be the greater obstacle towards trade liberalization in the sector. While the ATC would in principle have offered a transition period for restructuring, this opportunity has apparently not always been used accordingly. Meanwhile, a strong conflict of interest has emerged in the EU and the US between traders and consumers of textiles and clothing on the one hand and producers on the other. This will further heat up the discussion and make the whole liberalization issue a topic of internal, domestic politics rather than multilateral trade negotiations.

References

- Andriamananjara, S, J. Dean and D. Spinanger (2004). "Trading Apparel: Developing Countries in 2005 " mimeo, USITC and Kiel Insitut for World Economics.
- Baughman, L. R. Mirus, M. Morkre, and D. Spinanger (1997). "Of Tyre Cords, Ties, and Tents " *World Economy* 4: 407-434.
- Chyc, K., M. Gelhar, D. Gray, T. Hertel, E. Ianchivichina, B. McDonald, and M. Tsigas (1996), "The GTAP Database, " in T. Hertel, ed., *Global Trade Analysis*, Cambridge: Cambridge University Press.
- Clair, G., G. Gaulier, T. Mayer, and S. Zignago (2004). "Notes on CEPIIs distances measures " CEPII: Paris.
- De Melo, J. and A.L. Winters (1993). "Price and Quality Effects of VERs Revisited: A Case Study of Korean Footwear Exports" *Journal of Economic Integration* 8: 33-57.
- Disdier, A.C. and K. Head (2003). "Exaggerated Reports on the Death of Distance: Lessons from a Meta-Analysis " mimeo, TEAM, Université de Paris I Panthéon Sorbonne.
- Francois, J.F. and D. Spinanger (2004). "Liberalizing Quotas on Textiles and Clothing: Has the ATC Actually Worked? " paper presented at the annual GTAP conference, Washington.
- Francois, J.F. H.H. Glismann and D. Spinanger (2000). "The Cost of EU Trade Protection in Textiles and Clothing" Kiel Working Papers no. 997, August.
- Francois, J.F. B. Hoekman. and M. Manchin (2005). "Preference Erosion and Multilateral Trade Liberalization" Tinbergen Institute discussion paper TI2005-073/2.
- Francois, J. B. McDonald and H. Nordstrom (1995). "Assessing the Uruguay Round" in W. Martin and L. Alan Winters, eds., *The Uruguay Round and the Developing Economies*, World Bank discussion paper 307.
- Harrigan, J. (1993). "OECD imports and trade barriers in 1983 " *Journal of International Economics* 35 (1), 91-111.
- Harrison, G.W., T.F. Rutherford 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. Washington, DC).
- Hertel, T.W., W. Martin, K. Yanagishima 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. Washington, DC).
- Krishna, K. And L.H. Tan (1997). "The Multifibre Arrangement in Practice: Challenging the Competitive Framework" in D. Robertson ed., *East Asian Trade After the Uruguay Round*, Cambridge.
- Leamer, E. (1990). "Latin America as a target of trade barriers erected by the major developed countries in 1983 " *Journal of Development Economics* 32, 337-368.

- Martin, W. (2004). "Implications for Pakistan of abolishing the textile and clothing quotas " Report by The World Bank, April 30.
- Matyas, L. (1997). "Proper Econometric Specification of the Gravity Model " *The World Economy* 20:363-368.
- Mayer, T. and S. Zignago (2003). "Border Effects of the Atlantic Triangle " mimeo, paper presented at the RIN conference in Punta del Este, December.