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ABSTRACT

This paper analyzes China's experience under U.S. apparel and textile quotas. It makes use of a unique new database that tracks U.S. trading partners' performance under the quota regimes established by the global Multifiber Arrangement (1974 to 1995) and subsequent Agreement on Textiles and Clothing (1995 to 2005). We find that China was relatively more constrained under these regimes than other countries and that, as quotas were lifted, China's exports grew disproportionately.

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1. Introduction

On January 1, 2005, restrictions on the fourth and final set of textile and clothing products regulated by the Agreement on Textile and Clothing (ATC), the successor of the Multifiber Arrangement (MFA), were removed. The expiration of these quotas ended decades of bilateral non-tariff-barrier protection in this industry and set the stage for a substantial reallocation of production and exports across countries.

This paper makes use of a unique new dataset on U.S. quotas to examine China's relative performance in the U.S. market both under the MFA/ATC regime and after its removal. Although China's textile and clothing (T&C) export market share was expected to increase once quotas were lifted, predictions varied widely.[1] In fact, U.S. T&C imports from China jumped 40 percent in quantity terms the year after quotas were abolished, boosting the country's share of the U.S. import market by 7 percentage points to 33 percent. By comparison, imports from India, the country with the next highest increase, rose 21 percent, raising its import market share to 4 percent. Though China's rapid acceleration spurred U.S. textile and clothing manufacturers to lobby, successfully, for the imposition of new safeguards, we show here that China's gains came almost entirely at the expense of other U.S. trading partners rather than domestic firms. This suggests that smaller T&C producing countries were the de facto beneficiaries of the MFA/ATC through what essentially amounted to guaranteed access to the U.S. market. These countries were against quota dismantlement and also lobbied to re-constrain China in 2005. T&C exports from Sub-Saharan African nations, for example, which previously had increased under the African Growth and Opportunities Act, experienced a 17 percent drop in terms of quantity between 2004 and 2005. The decline among East Asian countries' was a comparable 11 percent.

We demonstrate that even though China's export growth in 2005 was large, it could have been anticipated given the relative restrictiveness of its quotas *vis a vis* other countries as well as its performance in earlier rounds of quota relaxation. China was ineligible for the first two phases of quota elimination under the ATC in 1995 and 1998 because it was not a member of the WTO. Upon entering the WTO in December 2001, China's quotas on the goods included in the first two phases were removed immediately, and its *average* export quantity across these products jumped 111 and 151 percent in the first year, respectively. Entry into the WTO also allowed China to participate in the third phase of quota retirements in 2002, and its U.S. exports of these products increased a comparable 145 percent.

[1] While some computable general equilibrium studies predicted that China's post-MFA/ATC textile and clothing market share in the U.S. would increase by 7 and 34 percentage points, respectively (see, for example, Nordas (2004)), others (e.g., Diao and Somwaru (2001)) estimated much more moderate growth of 6 percent in Chinese T&C exports to the world.

China's export growth following quota removal was substantially larger than that of other countries' export growth when their quotas were removed. One potential explanation for this outcome is that U.S. constraints on China under the MFA/ATC were relatively more stringent than the constraints the United States placed on its other trading partners. Several pieces of evidence are consistent with this hypothesis. First, we find that the rates at which Chinese quotas were allowed to grow over time under the MFA/ATC regime were small relative to the growth rates granted to other countries. Second, we demonstrate that the United States placed greater restrictions on China's ability to shift quota allocations across different categories of goods or across years. Finally, we show that China systematically exhibited the highest fill rates – that is, actual exports divided by allocated quotas – of all countries in our sample.

We investigate price as well as quantity responses to quota relaxation. We find that quota removal is associated with relatively large reductions in export unit values across all U.S. trading partners, and that these declines are more substantial in goods whose quotas are more binding. Chinese unit values in goods whose quotas were relaxed in the final phase of the ATC in 2005, for example, fell an average of 43 percent. For the least-constrained exports, the decline was 37 percent, while for the most constrained exports it was 53. China experienced similar declines in the previous phases as well. One interpretation of these declines is that they signal a decline in export quality. A more compelling hypothesis is that the dismantling of quotas simply allowed exporters to slide down their demand curves which resulted in higher export quantities and lower prices.

The analysis in this paper is based upon an electronic dataset we constructed from hard copies of U.S. trading partners' Expired Performance Reports. These reports were compiled by the U.S. Office of Textile and Apparel (OTEXA) to monitor importers' performance under the MFA/ATC regime and were made available to us by Ron Foote of the U.S. Census Bureau. Our dataset will be made available for download at www.nber.org/data/.

The remainder of this paper is organized as follows. In Section 2 we briefly summarize the Multifiber Arrangement and Agreement on Textile and Clothing. Section 3 and the Appendix provide a detailed description of the contents of the U.S. MFA/ATC database. Section 4 uses the database to compare China's treatment under the U.S. MFA/ATC to that of other U.S. trading partners. Section 5 examines China's response to quota retirements. Section 6 concludes.

2. The MFA and the ATC

The Multifiber Arrangement grew out of a series of voluntary export restraints imposed by the United States and Europe on large Asian textile and clothing exporters (Spinanger, 1999). Signed in 1974, the agreement imposed restrictions on exports to industrialized

countries through a complicated system of bilaterally negotiated quotas on textile and clothing products. As a result of the MFA, T&C products were kept out of multilateral trade negotiations under the General Agreement on Tariffs and Trade (GATT) and its successor, the World Trade Organization (WTO).

A major development of the Uruguay Round was the signing of the Agreement on Textile and Clothing (ATC) in 1994. The ATC ended the MFA and began the process of integrating textile and clothing products into GATT/WTO rules by removing their quotas. Integration occurred over the four phases outlined in Table 1. During each phase, importing countries were to integrate a portion of all T&C products covered by the ATC. The particular products integrated in each phase were specific to importing countries but subject to two rules. First, the products retired in each phase had to include goods from all four major textile and clothing segments: Yarn, Fabrics, Made-Up textile products (e.g., table linen, carpets and curtains), and Clothing. Second, the chosen products had to represent a set portion of each country's 1990 T&C imports, by volume. In Phase I, which began on January 1, 1995, countries had to integrate products representing 16 percent of their 1990 import volumes. An additional 17 and 18 percent of 1990 export volumes were integrated at the beginning of Phases II and III on January 1, 1998 and January 1, 2002, respectively. Finally, on January 1, 2005, Phase IV of the ATC culminated in the integration of the remaining 49 percent of export volumes and all quotas were abolished.

Quotas removed during the first two phases of the ATC were in general not very painful for producers in developed countries. In the United States, ATC products accounted for 17.1 billion square meter equivalents (SME) worth of imports in 1990.[2] However, U.S. imports of products actually subject to quotas in that year totalled just 12.2 billion SMEs (USITC, 2004). As a result, the U.S. found it relatively easy to defer removal of quotas on "sensitive" products until the third phase. Products such as tents and life jackets, for example, were included in the ATC but had not been subject to U.S. import quotas. The United States integrated these products in the first phase. As indicated in the final column of Table 1, the United States retired a total of 4,839 ten-digit Harmonized System (HS) product codes across the four phases, of which 62 percent were retired in 2005. In this paper, these HS codes are our definition of the set of T&C products imported by the United States and governed by the ATC.[3]

In addition to gradually removing quotas, the ATC improved developing countries' access to developed-country markets by accelerating quota growth over the four phases of quota removal. These changes were governed by what is referred to as the ATC's "growth-

[2] Product quotas under the MFA and ATC were set in terms of square meter equivalents (SME), with each product having an explicit "conversion factor" to determine the SME of their native units (e.g., pairs of socks). Examples of SME are provided in Table 4.

[3] We are grateful to Keith Daly at OTEXA for providing us with this list.

on-growth" provision and are summarized in the third column of Table 1. At the beginning of Phase I, existing quota growth rates were accelerated 16 percent per year, while they were accelerated by 25 and 27 percent in Phases II and III, respectively. A category with a base quota growth rate of 6 percent in 1994, for example, would grow at 6.96 percent (0.06*1.25) per year during Phase I, 8.7 percent (0.0696*1.25) per year over Phase II, and 11.05 (0.087*1.27) percent per year during Phase III.[4]

China's non-WTO member status prior to 2001 made it ineligible for ATC integration benefits during its first two phases. When China was admitted formally into the WTO on December 11, 2001, the United States immediately removed its quotas on Phase I and II Chinese imports. For the remaining phases, China was included along with other countries. After WTO accession, China also received growth rate increases consistent with the ATC.[5]

As part of its entry into the WTO, China agreed to special safeguard provisions, subject to "consultations" that would limit its exports to countries experiencing market disruptions after the ATC was phased out. Under the guidelines governing China's accession into the WTO, WTO members could enter negotiations for new safeguards on China provided that they showed the existence or threat of market disruption and a role for Chinese goods in that disruption (World Trade Organization, 2001). The safeguard provision is applicable until December 31, 2008.[6]

When the final set of products expired in 2005, domestic textile and apparel industry groups successfully lobbied for new safeguards against China on 22 OTEXA groups. The products they cover are identified in the Appendix. These safeguards remain effective until the end of 2008. However, the U.S. and China reached a memorandum of understanding that the US would "exercise restraint" on additional safeguards. Table 2 lists the quota levels that are operative until 2008.

3. The U.S. MFA/ATC Database

This section describes the U.S. MFA/ATC database constructed for this paper and summarizes its contents. The database is assembled from U.S. trading partners' Expired Performance Reports, which were used by the U.S. Office of Textile and Apparel (OTEXA) to monitor trading partners' compliance with the MFA/ATC quotas. Generously provided by Ron Foote of the U.S. Census Bureau, they document imports, base quotas and quota adjustments (defined below) by OTEXA category and year for all countries with which the

[4] Quota growth acceleration was advanced one phase for countries with less than 1.2 percent of the importing country's total quotas in 1991.

[5] China's growth rates were increased by 27 percent plus an additional pro-rated increase to account for its 3 weeks of WTO membership in 2001 (USITC, 2004).

[6] For additional details regarding the post-ATC Chinese safeguards, see Whalley and Dayaratna-Banda (2007).

United States negotiated a bilateral quota arrangement. Data for 1984 to 2004 have been converted to electronic form; data for earlier years are in process.[7] Refinement of the raw data is discussed in the Appendix.

Between 1984 and 2004, the U.S. signed bilateral MFA/ATC agreements with the 71 countries listed in Table 3. Seven of these countries—Barbados, Canada, Lebanon, Pacific Islands, Portugal, Spain and Trinidad and Tobago—were not subject to what is known as "specific limits", the most restrictive quota classification and the focus or our analysis (see discussion below). The details of an agreement were negotiated over an "agreement term" which typically lasted several "agreement periods." For most countries, an agreement period corresponded to a full calendar year.[8] The United States negotiated quotas on 149 three-digit OTEXA specific-limit categories, where each category is an aggregate of about 30 HS products. The OTEXA categories span the four T&C "segments" noted above: Yarn, Fabric, Made-Ups and Clothing. Examples of OTEXA categories in each segment are provided in Table 4; the full list is provided in the Appendix.

Quotas were negotiated on individual OTEXA categories as well as on both aggregations and subsets of categories, which are known as "merged" or "part" categories, respectively. As a result, country-year-category observations in the database actually encompass a mixture of categories, merged categories and part categories. For simplicity, we refer to all of these observations as being at the "category" level for the remainder of the paper.

The negotiated quota for any particular category is stated in terms of square meter equivalents (SME) of fabric. To pool potentially diverse categories with different native units – e.g., pairs of gloves and dozens of shirts – the ATC established "conversion factors" to concord native units into square meter equivalents. These conversion factors are used to aggregate base quotas and import levels and to provide a means of shifting quotas across categories with different units (e.g., shirts to socks). The conversion factor for each HS product is provided in the Appendix.

The Expired Performance Reports refer to nine possible classifications of negotiated quantities. In this paper, we focus exclusively on "specific limit" quotas, which according to OTEXA, were the most restrictive quotas used under the MFA/ATC. The other classifications are designated consultation levels, minimum consultation levels, other categories, restraint limits, guaranteed access levels, designated consultation provisions, agreed limits and tariff preference levels. Several of these designations are not actually quotas, but rather served as watch lists. Their application is noted in the MFA/ATC Database.

[7] Data for 1986 are missing.

[8] For some countries, including Brazil, Indonesia and Sri Lanka, the agreement period in early years covered overlapping calendar years. All periods were standardized to match the calendar year under the ATC.

Specific quotas grew at fixed, known rates over an agreement term.[9] Overall, they grew an average of 6 percent per year, but growth varied across countries and categories. China, for example, faced annual specific quota growth rates of 1 to 2 percent, and wool products experienced slower growth than cotton goods.[10]

The share of a country's T&C export OTEXA categories covered by specific limits provides one measure of cross-country variation in quota restrictiveness. Table 5 reports these shares for the major T&C exporters in the pooled 1990 to 2004 dataset. Of the major exporters, China, South Korea and Taiwan faced specific limits on more than 50 percent of the total number of categories exported to the United States. By comparison, India faced quotas on just 20 percent of the total OTEXA categories it exported to the U.S. between 1990 and 2004.

The U.S. MFA/ATC Database records the "base" quota, the "adjusted base" quota and the total exports for each specific limit by country and year. The base quota is the originally negotiated quota level determined at the start of an agreement term. Adjusted base quotas reflect the use of what are known as "flexibilities," which allowed countries to exceed their base quota in a given period by borrowing unused base quota, up to a specified percentage of the receiving category, across categories within a year and across years within a category. Countries could apply multiple flexibilities on a category and the adjustments had to be met by corresponding offsets in the lending categories.

There were three major flexibilities:

1. *Carryforward and carryforward used:* A carryforward allowed countries to borrow base quota from the subsequent period within a category. A carryforward used offset a carryforward. For example, in 1997 Macao carried forward 20,419 SME in category 338 ("Men/boys knit shirts"). The flexibility was then offset in 1998, under a carryforward used, by -20,419 SME. Borrowing was subject to a country-product specific limit.

2. *Carryover and shortfall used*: A carryover utilized unused quota from the previous period within a category, subject to a country-product specific maximum. A shortfall used offset a carryover.

[9] For some countries, there was another layer of quotas known as "group limits". A specific limit was a category-specific quota while the group limit imposed an aggregate quota over several specific limits within the group. A category could therefore be bound by a specific limit (individual, merged or part), subject to a group specific limit, or both. One potential explanation for group limits is that it limited the use of flexibilities across groups (see below). We ignore the group limits in this paper but they are available in the MFA/ATC Database.

[10] We include only specific-limit categories in our examination of fill rates below. In our regression analysis, non-specific limit categories are treated as unbound; the regressions include all T&C HS codes from all T&C exporters.

3. *Shift-add, shift-subtract, swing*: Shift-add, shift-subtract, and swings allowed across-category base movements within a year, subject to limits.

After accounting for all flexibilities, the adjusted base quota for a given year reflects the country-category deviation in that year from the original base quota. For example, China's 2002 base quota for category 219 ("duck fabric") was 2.6 million SME. China made two adjustments on this category that year. First, it borrowed 2 percent from the previous year's unused quota (carryover). Second, it added 5 percent of its original base quota from another category (swing). These adjustments resulted in an adjusted base quota of 2.8 million SME for category 219 in 2002. If a country made no adjustment on a category, the adjusted base quota simply remained at the base quota.

Table 6 compares countries' aggregate adjusted base quotas and exports across all categories from 1984 to 2004. Results are reported for the thirty countries with the largest aggregate adjusted base quotas. As indicated in the first two columns of the table, China, Taiwan and Hong Kong exhibit the highest levels of both adjusted base quota and exports between 1984 and 2004. The final column of Table 6 reports countries' aggregate "fill rates," which we define as exports as a percentage of adjusted base quota. Although adjusted base quotas can exceed base quotas, fill rates cannot exceed 100 because they are defined as exports over adjusted base. As indicated in the table, Bangladesh, China, Indonesia, Pakistan, India and Sri Lanka all exhibit aggregate fill rates in excess of 80 percent over the sample period. Countries with relatively low fill rates include Jamaica, Guatemala, Colombia and Honduras.

Fill rates provide a second metric for evaluating U.S. quota restrictiveness under the MFA/ATC. We follow the USITC (and Evans and Harrigan (2005) in defining a binding quota as one in which the fill rate exceeds 90 percent. Here, too, results are reported for the thirty countries with the largest base quota. As indicated in Table 7, Bangladesh, India and China exhibited the largest share of binding quotas over the sample period, in each case above 60 percent. We note that using a more liberal or conservative definition for binding quotas, that is, fill rates of 80 and 95 percent, respectively, does not result in any substantial re-ranking of counties in terms of which are most constrained over the sample period.

Interestingly, we find that less than 30 percent of the quotas were binding for other major developing East Asian economies such as South Korea, Taiwan and Malaysia. Thus, even though these countries were subject to a relatively large fraction of specific limits (see Table 5), these limits appear to have been relatively weak. This outcome may be driven in part by these countries' relatively fast movement into more sophisticated manufactures over the sample period. Indeed, we show in the next section that the share of East Asian observations with binding quotas diminishes over time.

Heterogeneity in fill rates is also apparent across OTEXA categories. Table 8 reports aggregate fill rates for the ten largest OTEXA categories. Trousers and knit shirts are the most constrained categories, with exporters filling more than 80 percent of the allocated quota. Textile categories such as cotton sheeting fabric and cotton poplin exhibited fill rates around 50 percent. The database reveals that the (weighted) average fill rate across all years and exporters for textile categories was only 48 percent compared to 72 percent for apparel categories. These fill rates are consistent with research showing that developed countries apply greater protection to industries where escaping competition from developing countries is harder. Khandelwal (2007), for example, argues that it is harder for developed economies to differentiate their products in terms of quality in apparel versus textiles.

Table 8 also shows that while there is heterogeneity in aggregate fill rates across products, China's fill rates exhibited substantially less variation: in all but one of the ten categories, China's fill rates exceeded 90 percent. Columns three and four report Bangladesh's and India's fill rates in the major categories. Although Bangladesh was bound in the apparel categories, the U.S. did not impose specific limits on Bangladesh in the major textile categories, even though Bangladesh exported these products (with the exception of cotton yarns (300/301)). India's fill rates varied widely in the ten categories and was not subject to quotas for underwear, man-made fiber knit shirts and man-made fiber sweaters.

4. China's Relative Constraints Under the MFA/ATC

In this section we demonstrate that China was relatively more constrained under the U.S. MFA/ATC regime than other countries in terms of both quota levels and the ability to make adjustments to these levels.

4.1. Fill Rates

As noted earlier, the restrictiveness of quotas under the MFA/ATC is typically inferred from fill rates, that is, exports as a share of the adjusted base quota. As demonstrated in Table 6, many countries, particularly those in South Asia, exhibit aggregate fill rates similar to those of China. Fill rates, however, vary substantially over time. This variation can be seen in Figure 1, which reports the distribution of fill rates for China and three regions—East/Southeast (E/SE) Asia, South Asia and the rest-of-world (ROW)—which, together, comprise all other countries in the sample.[11] Distributions are reported for three cross-sections, 1985, 1995 and 2004. Each row and column of the figure contains histograms for a different year and region, respectively. In each histogram, the last bin reports the

[11] The East/Southeast Asian countries are: Cambodia, Hong Kong, Indonesia, South Korea, Laos, Macau, Malaysia, Philippines, Singapore, Taiwan, Thailand and Vietnam. The South Asian countries are: Bangladesh, India, Maldive Islands, Nepal, Pakistan and Sri Lanka.

share of binding quotas (i.e., those with fill rates exceeding 90 percent). As indicated in the last three columns of the figure, countries in East/Southeast Asia, South Asia and ROW experienced more-or-less steady declines in binding quotas over the two decades. East/Southeast Asia's binding quotas, for example, drop from 60 percent in 1985 to less than 20 percent in 2004, while the fraction for South Asia decline from 60 and 70 percent in 1985 and 1995, respectively, to 30 percent in 2004. China's distribution of fill rates, on the other hand, remains essentially constant over sample. This provides initial evidence that China's T&C exports to the U.S. remained constrained throughout the MFA/ATC.

Figure 2 plots the fraction of binding specific limits over time for China and the three mutually exclusive regions. Until 2000, roughly 60 percent of specific limits for China and South Asia were binding. After that, South Asia experienced a faster fall in binding categories than China, which continues to oscillate around 60 percent. The fraction of binding specific limits in East/Southeast Asian countries, on the other hand, gradually fell between 1984 and 2004. Figure 3 plots the (weighted) average fill rate for the four regions, where category fill rates are weighted by countries' adjusted base quotas. Weighted average fill rates again fall steadily throughout the sample period for East/Southeast Asia and ROW. Weighted average fill rates for China and South Asia remain roughly constant at 80 percent until the last three years of ATC integration, whereupon rates fall sharply for South Asia but remain steady for China . One potential explanation for China and South Asia's declines in the 2004 is that the countries carried over unused base from 2003 as "insurance" against potential positive demand shocks in 2004, knowing that offsets were not applicable since it was the final year of the ATC.[12]

The time path of fill rates imply that quota growth exceeded export growth for all regions except China. Figure 4 traces out the median year-over-year growth in base quota for the four regions over the sample period. For East/Southeast Asia, South Asia and ROW, the step increases in base quota growth rates match the ATC growth-on-growth provision described in Table 1 above. Annual growth for ROW, for example, increased by 16 percent (from 6.00 to 6.96 percent) at the beginning of Phase 1, by 25 percent (to 8.7 percent) at the beginning of Phase II, and by an additional 27 percent (to 11.05 percent) at the beginning of Phase III. The step functions for East and South Asia exhibit identical increases. China's trajectory of base quota growth, in contrast, is essentially flat. Prior to the ATC, China's growth was roughly equal to that for East/Southeast Asian countries, but in 1994, China's base quota growth was frozen (set to zero). China became eligible for the growth-on-growth provision in 2002, after entry into the WTO, and its median growth rate ticked up slightly, but the magnitude of the increase was small given China's low growth rate. China's overall

[12] The U.S. MFA/ATC Database delineates the type of adjustments made for each category in the footnotes of each Expired Performance Report. These footnotes have not been processed electronically so this claim cannot be explicitly tested. Yet for China, this phenomenon appears to be the case.

base growth rate was much lower than the rest of the world for the remainder of the ATC.

Quota restrictiveness also varied across OTEXA categories. Wool T&C articles (OTEXA category series 400), for example, were subject to slower base quota growth rates. Figure 5 plots the median growth rate for wool category specific limits. Prior to 1994, all countries including China experienced base quota growth rates of 1 percent. After the freezing of Chinese wool quotas in 1994, the median wool category growth rates was lowered to 0.5 percent per year until WTO accession. East/Southeast and South Asian and the ROW trajectories, on the other hand, followed the ATC growth-on-growth provisions outlined above.

Andriamananjara et al. (2004) argue that the price wedge created by the quota rents is a better measure of quota restrictiveness than fill rates. Such a price wedge can be measured by export tax equivalents (ETE), which capture the degree to which the quotas increased export prices.[13] A crude way of approximating these rents is to compute the export tax-equivalence of the quota. Under a perfectly competitive T&C market, the export tax equivalent is

$$ETE_{cmt} = \frac{l_{cmt}}{uv_{cmt} - l_{cmt}}, \tag{1}$$

where l_{cmt} is the license price paid by the firm in country c in order to export products in OTEXA category m at time t (measured in dollars per SME) and uv_{cmt} is the free on board unit value. This measure of ETE captures the increase in prices due to quotas licenses.

To examine whether our measure of binding quotas is a reasonable approximation of quota restrictiveness, we use data on Chinese export license prices available for a subset of OTEXA categories from 1999 to 2004.[14] Figure 6 first plots the license price data against the OTEXA category fill rates in the MFA/ATC database. The two measures of restrictiveness exhibit a positive correlation. This relationship is intuitive: one would expect that firms pay a higher price for a licenses in which capacity to export is tighter. Though information on China's license-allocation procedure has been difficult to obtain, Yang (1995) reports that approximately 30 percent of licenses were auctioned as of the mid 1990s. The rest were non-tradeable permits that were allocated based on past performance.

China's fill rates are also highly correlated with our measure of ETE. The first column of Table 9 summarizes the results of regressing the log of ETE on the OTEXA category fill

[13] In countries where export licenses are used to ensure quota adherence, for example, quotas could be binding even if fill rates are low due to insufficient or misallocation of licenses. According to Andriamananjara et al. (2004), the internal license allocation regime was inefficient and expensive in many countries. Some countries had an additional layer of quotas that covered several specific limits, known as group limits, which could also prevent countries from filling individual specific limits.

[14] We thank Judy Dean for referring us to data on Chinese export license prices available at www.chinaquota.com. Unfortunately, similar data is not available for all countries in our sample.

rates and year dummies. The estimated coefficient is 2.1 and highly significant; it implies that a 10 percentage point increase in the fill rate is associated with a 21 percent rise in the ETE. Column two reports an analogous regression but includes OTEXA category fixed effects and therefore relies solely on variation within categories to identify the correlation coefficient. As indicated in the table, the estimated coefficient is 1.4. While license price data is only available for China in select years, we interpret these results as providing support for our and others' use of fill rates as a gauge of quota restrictiveness.

4.2. Flexibilities

The restrictiveness of the U.S. quota regime can also be measured in terms of countries' ability to adjust their base quotas over time. As discussed above, the MFA/ATC agreements granted trading partners limited flexibility to borrow and lend quotas across categories and years in response to demand and supply shocks. To our knowledge, use of flexibilities has received little attention in the literature. In this section, we examine both the use of flexibilities as well as their intensity, conditional on use. We find that China's adjustments to its base quotas were more frequent and smaller than those of other countries.

Figure 8 demonstrates that China made relatively greater use of flexibilities in terms of frequency than countries in East/Southeast Asia and ROW. The figure reports the fraction of regions' OTEXA categories subject to at least one adjustment, which we identify as a difference between countries' base and adjusted base quota in a given category and year. As indicated in the figure, adjustments to base quotas are observed for more than 80 percent of China's specific limits in each year after 1988, and on 100 percent of its categories in each year after 2000. This usage is slightly lower than that of South Asia before 1999 and slightly higher than it after 1999. It is higher than the usage exhibited by either East/Southeast Asia or ROW, which remain below 80 percent and 50 percent, respectively, throughout the sample period.

One potential explanation for China's relatively frequent adjustments is that it faced more restrictive caps on its ability to reallocate quotas across categories and time. If flexibility caps were small, a desired increase in one category might involve more transfers across categories or years than if the caps were large. Unfortunately, the Expired Performance Reports do not provide comprehensive information on countries' flexibility limits over the entire sample period.[15] Details available for 1997, however, indicate that China was allowed across-category shifts up to a maximum of 5 percent of the receiving category's base quota and across-time movements of up to 3 percent. Bangladesh and Jamaica, by contrast, were permitted shifts of up to 7 percent across categories and 11 percent across time.

[15] Flexibilities were capped at an amount determined by the country's bilateral agreement. As a result, we do not have these details for all agreements in the database.

Further evidence suggesting China faced relatively tight flexibility caps is provided in Figure 7, which summarizes countries' observed "flexibility margins" across categories. We define these margins to be the absolute percentage deviation of the adjusted base from the original base for a particular country, category and year. They are computed across all categories in which adjustments are observed. China's median margin, at 5 percent, is the lowest in the figure and less than half the level exhibited by South Asia, the region with the highest margin. A comparison of margins across five-year intervals (not shown) yields a similar impression: medians for China, East/Southeast Asia and ROW are essentially flat at the levels displayed in Figure 7, while flexibility usage for South Asia increases from 6 to 12 percent over the sample period.

Another potential explanation for China's greater use of flexibilities is the relative restrictiveness of its quotas. Given its relatively low quota levels and annual quota growth rates, frequent adjustments to its base levels may have been necessary to respond to given demand or supply shocks. Countries relatively less constrained by their quota levels and growth rates, by contrast, would have more room to respond without making as many adjustments. Though we do not pursue this topic here, it is likely that data on countries' flexibility limits and usage under the MFA/ATC could be used to help construct and calibrate a model of optimal quota borrowing and lending.

5. China's Performance During the ATC Phase-Outs

The analysis in the previous section indicates that China was more constrained in terms of quota levels and the ability to adjust quotas than other countries subject to the MFA/ATC. In this section, we examine China's export performance during the ATC phase-outs in terms of both quantity and price. We demonstrate that these responses also suggest that China was relatively more constrained by the MFA/ATC than other countries. In doing so, we show that China's export surge in 2005 had ample precedent in prior phases of quota liberalization, but that its expansion in the U.S. market came primarily at the expense of other trading partners rather than domestic producers.

5.1. Quantity

As discussed earlier, the United States eliminated quotas on 4,839 products over the four phases of the ATC between 1995 and 2004. Figure 9 plots the evolution of export quantity for Phase I, II, III and IV products for three regions: countries not subject to quotas under the MFA/ATC (e.g., Japan, Germany, France, etc.), China, and the remaining countries subject to specific limits (see Table 3). The four panels of the figure plot total exports to the United States in SME by each region across the HS products captured in each phase,

respectively. These figures only include HS codes that were present in every year from 1990 to 2005 and therefore distinguish export growth in the intensive margin (that is, exports per HS code) as opposed to the extensive margin (that is, HS codes).

The first panel in the figure indicates that no region experienced a substantial increase in exports when the Phase I products were integrated in 1995. This outcome is consistent with the claim that the United States retired its least sensitive products in this first phase.

In Phase II, there is once again no obvious increase in exports by the quota-constrained countries. However, the figure notes that Chinese Phase II exports in these products doubled from 0.23 billion ($e^{19.2}$) SME in 2001 to 0.45 billion ($e^{19.9}$) SME in 2002, which is the year China was first able to realize the benefits of Phase II ATC integration because of its entry into the WTO.

The third panel of Figure 9 plots the export response in Phase III products. Because China joined the WTO in 2002, it responded immediately to this phaseout as well as to the relaxation of its quotas in both Phase I and Phase II products. China's year-over-year Phase III exports more than tripled from 0.5 billion SME to 1.7 billion SME. Aggregate Phase III exports from the ROW experienced virtually no change during this ATC integration stage. Results for Phase IV, reported in the bottom panel of Figure 9, are similar. China's year-over-year growth in Phase IV export product quantities in 2005 almost quadrupled from 0.78 billion SME to 3.1 billion SME, and this growth was likely constrained by the fact that safeguards were imposed within months of the ATC's demise. Alternatively, some analysts believe that China's 2005 large increase in Phase IV exports occurred precisely to hedge against potential safeguards. By dramatically increasing exports within products, Chinese exporters may have been trying to establish higher base levels in case new quotas were imposed. Table 2 provides some evidence for this hypothesis. In contrast, Phase IV exports for quota-constrained and unconstrained regions actually fell.

For a more precise summary of the impact of ATC phaseouts on countries' exports, we regress the change in a country-product-pair's export quantity on region-year dummies,

$$\Delta \ln q_{crht} = \beta_{rt} + \nu_{crht} \tag{2}$$

where $\Delta \ln q_{crht}$ is the change in export quantity in SME of country c in region r in HS product h between years t and $t+1$ and β_{rt} are region-year interaction fixed effects. The expression differences out the country-product fixed effects so region-year fixed effects identify the average within-variety (country-product pair) quantity changes over time. This allows us to focus on the intensive margin. Here, we place all countries (both quota constrained and unconstrained countries) into one of 15 more disaggregate regions in order to determine how each fared under the ATC. The regression is run separately for the products integrated in each phase. We note that all of the percent changes discussed in this section refer to log differences, that is, $\Delta \ln q_{crht}$. Actual percent changes can be obtained by taking antilogs.

Table 10 reports the region-year fixed effects for the year corresponding to the ATC integration phase noted at the top of each column (all other region-year fixed effects are suppressed). The results for the Phase I regression, in column 1, reveal that no region experienced a significant jump in Phase I export quantities once their quotas were removed in 1995. China did experience a 38 percent increase in Phase I export quantities in 1995, but this outcome cannot be attributed to quota relaxation because China was not yet a member of the WTO. The positive and statistically significant 41 percent increase in Chinese Phase I exports in 2002 (the last row of Column 1), on the other hand, indicates that when China did become eligible for ATC integration benefits, its exports responded as expected.

Results for Phase II are shown in the second column of Table 10. In 1998, the Middle East, South Asia, East Asia and Southeast Asia – the latter two are now separate – all experienced statistically significant rises in export volumes ranging from 14 to 21 percent. Here, as well, China's surge did not occur until 2002, when it recorded a 111 percent increase in export quantity (bottom row).

Point estimates for the products integrated in Phase III, the first phase for which China was contemporaneously eligible, are reported in the third panel of Table 10. While East Asian exports of these products remained essentially flat, South American, South Asian and Southeast Asian exports experienced increases of 18 to 26 percent. China's export quantity growth, however, was far larger. At 151 percent, it was six times greater than that of the region with the next-largest increase. The final row indicates that China's Phase IV exports increased 27 percent in 2002, its first full year in the WTO. This growth was not due to the relaxation of quotas, since quotas on Phase IV products are not relaxed until 2005. Rather, it reflects one of the benefits of China's accession to the WTO: by entering the WTO, China became eligible for the Phase IV growth-on-growth provision which accelerated quota level growth rates for these products.

Though the growth experienced by South American, South Asian and Southeast Asian countries during Phase III might have been expected to carry over to Phase IV, this did not occur. Indeed, the only country to benefit from Phase IV integration was China, whose year-over-year export quantity increased 145 percent. All other regions experienced export losses, with the largest declines in occurring in the former Soviet Union (-104 percent), Sub-Saharan Africa (-40 percent), the Middle East (-37 percent), the Caribbean (-37 percent) and Central America (-22 percent). This finding is consistent with evidence that Asian firms previously located in other areas, particularly Sub-Saharan Africa, immediately relocated to China once its quotas were removed (see Whalley and Dayaratna-Banda (2007)).

A country's response to quota relaxation might be expected to vary according to how constrained the category was in the year prior to ATC integration: products subject to binding quotas should exhibit steeper growth (or shallower declines) than previously un-

constrained products. To explore this hypothesis, we interact the region-year effects in regression (2) with a dummy indicating whether HS products were part of a category subject to a binding quota in the previous year, using the definition of binding quotas introduced in the last section. Because fill rates are available at the OTEXA category level, we attribute those fill rates to all HS products within a category. As in the previous Table, we examine responses across products according to the integration phase in which their quotas were relaxed. Results for each phase are reported in Table 11, where up to two coefficients—one across products in non-binding categories and one across products in binding categories—are reported per region per regression. As in the previous table, the last row of results summarizes the response of China in the year it joined the WTO rather than the year in which a particular phase took place. For this row, the binding versus non-binding interactions indicate whether a Chinese product was in a category with a fill rate exceeding 90 percent in 2001.

The first column of the Table 11, which summarizes results for Phase I products, reproduces the first column of Table 10 because no Phase I categories were observed to be binding for any country.[16] As a result, the second sub-column under Phase I, labelled "Binding" is blank for every country. For Phase II products, in the second column, only China and South Asia were subject to binding quotas in the year prior to Phase II integration, with China's exports of these products being bound in both 1997 (first row) and in 2001 (last row). Results are consistent with expectations. For South Asia, export quantities increased 20 percent in the non-bound products versus 85 percent in the bound products, though the latter is imprecisely measured. The difference between unbound and bound products for China is more stark: in 2002, its export quantities increase more than 200 percent in bound products versus 93 percent in unbound products.

Results for Phase III are more mixed. More countries are subject to binding quotas, but except for China – whose bound and unbound products grow 180 and 137 percent, respectively – there is little evidence that export growth is greater for products in categories with high fill rates. In particular, the strong growth for South America, South Asia and Southeast Asia observed in Table 2 occurs almost exclusively in its unbound products. Additional calculations (not shown) support the idea that this outcome is due to China "stealing" the growth in the ROW's bound products: in 2002, China's exports in Phase III products where at least one other country had a binding quota increased an average of 150 percent; where no other country faced a binding quota, the average increase was 57 percent.

Point estimates for Phase IV are similarly interesting. Consistent with the previously

[16] Phase I products were placed in the 9xx OTEXA categories which were a collection of products with which the U.S. was relatively unconcerned and therefore integrated early. The U.S. MFA/ATC Database does not have quota information for these OTEXA categories. We interpret the fact that this information is missing as evidence that goods in these categories were unconstrained by quotas.

discussed idea that the U.S. delayed integration of its most sensitive products, we see that Phase IV products are associated with the largest number of regions facing binding quotas. Here, too, China's export quantity growth is significantly higher in its bound versus unbound products, 173 versus 128 percent. For the other countries, declines in unbound categories are offset by increases in bound categories. South America and South Asia, for example, had negative or flat export growth in non-binding categories, but their exports in binding-quota products increased by 36 and 38 percent, respectively. Here, too, there is evidence of "stealing": China's export increase across Phase IV goods in which at least one other country was or was not bound averaged 184 and 78 percent, respectively.

Figure 11 reveals that neither termination of T&C quotas nor China's increased presence in the U.S. market after WTO entry accelerated the decline in U.S. T&C production over the sample period. The figure displays the evolution of market shares for domestic manufacturers as well as imports, by region, from 1990 to 2005. The left axis shows that the domestic U.S. market share (that is, U.S. SME quantity produced as a fraction of U.S. production plus total imports) fell from just above 70 percent in 1992 to roughly 35 percent in 2005.[17] This trend does not break with the beginning of ATC phase outs in 1995 or with the end of the ATC in 2005. There is a sharp decline in 2001, but U.S. production recovers in 2002, the first full year of China's WTO member status. Of course, given that the quota removals and China's entrance into the WTO were likely anticipated, U.S. firms may have chosen to shrink or withdraw prior to their actual occurrence. To the extent that these actions occurred smoothly, they may have resulted in the gradual decline in domestic markets shares displayed in the graph.

Figure 11 also reveals that China's market share in the pooled T&C products triples from the steady 10 percent it held between 1990 and 2001 to 33 percent by 2005. (China's market share, like those of the other regions, is displayed on the right scale of the figure.) During this period, market shares for most other regions contracted. Indeed, of the 5.6 billion SME growth in total U.S. T&C imports between 2004 and 2005, China accounted for 6.3 billion, or 113 percent! During the same period, rest-of-world imports shrank by 0.75 billion SME.

China's expansion at the expense of other U.S. trading partners is best illustrated in Figure 10. The figure plots import market shares in the integration year for each phase and one year prior. A country above the 45 degree line indicates that it gained market share after the liberalization. The figure illustrates that during the first two phases, countries were evenly divided amongst winners and losers. For Phase III and IV, only 30 percent of the countries gained market share after each stage, and China is clearly the largest winner.

[17] Within the subset of OTEXA categories produced both in the United States and by its trading partners, the U.S. market share has declined more-or-less linearly from 83 percent in 1990 to 53 percent in 2005.

Its Phase III and IV market shares increased 15 and 13 percentage points, respectively, after each integration, and its gains in each phase came at the expense of other U.S. partners. For example, in 2002, all South Asian countries' Phase III market shares fell. In 2005, less than a third of Sub-Saharan African nations recorded Phase IV market share growth and its combined Phase IV market shares fell 26 percent from 1.9 to 1.4 percentage points.

China's growth relative to other U.S. trading partners, rather than U.S. producers, appears to have been influential in the imposition of safeguard quotas on Chinese T&C imports after termination of the ATC. These quotas were imposed in 2005 and will remain in effect until 2008. They are summarized, by category and year, in Table 2. The new quotas are substantially larger, and grow faster, than the quotas China faced under the ATC. In Figure 12, we plot the evolution of imports for China and the ROW separately for Phase IV products integrated in 2005 and products subject to the safeguards summarized in Table 2.[18] As indicated in the figure, China's export quantity growth was greatest in the set of products that became subject to new quotas.

5.2. Price (Unit Value)

A second margin along which countries might react to the removal of import quotas is price. In this section we examine the evolution of T&C import f.o.b. unit values (i.e., import value per SME) subsequent to each Phase of ATC integration.

Each column of Table 12 reports the results of a regression analogous to equation (2) but where the dependent variable is the log difference in unit value rather than export quantity. For China, each integration phase lead to a large drop in the average unit value on the set of products liberalized. For Phases I and II, the last row is pertinent. In 2002, Chinese unit values of products relaxed in Phases II and III fell, on average, 44 and 58 percent, respectively. In 2005, they fell 43 percent. Similar results are found across regions, but were lower in magnitude.

Table 13 demonstrates that unit value responses, like those of export quantities, varied according to whether or not products faced binding quotas. Unit value declines for exports previously restrained by binding quotas are generally larger, and this disparity is generally greater for China than for other countries. In 2002, Chinese unit values for bound Phase II products fell 81 percent, versus 38 percent for unbound products. For Phase III and IV products, the declines for China were 66 versus 54 percent, and 53 versus 37 percent, respectively. It is interesting to note that in 2005, Chinese unit values on products in Phases I to III, which were unconstrained at the time, did not change. This result is consistent with Harrigan and Barrows (2004) who find that prices of quota-constrained categories from

[18] Within the safeguard OTEXA categories in Table 2, some products were excluded from quotas. These HS codes are available at OTEXA's website.

China fell 38 percent in 2005 compared to no change in unconstrained products.

It is well known in the international trade literature that firms facing quotas have an incentive to export higher-margin goods (e.g., see Krishna (1987) and Das and Donnenfeld (1987)).[19] Evans and Harrigan (2005), for example, find that U.S. imports of products facing binding quotas exhibit a 6.3 percent price premium relative to unbound imports. They attribute this premium to quality under the assumption that variation in price reflects vertical differentiation. Another implication of their model is that the prices of previously constrained products will fall as quotas are dismantled and quality is "downgraded". Using a method for identifying quality advanced by Feenstra (1994), Harrigan and Barrows (2006) find evidence in support of this hypothesis in the price declines associated with the expiration of the MFA/ATC in 2005. Thus, one interpretation of the price declines across Phases reported here is that they reflect quality downgrading induced by quota removal.

An alternate explanation takes into account shifts in demand associated with the licenses required to export under a quota regime. Unit values may fall as quotas are relaxed because firms no longer need to purchase permits in their home countries in order to export to the United States. The license price data for China discussed above, albeit limited, suggests quotas may add an average of 26 percent to the value of an export. Once they are removed, U.S. import prices might be expected to fall 26 percent even if the underlying hedonic attributes of the goods remain fixed. Still another interpretation explains the fall in unit values as exporters sliding down their demand curves. When quotas are removed, demand expands and prices fall to the previously unrealizable competitive outcome. Here, too, the change in price does not signal a change in product characteristics.

Recent research by Hallak and Schott (2006) and Khandelwal (2007) argues against inferring unobserved quality solely from export prices in settings where goods are differentiated horizontally as well as vertically. These methods infer quality using information about both price and demand: conditional on price, products with higher market shares are assumed either to have higher quality or to have a greater number of unobserved horizontally differentiated varieties. The evidence presented in Tables 10 and 12 show that China's falling export prices are accompanied by rising U.S. market share. A rough back-of-the-envelope calculation, using a simplified version of the method found in Khandelwal (2007), suggests that if the price elasticity for Chinese products was 3.5, there would have been no change in Chinese quality in 2005 given the observed price and market share changes. Assuming no change in the number of horizontal varieties offered, price elasticities below or above this cutoff would have registered quality downgrading or upgrading, respectively.[20]

[19] Empirical evidence supporting these theories is offered by Aw and Roberts (1986) and Feenstra (1988).

[20] A modified logit specification would measure quality as $\ln s_{cht} - \ln s_{0t} = \theta_{cht} + \alpha \ln p_{cht}$, where s_{cht} is China's market share in HS product h (across all imports) at time t, p_{cht} is the price and θ_{cht} is the quality. s_{0t} denotes the outside good (see Khandelwal (2007)) and the price elasticity is α. Under the assumption

Based on this approach, the price declines in Tables 12 and 13 are not necessarily indicative that import quality fell as product quotas were retired.

6. Conclusion

This paper provides evidence that China faced relatively more stringent constraints under U.S. apparel and textile quotas than other countries. It exhibited the largest fraction of goods bound by specific quotas and appears to have had the least flexibility in being able to adjust them over time. Once MFA/ATC regime ended, China benefitted disproportionately and greatly expanded its presence in the U.S. market. This expansion came at the expense of other exporters rather than domestic producers. Between the end of 2001, when China entered the WTO, and 2005, when all textile and clothing quotas were removed, China's share of U.S. T&C imports jumped from 10 to 33 percent. We show that as quotas on successive cohorts of Chinese exports were relaxed, its export volumes increased relatively more than other countries, and relatively more for products whose quotas appear most binding.

Many observers have reacted to China's export growth with the claim that all of the world's T&C production will relocate to China now that the MFA/ATC has been abolished. Interestingly, Chinese officials appear concerned that rising wages will erode their comparative advantage in T&C products *vis a vis* even lower-wage countries like Vietnam, Cambodia and Bangladesh.[21] Though such an outcome appears unlikely, at least in the near term, these countries have become more important sources of T&C exports in recent years. Trade relations between the U.S. and Vietnam were normalized in 2001. Though Vietnam's T&C exports to the U.S. increased 240 percent the following year, its market share in terms of quantity in 2005 was under 2 percent. Until 2007, when it, too joined the WTO, its growth was hampered by U.S. quotas on 25 categories of T&C products.

Though the MFA/ATC has ended, further growth of China's T&C exports continues to depend upon policy responses in developed economies. Both the United States and the EU have imposed safeguards on Chinese exports in recent months, and it is unclear how long such protection will last. Whalley and Dayaratna-Banda (2007) has termed these safeguards Chinese Containment Agreements (CCA) and argues that the CCAs essentially turn back the clock on China by mimicking the MFA/ATC regime, with the major exception that quotas now just apply to China. As might be expected, these new constraints have

that the outside good and the number of unobserved horizontal varieties does not change over time, the change in quality becomes $\Delta\theta_{cht} = \Delta \ln s_{cht} + \alpha \Delta \ln p_{cht}$. The average change in (log) market shares and prices for Chinese products in 2005 was 1.47 and -.422, respectively. This implies that if price elasticity is approximately 3.5, average Chinese quality would not have changed in 2005.

[21] See the discussions of the 2007 China Development Forum, "Towards New Models of Economic Growth", available at http://www.cdrf.org.cn/en/.

increased the transshipment of Chinese products through unconstrained countries such as Romania.

7. Appendix: The U.S. MFA/ATC Database

This appendix describes the contents of the U.S. MFA/ATC Dababase and associated documents. The data are obtained from hard copies of Expired Performance Reports from the U.S. Office of Textile and Apparel (OTEXA). They cover all bilaterally negotiated Multifiber Arrangements between 1984 and 1994 as well as quotas negotiated under the Agreement on Textiles and Clothing from 1995 to 2004. Data for 1968 to 1983 are in process and 1986 are currently missing. The data were manually entered into spreadsheets and checked for errors. The most current version of the dataset is posted at www.nber.org and mirrored on the websites of Khandelwal and Schott.

7.1. Files

Several files are included in the U.S. MFA/ATC Dataset. We list and briefly describe them here.

- *Agreement PDFs*: These files contain the scanned copies of the Expired Performance Reports from which the Dataset was constructed. Each file contains the reports for the noted year, by country, in alphabetical order. Footnotes following each country are not yet part of the Database.

- *The U.S. MFA/ATC Database:* This database records the bilaterally negotiated quota arrangements signed by the U.S. under the MFA and ATC. The contents of this database are listed above.

- *HS-OTEXA concordance:* This concordance matches all 4,839 HS products retired under the four phases of the ATC (see Table 1). The concordance matches HS codes to their OTEXA category, the ATC integration phase, the unit of the HS code and the conversion to SME. This concordances was provided by Keith Daly at OTEXA. The HS products listed in this concordance represents the universe of T&C exports as defined in this paper.

- *TSUSA-OTEXA concordance:* This concordance matches 6,454 TSUSA codes to their OTEXA category and description, and square yard equivalent. 1 square yard converts to 0.83612736 square meters. This concordance was provided by OTEXA but we do not make use of it in this paper.

- *HS-Part Category concordance:* This concordance matches HS codes with the part category. This file was obtained from OTEXA.

- *Safeguard HS concordances:* This concordance lists the HS codes and their OTEXA category that were subject to Chinese safeguards from 2006 to 2008.

7.2. Variables in the U.S. MFA/ATC Dataset

- *Year:* This variable represents the year of the Expired Performance Report. For 1984 to 1994, this variable does not necessarily correspond to the term of the quota itself (see agreement period below).

- *Country:* There are 71 countries in the database. Sixty-four of these countries report at least one specific limit quota (see below). The countries are listed in Table 3. Countries are identified via their four-digit U.S. Census Bureau country code.

- *Agreement Term:* The agreement term represents the period over which the quotas were negotiated. OTEXA categories, quota growth rate, restrictions on flexibilities, and other details were negotiated at the beginning of the agreement term.

- *Agreement Period:* The agreement period refers to the term of the quota. The agreement period does not necessarily correspond to the calendar year. The major countries for which quotas were negotiated over a non-calendar year were Brazil, Indonesia and Sri Lanka. Nearly all agreement periods were standardized to the calendar year for all countries starting with the phase out of the Articles of Textile and Clothing in 1995 (the exceptions being a small number of specific categories in any given country).

- *Units:* The unit variable provides the units of the OTEXA category, e.g., dozens, numbers, kilograms, and square meters.

- *Conversion Factor:* The square meter equivalent (SME) conversion factor for converting the native unit of the category to a square meter equivalent. Because quotas are set across categories with different units, SME provides a common metric for their aggregation. The dataset has been kept in its "raw", that is, unit form. As a result, quantities have not been standardized to SME. This variable was cleaned by systematically checking for outliers within OTEXA categories across countries. In most instances, OTEXA categories have the same conversion factor across countries, so if the frequency of a conversion value within a category was low, the observation was verified by cross-checking the entry with the original data. During the 1980's, some countries quoted base quotas, adjusted levels, and imports with a conversion factor to square yards, rather than square meters. This was systematically checked by looking

for outliers in base quota growth rates within categories over time. For each of the country-years identified, the reported conversion factors were directly changed so that the values would convert to square meters.

- *Base Quota:* The base quota is the original quota level agreed upon at the beginning of the agreement term. Base quota quantities are reported in original units. This variable was cleaned by checking for outliers in the fill rates (see below) and for outliers in base quota growth rates across years within a country. Outliers were then checked against the original data. For many quota classes (see below) the base quota is reported as zero.

- *Adjusted Level:* The adjusted level is the ex-post import quota the exporting countries can apply to a category in place of the base quota by means of using flexibility adjustments. The variable reflects the sum of base quota plus any flexibility adjustments made on the OTEXA category. The Expired Performance Reports classify the type and amount of each adjustment made. A missing value denotes that there was no adjustment made and the category's quota is defined as the base quota. The flexibility details (flexibility type and amount shifted) have been entered for 2000 to 2004 in a separate database and are in process for 1984 to 1999. The adjusted level is reported in original units. This variable was cleaned by searching for outliers in the fill rates (see below), and also by checking for appearances in the data of adjusted levels without corresponding adjustments made (also see below).

- *Imports:* This variable is the actual import quantity in original units.

- *Adjustments Made:* This string variable records the flexibilities made to a category base quota. There were several possible adjustments a country could make, subject to restrictions. A carryforward (CF) allows countries to borrow base quota from a succeeding period within a category. A carryover (CO) utilizes unused quota from the previous period within a category. Shift add (SA), shift subtract (SS), and swings (S) allowed across-category quota movements within a year. An overshipment (OS) reflects an overshipment of a category that exceeded the base quota. A carryforward used (CU) offsets a CF. A shortfall used (SU) offsets a CO. There are some adjustment types which are still unclear, and we are currently trying to determine the precise meaning of all the adjustments noted in the dataset. This variable was cleaned by checking for instances in the data where an adjusted level appeared without an adjustment made, or vice versa. The types of adjustments are separated by a comma in the Stata file.

- *OTEXA Category:* This string variable records the three-digit OTEXA category code.

There are three types of OTEXA categories. A root OTEXA category implies that the quota was negotiated on all HS or TSUSA products within the category. Quotas were sometimes negotiated on a subset of HS/TSUSA codes, known as a part category. For example, category 369-L imposes restraints only on 11 cotton luggage HS/TSUSA products. All part categories contain an extension denoted with a letter. Quotas were sometimes jointly negotiated for groups of OTEXA categories, known as a merged category. For example, the U.S. jointly negotiated categories 338/339 ("Cotton knit shirts"). Merged categories can be identified by a "/" in this variable. This variable was cleaned by checking for outliers based on the OTEXA category description typed in the data. All suspicious codes have been checked against the original data. The format of the merged and part categories in the dataset differs slightly from the ones used in the Expired Performance Reports (for example 338-S/339-S would appear in our data as 338/339-S)). This was done to standardize reporting of the categories across countries and years, and to make for easier data processing.

- *Group Limits:* Group limits defined an aggregate quota over several OTEXA categories. This aspect of the data has been ignored in this database since conversations with OTEXA suggested that these limits were not as important as the limits placed on individual OTEXA categories (roots, parts, and merged). However, it is possible to identify the group limits using string commands from the OTEXA Category variable by searching for "Groups".

- *Description:* This variable provides a description of the products in the OTEXA category.

- *Quota Class:* Quotas fall into 9 possible quota classes. The quota classes are: specific limits, designated consultation levels, minimum consultation levels, other categories, restraint limits, guaranteed access levels, consultation provisions, agreed limits and tariff preference levels. We assume specific limit quotas to be the binding quotas (see text). Most of the categories in the other classes were not subject to category-specific quotas (base quotas of zero). Instead, large groups of categories were subject to an aggregate group quota that, according to OTEXA sources, was essentially "soft." When the data were originally entered from hard copies, this variable was not coded. However, the data entry did include the quota classification in the OTEXA category variable as a separate observation. All categories below this observation constitute a particular classification, so an algorithm was used to attach classification indicators to OTEXA categories.

- *Fill Rate:* This variable measures a category's fill rate. This variable is defined as im-

ports/base quota *or* imports/adjusted level if an adjustment was made. This variable was cleaned by checking for outliers (fill rates above 100 percent).[22] Since the fill rate was calculated from the data (not entered directly), cleaning the fill rates involved correcting errors in the imports, base quotas, and/or adjusted levels by checking against the original data.

- *Subcategories:* This variable identifies the subcategories listed below merged categories that have base quotas of zero. These were listed in the Expired Performance Reports only to document the import levels for each subcategory. They are identified by non-zero values of this variable. It is important to remove these non-zero values before any data analysis. This variable was created using an algorithm that matched subcategories with zero base quotas to the corresponding merged category listed above it in the database.

[22] It is possible for fill rates to exceed 100 percent because of overshipments or adjustments authorized by the United States. All fill rates exceeding 100 percent were directly verified in the original data.

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Phase	Starting Date	Share of Export Volume Integrated	Increase in Quota Growth Rate	Number of HS Products Integrated
I	January 1, 1995	16	16	318
II	January 1, 1998	17	25	755
III	January 1, 2002	18	27	753
IV	January 1, 2005	49	n/a	3,013

Notes: Table describes the four phases of the Agreement on Textiles and Quotas. First three columns describe aspects of the Agreement that were common to all signatories. Final column reports the integration of products as implemented by the United States. Quota growth acceleration was advanced one phase for countries with less than 1.2 percent of the importing country's total quotas in 1991. Source: OTEXA.

Table 1: ATC Integration Schedule

OTEXA Category	2004 Quota	2005 Exports	2006 Quota	2007 Quota Growth	2008 Quota Growth
200/301 Sewing thread/combed cotton yarn	3,374,340	6,949,753	7,529,582	15	17
222 Knit fabric	9,664,477	18,145,812	15,966,487	15	17
229 Special purpose fabric	-	29,001,226	33,162,019	16	17
332/432/632-T Hosiery	-	59,532,623	64,386,841	14.5	15
332/432/632-B Babies garments	-	3,691,911	61,146,461	15	15
338/339-PT Cotton knit shirts	2,403,364	12,763,562	20,822,111	12.5	15
340/640 Mens/boys woven shirts	2,256,734	6,173,242	6,743,644	12.5	15
345/645/646 Sweaters	965,382	7,850,557	8,179,211	12.5	16
347/348 Cotton trousers	2,374,254	18,379,851	19,666,049	12.5	15
349/649 Brassieres	16,828,971	20,717,107	22,785,906	12.5	15
352/652 Underwear	5,025,472	18,175,964	18,948,937	12.5	15
359-S/659-S Swimwear	722,299	5,951,219	4,590,626	12.5	16
363 Pile towels	23,593,437	87,842,008	103,316,873	12.5	16
666-PT Window blinds/shades	546,069	-	964,014	12.5	17
443 Men/boys wool suits	132,818	1,613,356	1,346,082	12.5	16
447 Men/boys wool trousers	72,716	203,332	215,004	12.5	16
619 Polyester filament	-	60,348,016	55,308,506	12.5	16
620 Other synthetic filaments	-	83,531,558	80,197,248	12.5	15
622 Glass fabric	-	30,274,778	32,265,013	15	17
638/639-PT Mmf knit shirts	2,583,505	3,762,225	8,060,063	12.5	15
647/648-PT Mmf trousers	2,855,238	6,490,061	7,960,355	12.5	15
847 Sbvf trousers	-	15,714,461	17,647,255	12.5	16

Notes: Table reports the post-ATC safeguards imposed on Chinese imports for 2006-2008. Quantites are in native units. Source: OTEXA, authors' calculations

Table 2: Chinese Quotas under Safeguards, 2006-2008

Argentina	Dominican Republic	Kenya	Oman	Sri Lanka
Bahrain	Egypt	Korea, South	*Pacific Islands	Taiwan
Bangladesh	El Salvador	Kuwait	Pakistan	Thailand
*Barbados	Fiji	Laos	Panama	*Trinidad Tobago
Belarus	Germany, East	*Lebanon	Peru	Turkey
Brazil	Guam	Lesotho	Philippines	UAE
Bulgaria	Guatemala	Macau	Poland	Ukraine
Burma	Haiti	Macedonia	*Portugal	Uruguay
Cambodia	Honduras	Malaysia	Qatar	USSR
*Canada	Hong Kong	Maldive Islands	Romania	Vietnam
China	Hungary	Mauritius	Russia	Yugoslavia
Colombia	India	Mexico	Singapore	
Costa Rica	Indonesia	Nepal	Slovak Republic	
Czech Republic	Jamaica	Nigeria	South Africa	
Czechoslovakia	Japan	Northern Mariana	*Spain	

Notes: Table displays the set of countries with which the United States negotiated quantitative restrictions on apparel and textile imports between 1984 and 2004. * denotes countries not subject to Specific Limits (see text). Source: U.S. MFA/ATC Database

Table 3: List of Countries in U.S. MFA/ATC Database

OTEXA Category Description	Segment	Units	Square Meter Conversion
218 Yarns of different colors (cotton &/or mmf)	Yarn	SQM	1
219 Duck fabric (cotton &/or mmf)	Yarn	SQM	1
606 Non-textured filament yarn (mmf)	Yarn	KG	20.1
621 Impression fabric (mmf)	Fabric	KG	14.4
628 Twills/sateens staple/filament fiber (mmf)	Fabric	SQM	1
629 Other fabrics of staple/filament fiber (mmf)	Fabric	SQM	1
348 W&G trousers, breeches & shorts (cotton)	Apparel	DOZ	14.9
350 Robes, dressing gowns, etc. (cotton)	Apparel	DOZ	42.6
431 Gloves and mittens (wool)	Apparel	DPR	1.8
433 M&B suit-type coats (wool)	Apparel	DOZ	30.1
836 Dresses (silk or non-cotton veg. fibers)	Apparel	DOZ	37.9
362 Bedspreads & quilts (cotton)	Made-ups	NO	5.8
464 Blankets (wool)	Made-ups	KG	2.4
465 Floor coverings (wool)	Made-ups	SQM	1
665 Floor coverings (mmf)	Made-ups	SQM	1

Notes: Examples of OTEXA categories, native units and the conversion factors to square meters. Source: U.S. MFA/ATC Database.

Table 4: Sample OTEXA Category Descriptions

Country	Fraction of Specific Limits (%)
China	61
Korea, South	53
Taiwan	51
Hong Kong	46
Indonesia	42
Thailand	41
Malaysia	39
Mexico	38
Sri Lanka	38
Romania	33
Philippines	31
Japan	31
Pakistan	25
Turkey	25
India	22
Macau	22
Brazil	22
Poland	22
Singapore	21
Uae	20
Bangladesh	20
Mauritius	18
Cambodia	17
Dominican Republic	16
Jamaica	15
Egypt	9
Colombia	6
Guatemala	4
Costa Rica	4
Honduras	4

Notes: The Table reports the fraction of OTEXA categories exported by the country that were subject to specific limits from 1990-2004. The table lists the thirty countries with the largest aggregate base quotas. Source: Authors' calculations from U.S. MFA/ATC Database.

Table 5: Fraction of Specific Limits, Top 30 Countries

Country	Adjusted Base Quota (SME)	Export (SME)	Fill Rate (%)
China	28.4	24.9	88
Taiwan	26.3	16.6	63
Hong Kong	22.8	17.1	75
Korea, South	21.3	13.3	63
Turkey	13.0	5.7	44
Pakistan	12.4	10.3	84
Malaysia	11.0	3.8	35
Thailand	11.0	6.9	63
Indonesia	10.3	8.8	85
Philippines	9.6	6.9	72
India	8.4	7.3	87
Bangladesh	8.0	7.0	88
Egypt	7.1	1.9	27
Brazil	6.9	2.4	35
Sri Lanka	5.4	4.4	81
Singapore	3.8	1.6	43
Mexico	3.0	1.2	39
Macau	2.8	1.9	69
Dominican Republic	2.6	1.7	66
Romania	1.9	0.4	21
UAE	1.8	1.1	60
Japan	1.6	1.0	61
Jamaica	1.5	0.3	20
Colombia	1.5	0.2	10
Honduras	1.3	0.3	25
Mauritius	1.1	0.5	44
Costa Rica	1.1	0.6	51
Guatemala	0.9	0.7	73
Poland	0.9	0.1	13
Cambodia	0.9	0.8	85

Notes: Quantities are in billions of square meters. Data for specific limits only. Percentage filled is exports divided by base quota. Countries sorted by aggregate base quota under the MFA/ATC. Source: Authors' calculations from U.S. MFA/ATC Database.

Table 6: Total Specific Limit Base, Top 30 Countries

Country	Binding Quotas - Liberal Definition (%)	Binding Quotas - Default Definition (%)	Binding Quotas - Conservative Definition (%)
Bangladesh	89	81	75
India	76	65	57
China	72	64	55
Indonesia	73	59	50
Pakistan	67	57	47
Guatemala	67	45	32
Hong Kong	52	42	34
Macau	52	41	32
UAE	48	39	28
Philippines	53	37	30
Sri Lanka	50	36	27
Thailand	51	36	25
Cambodia	42	32	28
Korea, South	42	30	19
Taiwan	43	30	21
Dominican Republic	50	29	17
Malaysia	32	23	16
Singapore	29	22	15
Costa Rica	36	21	12
Turkey	22	18	15
Colombia	26	18	11
Mauritius	18	14	11
Brazil	16	12	8
Romania	16	11	8
Mexico	16	9	7
Egypt	12	9	6
Poland	14	8	5
Japan	10	7	3
Jamaica	5	2	1
Honduras	0	0	0

Notes: Table reports the fraction of specific limits with fill rates that exceed 80, 90 and 95 percent, respectively. Authors' calculations from U.S. MFA/ATC Database.

Table 7: Top 30 Countries in Terms of Binding Quotas, 1984 to 2004

Category	Description	Fill Rate (%)	China's Fill Rate (%)	Bangladesh's Fill Rate (%)	India's Fill Rate (%)	Base Quota (SME)
300/301	Cotton Yarns	54	52	-	12	7.2
313	Cotton Sheeting Fabric	50	93	-	70	8.6
314	Cotton Poplin / Broadcloth Fab.	51	95	-	54	4.8
315	Cotton Printcloth Fabric	67	97	-	75	8.0
*340/640	Non-Knit Shirts	69	99	64	99	12.8
347/348	Cotton Trousers	83	99	99	98	10.3
*352/652	Underwear	77	85	97	-	8.6
638/639	Mmf Knit Shirts	83	98	96	-	9.5
645/646	Mmf Sweaters	55	95	92	-	7.9
*647/648	Mmf Trousers	80	99	100	93	8.5

Notes: Table reports the average fill rates for the twenty largest OTEXA categories. Quantities are in billions of square meters. * denotes that China's quotas were negotiated on the subcategories. Authors' calculations from U.S. MFA/ATC Database.

Table 8: Fill Rates by OTEXA Category, Top 10 Categories

	Log (ETE)	Log (ETE)
Fill Rate	2.1 ***	1.4 ***
	0.2	0.2
Year FE	Yes	Yes
Category FE	No	Yes
R-squared	0.21	0.80
Observations	417	417

Notes: The dependent variable is the log export tax equivalent (see text). Column 2 includes OTEXA category fixed effects. Significance: * 10 percent, ** 5 percent, *** 1 percent. Source: Chinese export license prices obtained from www.chinaquota.com.

Table 9: Export Tax Equivalents and Fill Rates

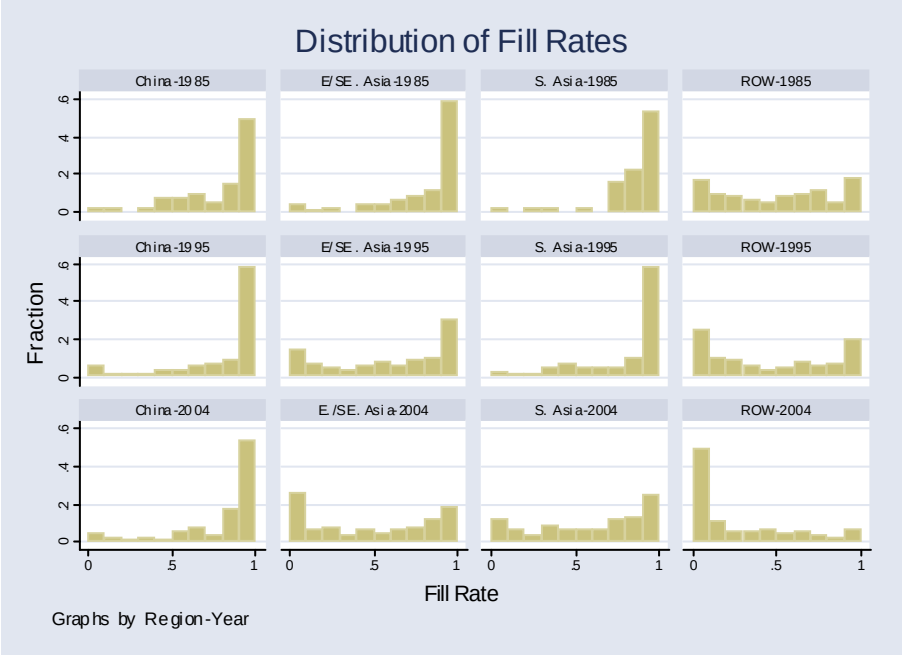

Figure 1: Fill Rates by Region, 1984-2004

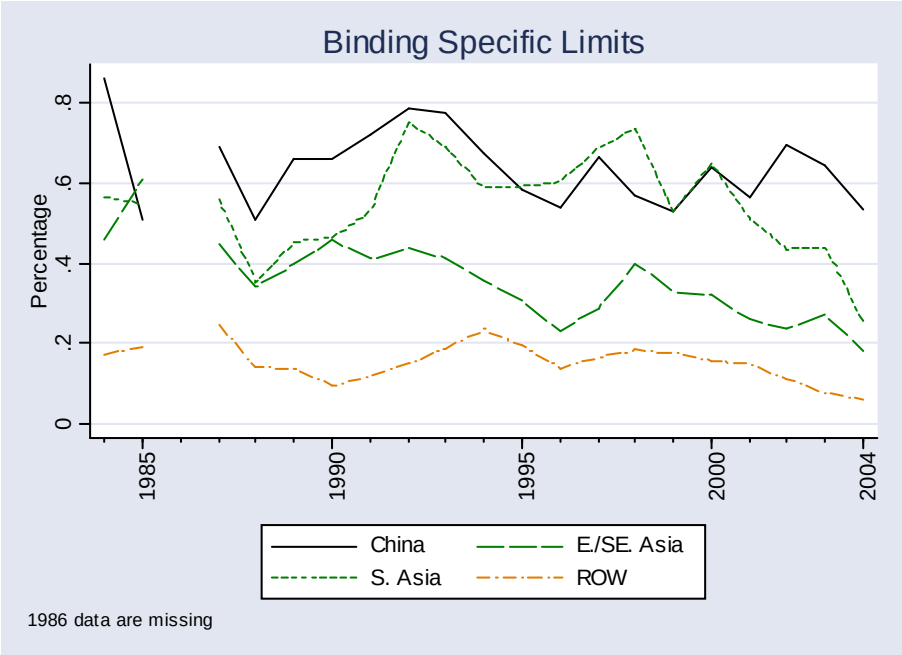

Figure 2: Binding Specific Limits by Region, 1984-2004

Coefficients	Phase I Δ Ln (SME)	Phase II Δ Ln (SME)	Phase III Δ Ln (SME)	Phase IV Δ Ln (SME)
Integration Year				
x China	0.38 ***	-0.04	1.51 ***	1.45 ***
	0.15	0.10	0.11	0.05
x Caribbean	0.15	-0.07	-0.31	-0.33 ***
	0.19	0.15	0.20	0.08
x Central America	-0.08	0.10	0.21	-0.22 ***
	0.26	0.11	0.14	0.05
x East Asia	-0.13	0.14 **	0.06	-0.37 ***
	0.12	0.07	0.07	0.03
x European Union	0.02	0.04	0.00	-0.17 ***
	0.07	0.04	0.04	0.02
x Former Soviet Union	-1.02 ***	-0.15	-0.43 **	-1.04 ***
	0.32	0.24	0.21	0.10
x Middle East	-0.27	0.27 **	0.00	-0.37 ***
	0.53	0.13	0.10	0.04
x North Africa	0.03	0.20	-0.19	-0.04
	0.48	0.18	0.21	0.07
x North America	0.00	-0.02	-0.10	-0.26 ***
	0.15	0.08	0.08	0.04
x Oceania	0.01	0.07	-0.10	-0.23 ***
	0.31	0.19	0.24	0.08
x Other Europe	-0.08	-0.06	-0.05	-0.03
	0.22	0.13	0.15	0.06
x South America	-0.67 **	0.06	0.23 **	-0.13 ***
	0.28	0.12	0.10	0.04
x South Asia	0.16	0.20 **	0.26 ***	0.02
	0.15	0.08	0.08	0.03
x Southeast Asia	-0.23	0.21 **	0.18 **	-0.07 **
	0.17	0.08	0.08	0.03
x Sub-Saharan Africa	-0.09	0.12	0.24	-0.40 ***
	0.45	0.23	0.19	0.06
Year 2002 x China	0.41 ***	1.11 ***	1.51 ***	0.27 ***
	0.11	0.11	0.11	0.05
R-Squared	0.01	0.01	0.01	0.01
Observations	37,727	81,334	89,042	398,540

Notes: Table regresses change in (the log of) product-country quantity on a full set of year-region interactions. Each column reports the result of a regression encompassing all the products whose quotas were relaxed in the noted phase. Only the year-region interactions for the integration year are reported and all other region-year fixed effects are suppressed. The final row reports the 2002 China fixed effect, the year China entered the WTO. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 10: ATC Phase-outs: Export Quantities

	Phase I		Phase II		Phase III		Phase IV	
	Δ Ln (SME)		Δ Ln (SME)		Δ Ln (SME)		Δ Ln (SME)	
Coefficients	Non-Binding	Binding	Non-Binding	Binding	Non-Binding	Binding	Non-Binding	Binding
Integration Year								
x China	0.38 ***		-0.02	-0.22	1.36 ***	1.81 ***	1.28 ***	1.73 ***
	0.15		0.11	0.14	0.14	0.18	0.07	0.08
x Caribbean	0.15		-0.07		-0.31		-0.33 ***	
	0.19		0.15		0.20		0.08	
x Central America	-0.08		0.10		0.21		-0.23 ***	1.10
	0.26		0.11		0.14		0.05	0.76
x East Asia	-0.13		0.14 **		0.08	-0.21	-0.36 ***	-0.56 ***
	0.12		0.07		0.07	0.25	0.03	0.18
x European Union	0.02		0.04		0.00		-0.17 ***	0.39
	0.07		0.04		0.04		0.02	0.35
x Former Soviet Union	-1.02 ***		-0.15		-0.47 **	0.19	-1.07 ***	-0.07
	0.32		0.24		0.22	0.49	0.10	0.43
x Middle East	-0.27		0.27 **		-0.01	0.48	-0.37 ***	-0.34
	0.53		0.13		0.10	0.42	0.04	0.30
x North Africa	0.03		0.20		-0.19		-0.04	
	0.48		0.18		0.21		0.07	
x North America	0.00		-0.02		-0.10		-0.26 ***	
	0.15		0.08		0.08		0.04	
x Oceania	0.01		0.07		-0.10		-0.23 ***	
	0.31		0.19		0.24		0.08	
x Other Europe	-0.08		-0.06		-0.05		-0.03	-0.04
	0.22		0.13		0.15		0.06	1.77
x South America	-0.67 **		0.06		0.23 **		-0.13 ***	0.38 ***
	0.28		0.12		0.10		0.04	0.10
x South Asia	0.16		0.20 **	0.85	0.26 ***	0.15	0.01	0.36 **
	0.15		0.08	1.58	0.08	0.18	0.04	0.17
x Southeast Asia	-0.23		0.21 **		0.19 **	-1.67	-0.06 *	-0.34
	0.17		0.08		0.08	1.45	0.03	0.24
x Sub-Saharan Africa	-0.09		0.12		0.24		-0.40 ***	
	0.45		0.23		0.19		0.06	
Year 2002 x China	0.41 ***		0.93 ***	2.26 ***	1.36 ***	1.81 ***	0.31 ***	0.22 ***
	0.11		0.11	0.24	0.14	0.18	0.06	0.07
R-Squared	0.01		0.012		0.013		0.011	
Observations	37,727		81,334		89,042		398,540	

Notes: Table regresses change in the (log of) country-product quantity on year-region-non-binding versus binding interactions. Each column reports the result of a regression encompassing all the products whose quotas were relaxed in the noted phase. Up to two coefficients per country are reported for each column. Only the year-region interactions for the integration year are reported and all other region-year fixed effects are suppressed. The final row reports the 2002 China fixed effects, the year China entered the WTO, for non-binding and binding products. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 11: ATC Phase-outs: Export Quantities and Binding Quotas

Coefficients	Phase I Δ Ln (Price)	Phase II Δ Ln (Price)	Phase III Δ Ln (Price)	Phase IV Δ Ln (Price)
Integration Year				
x China	-0.17 *	-0.05	-0.58 ***	-0.43 ***
	0.10	0.03	0.05	0.02
x Caribbean	-0.08	-0.10	-0.17	-0.02
	0.22	0.06	0.11	0.03
x Central America	-0.13	-0.01	-0.03	-0.03 *
	0.13	0.05	0.05	0.02
x East Asia	0.07	-0.08 ***	-0.17 ***	-0.02
	0.07	0.02	0.03	0.01
x European Union	0.00	-0.01	-0.01	0.01
	0.04	0.02	0.02	0.01
x Former Soviet Union	0.03	-0.11	0.12 *	0.16 ***
	0.34	0.11	0.07	0.04
x Middle East	0.00	0.05	-0.04	0.02
	0.27	0.06	0.05	0.02
x North Africa	0.31	0.06	0.10	0.03
	0.32	0.08	0.12	0.03
x North America	0.01	0.05	0.00	0.03
	0.09	0.04	0.04	0.02
x Oceania	0.10	-0.08	0.01	0.03
	0.16	0.10	0.13	0.04
x Other Europe	0.04	-0.01	-0.13	0.01
	0.09	0.09	0.10	0.03
x South America	0.39 **	-0.07	-0.06	0.04 **
	0.16	0.06	0.05	0.02
x South Asia	0.12	-0.02	-0.15 ***	-0.07 ***
	0.08	0.04	0.03	0.01
x Southeast Asia	0.26 ***	-0.13 ***	-0.13 ***	-0.04 ***
	0.09	0.04	0.03	0.01
x Sub-Saharan Africa	0.18	-0.16	-0.19 *	0.07 ***
	0.20	0.12	0.11	0.02
Year 2002 x China	-0.14 **	-0.44 ***	-0.58 ***	-0.10 ***
	0.06	0.04	0.05	0.02
R-Squared	0.01	0.01	0.01	0.01
Observations	37,727	81,334	89,042	398,540

Notes: Table regresses change in (the log of) product-country unit value on a full set of year-region interactions. Each column reports the result of a regression encompassing all the products whose quotas were relaxed in the noted phase. Only the year-region interactions for the integration year are reported and all other region-year fixed effects are suppressed. The final row reports the 2002 China fixed effect, the year China entered the WTO. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 12: ATC Phase-outs: Unit Values

	Phase I		Phase II		Phase III		Phase IV	
	Δ Ln (Price)		Δ Ln (Price)		Δ Ln (Price)		Δ Ln (Price)	
Coefficients	Non-Binding	Binding	Non-Binding	Binding	Non-Binding	Binding	Non-Binding	Binding
Integration Year								
x China	-0.17 *		-0.07 **	0.11 *	-0.54 ***	-0.66 ***	-0.37 ***	-0.53 ***
	0.10		0.04	0.06	0.07	0.07	0.02	0.03
x Caribbean	-0.08		-0.10		-0.17		-0.02	
	0.22		0.06		0.11		0.03	
x Central America	-0.13		-0.01		-0.03		-0.03 *	-0.03
	0.13		0.05		0.05		0.02	0.03
x East Asia	0.07		-0.08 ***		-0.17 ***	-0.14 *	-0.01	-0.15 ***
	0.07		0.02		0.03	0.08	0.01	0.06
x European Union	0.00		-0.01		-0.01		0.01	0.05
	0.04		0.02		0.02		0.01	0.12
x Former Soviet Union	0.03		-0.11		0.13 *	-0.09	0.16 ***	0.03
	0.34		0.11		0.07	0.19	0.04	0.14
x Middle East	0.00		0.05		-0.04	-0.15	0.02	0.02
	0.27		0.06		0.05	0.14	0.02	0.09
x North Africa	0.31		0.06		0.10		0.03	
	0.32		0.08		0.12		0.03	
x North America	0.01		0.05		0.00		0.03	
	0.09		0.04		0.04		0.02	
x Oceania	0.10		-0.08		0.01		0.03	
	0.16		0.10		0.13		0.04	
x Other Europe	0.04		-0.01		-0.13		0.01	0.16
	0.09		0.09		0.10		0.03	0.83
x South America	0.39 **		-0.07		-0.06		0.04 **	-0.17 ***
	0.16		0.06		0.05		0.02	0.06
x South Asia	0.12		-0.02	-0.10	-0.15 ***	-0.49 ***	-0.07 ***	-0.20 ***
	0.08		0.04	0.77	0.03	0.09	0.01	0.06
x Southeast Asia	0.26 ***		-0.13 ***		-0.13 ***	0.12	-0.04 ***	-0.14 **
	0.09		0.04		0.03	0.26	0.01	0.07
x Sub-Saharan Africa	0.18		-0.16		-0.19 *		0.07 ***	
	0.20		0.12		0.11		0.02	
Year 2002 x China	-0.14 **		-0.38 ***	-0.81 ***	-0.54 ***	-0.66 ***	-0.09 ***	-0.10 ***
	0.06		0.04	0.08	0.07	0.07	0.02	0.02
R-Squared	0.01		0.01		0.01		0.01	
Observations	37,727		81,334		89,042		398,540	

Notes: Table regresses change in the (log of) country-product unit value on year-region-non-binding versus binding interactions. Each column reports the result of a regression encompassing all the products whose quotas were relaxed in the noted phase. Up to two coefficients per country are reported for each column. Only the year-region interactions for the integration year are reported and all other region-year fixed effects are suppressed. The final row reports the 2002 China fixed effects, the year China entered the WTO, for non-binding and binding products. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 13: ATC Phase-outs: Unit Values and Binding Quotas

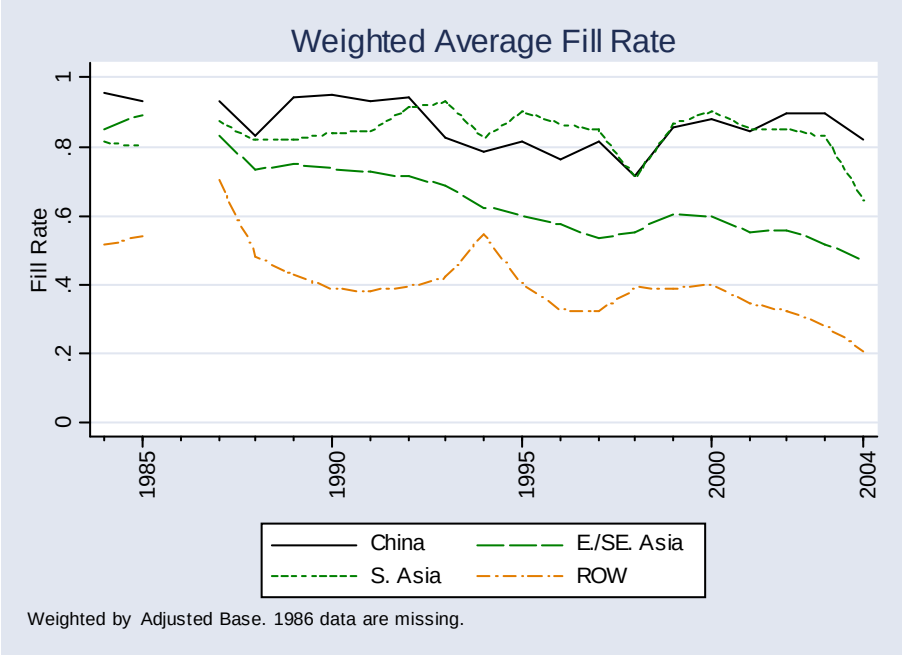

Figure 3: Average (Base Weighted) Fill Rates by Region, 1984-2004

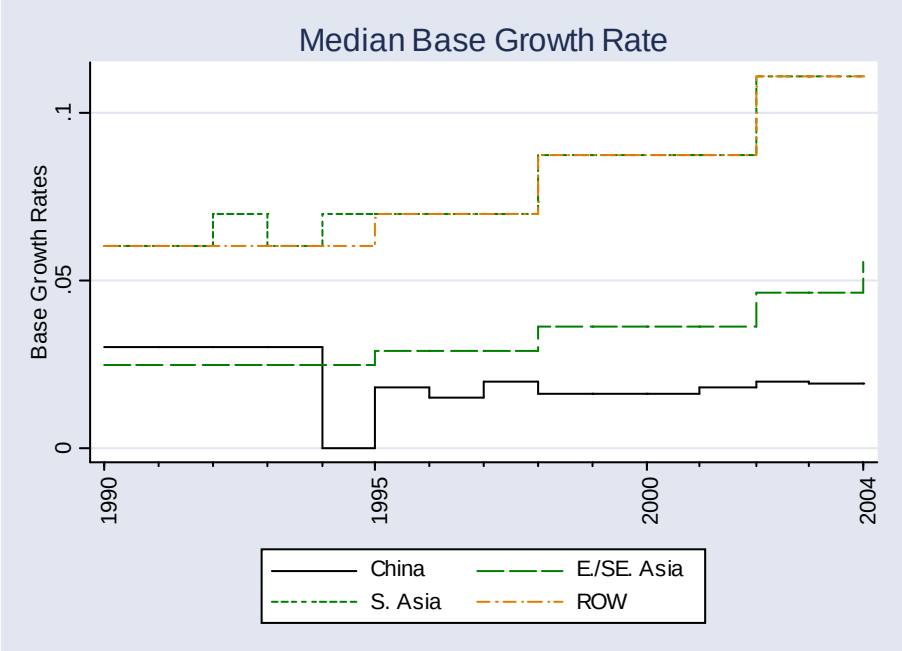

Figure 4: Median Base Growth Rate by Region, 1990-2004

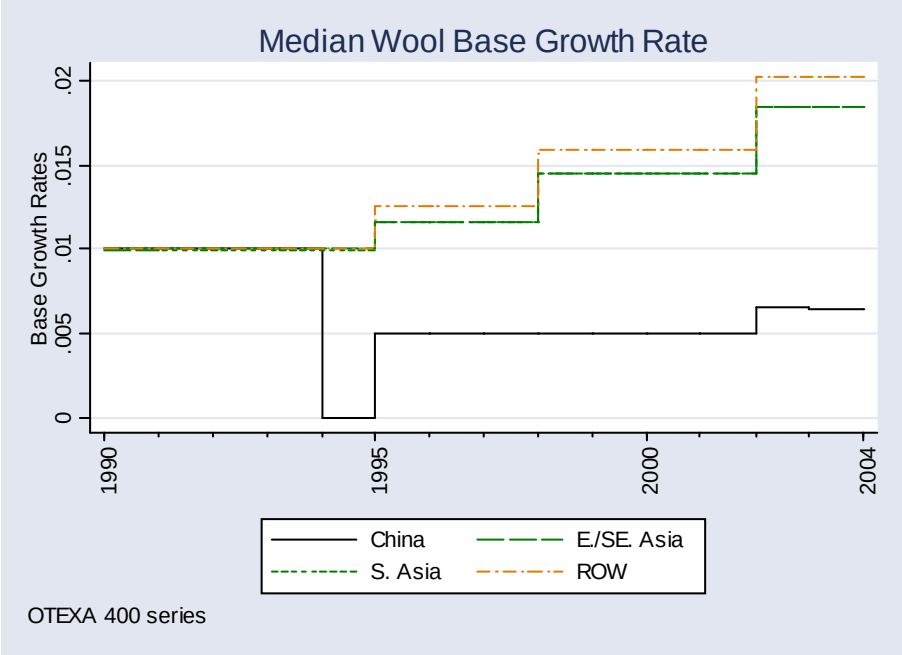

Figure 5: Median Base Growth Rate for Wool Categories by Region, 1990-2004

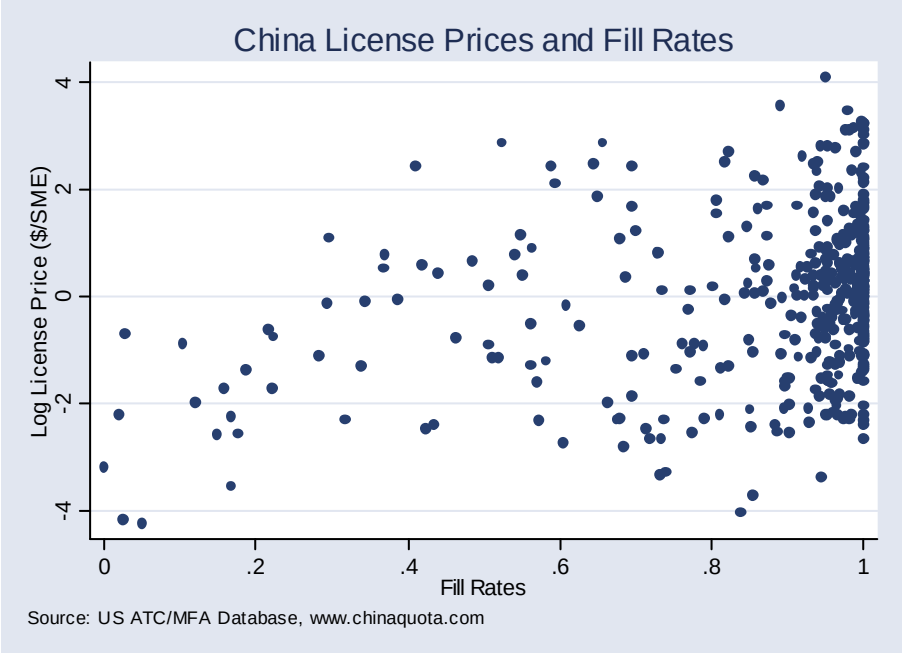

Figure 6: Chinese License Prices and Fill Rates, 1999-2004

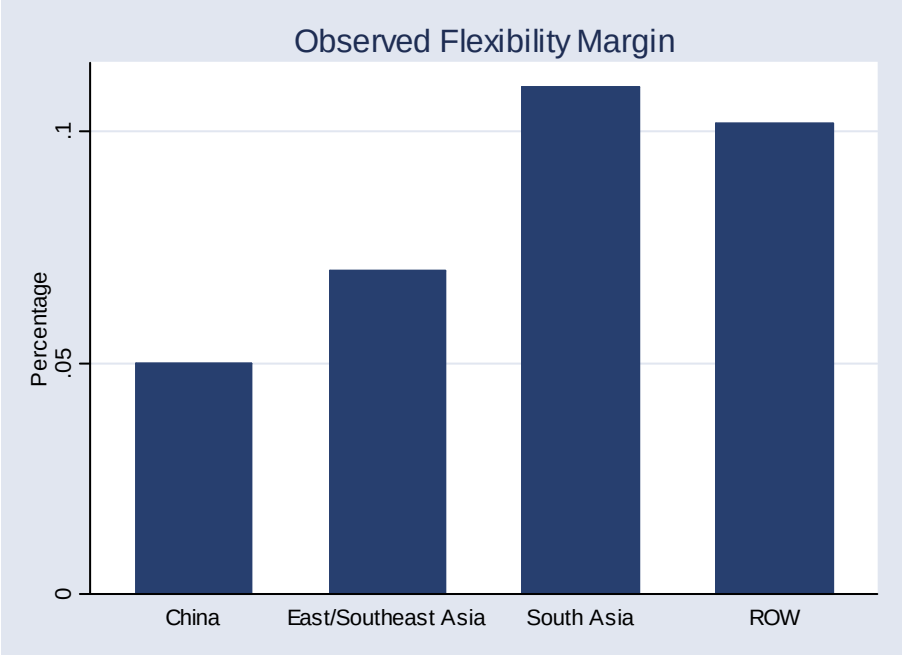

Figure 7: Observed Flexibility Margin by Region

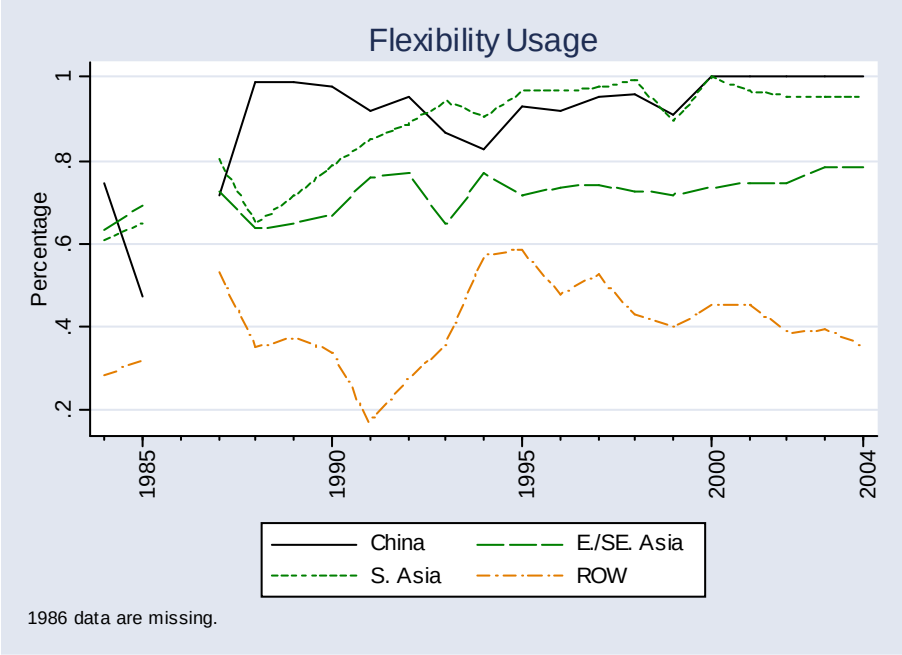

Figure 8: Flexibility Usage by Region, 1984-2004

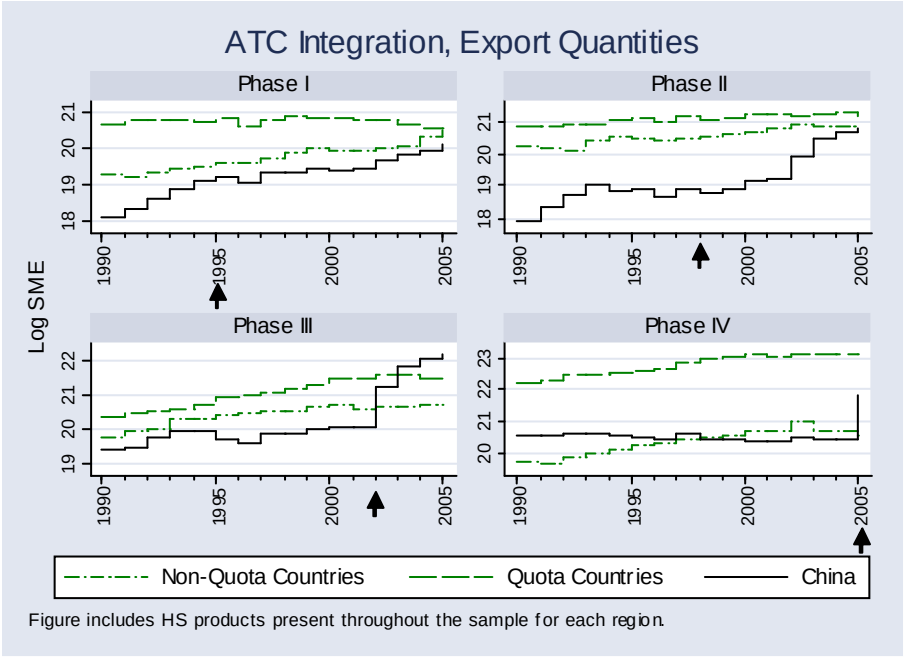

Figure 9: Export Quantities by Phase and Region, 1990-2005

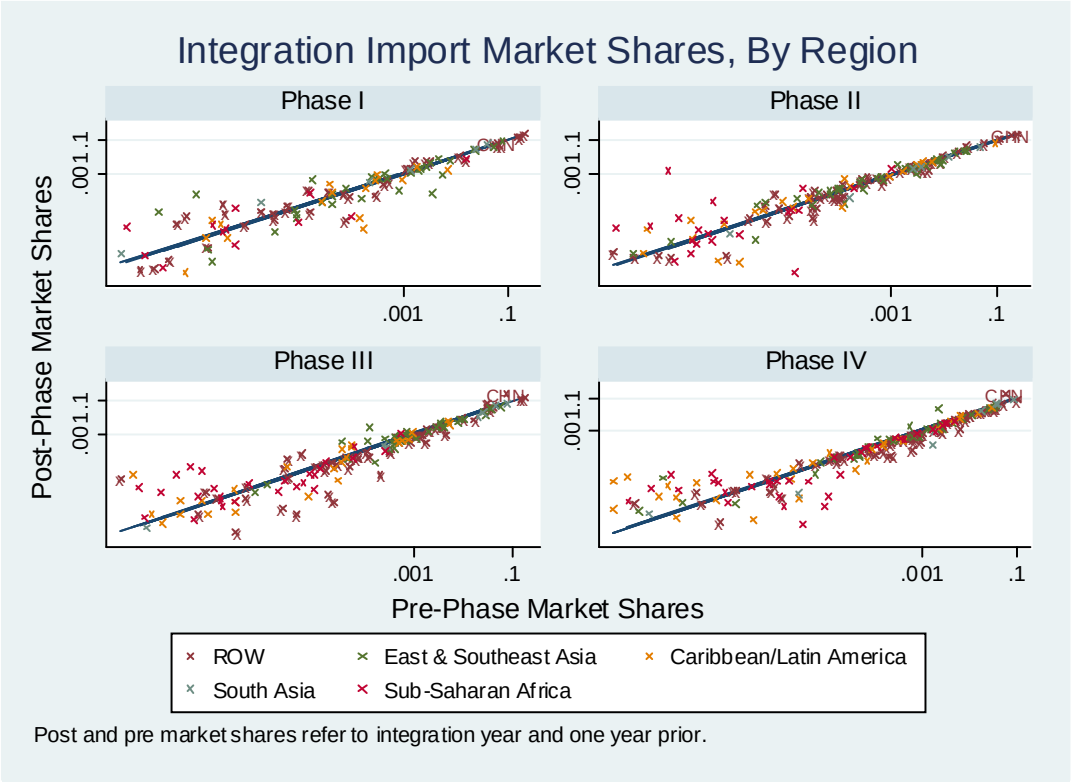

Figure 10: Pre- and Post-Integration Market Shares by Region

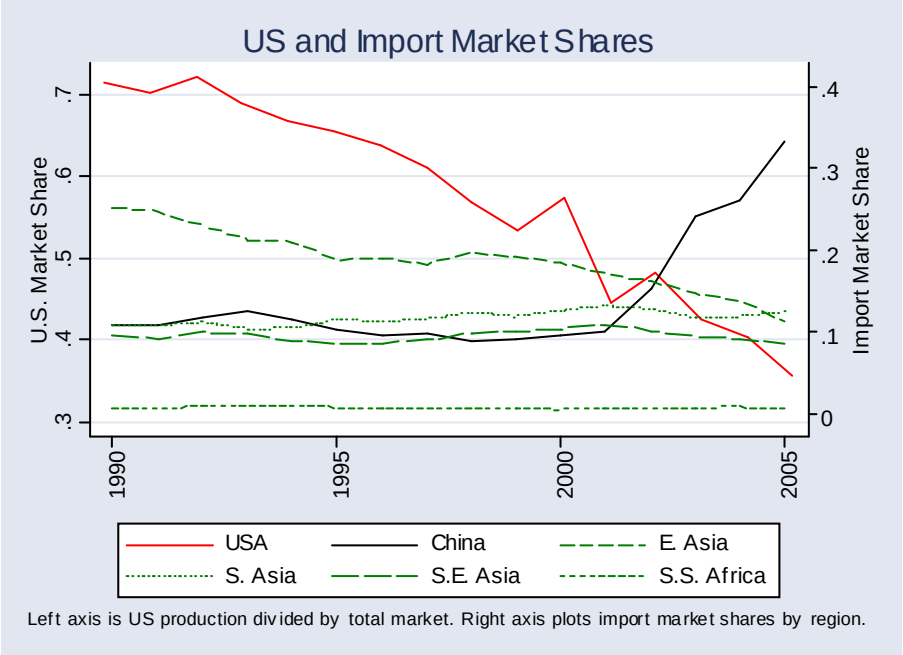

Figure 11: U.S. and Import Market Shares, 1990-2005

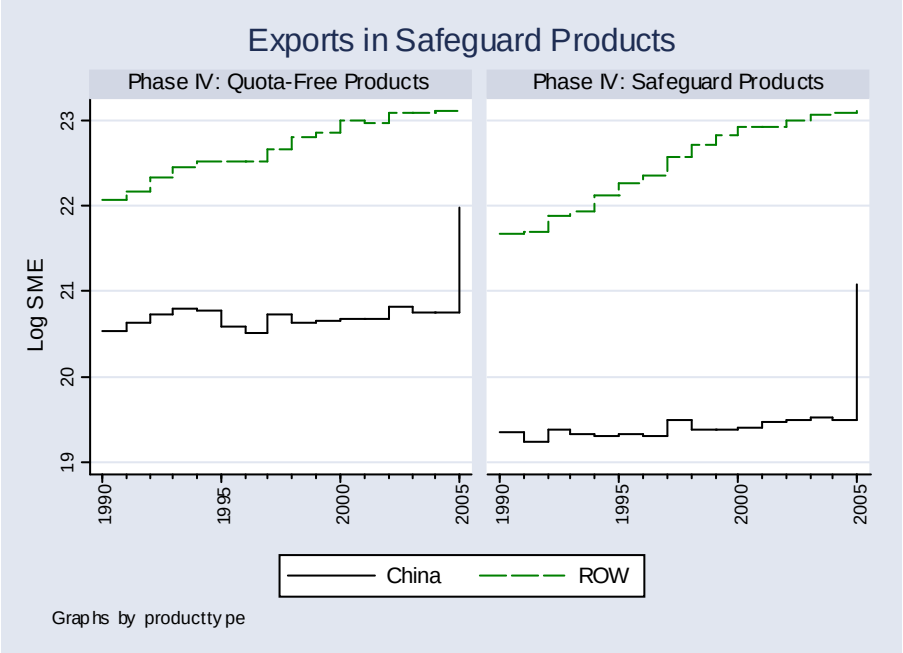

Figure 12: Exports in Safeguard Products, 1990-2005