The Ending of the Multifiber Arrangement and US Apparel Trade: Size of the Home Market and Vertical Linkages

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Abstract

The phasing out and the ultimate expiration of quotas removes a single major distorting factor in the pattern of trade textile and apparel products. The resulting realignment of trade provides a unique opportunity to test the significance of the size of the home market and vertical linkage, along with the traditional comparative advantage argument. Our empirical results show that low wages remain a significant determinant of US apparel imports – providing support for comparative advantage. Imports from quota constrained country-product pairs show a significant increase following the elimination of quotas. The estimate increased from an average of 2.98 between 1995 and 2003 to 3.86 between 2004 and 2007. The estimate shows the biggest jump in 2004 to 4.22. We test for the home market effect using two different measures: the relative GDP of exporting country *i* to the US and the exporting country's share of world apparel production. We find that a large home market has a is significant effect on exports in both specifications. However, the elasticity is less than 1 indicating that the size of the home market is not overly important for apparel trade. Vertical linkage for the apparel industry is measured by the share of domestic intermediate inputs in the value of output of the Apparel industry of a country. We find strong evidence of vertical linkages using input-output data from two sources the WIOD and the OECD. Finally, Asia shows the biggest gains from the elimination of quotas, followed by the Caribbean Basin countries. The net losers are Africa, Western Europe and Oceania. Surprisingly, Latin American and NAFTA (Mexico and Canada) show insignificant results along with Eastern Europe.

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I. Introduction

The textile and apparel (T&A) industries faced a global shake up as quotas ended in 2004. The expiration of the Multifiber Arrangement (MFA) is expected to sweep away the international division of production and trade in textiles and apparel. The T&A quotas, in place since 1974, effectively dictated the pattern of world production and sourcing until now. The MFA caused production to become more dispersed - as a developing country, large or small, hit its quota limitations, production shifted to other locations unconstrained by quotas. The system fragmented the supply chain and raised the costs of business and prices. As part of the Uruguay Round, the MFA was replaced by the Agreement on Textile and Clothing (ATC), which stipulated the phasing out of all quota restrictions by January 1, 2005.

The removal of quotas has several implications. According to early assessments[1], U.S. buyers in an effort to consolidate are expected to favor countries with low labor costs and "full package" production capacity (such as China and India) versus simple assembly (small developing countries). Trade data from OTEXA, for example, shows that between 2004 and 2005 U.S. apparel imports from China and India jumped by 41 percent and 26 percent, respectively, while imports from sub-Saharan Africa fell by 17 percent.

Yet, various other factors might work against such centralization. A move towards "lean retailing" in the apparel business favors sources that are close to the principal markets (Evans and Harrigan, 2005). Proximity is significant both in terms of timeliness and the cost of transportation. As U.S. firms turn towards "just-in-time" production structures and "offshoring", especially in apparel, geographically close locations such as Mexico, Central America and the Caribbean countries, are likely to gain in importance. In this regard, preferential trade arrangements, such as the North American Free Trade Agreement (NAFTA), and the Caribbean Basin Trade Partnership Act (CBTPA), which provide duty-free access, give

[1] For instance, using computable general equilibrium (CGE) simulations, Spinanger (2003) and Nordas (2004) predicted a two- to four-fold increase in market share for China, followed to a lesser extent by India. While, Mlachila and Yang (2004) and Matoo et al. (2002), predicted a significant decline in apparel imports from Bangladesh and Africa, respectively.

these regions a competitive advantage over others. In a previous study, that assesses the effects of NAFTA on U.S. textile and apparel imports, Datta and Kouliavtsev (2009), find a substantial positive effect of NAFTA on imports from Mexico and Canada. However, we find little support for the assertion that NAFTA has diverted trade away from Asian countries, as the shares of Asian countries did not exhibit large declines corresponding to increases in Mexican and Canadian shares. Some recent literature (e.g. Cadot et al. (2005)), also indicates that some of the benefits of tariff preferences may be diminished considerably when strict U.S.-content rules (rules-of-origin requirements - ROO) are imposed.

'New' trade theory and "new economic geography" models, characterized by the presence of increasing returns, monopolistic competition and trade costs make predictions about the geographic concentration of industries and the characteristics of countries where they locate. For instance they predict that scale economies and the presence of trade costs encourage industries to locate in countries with "large home markets" (Krugman, 1980). Additionally, the level of geographical concentration is higher in industries with strong backward and forward linkages (Venables, 1996).

In this study, we use a country's share of world production for that sector to assess the effect of the size of the home market on US imports from that country. If the elasticity of imports with respect to the size of the home market is significant and greater than one, we can conclude that the home market effect exists. On the other hand, if the elasticity is not significant or less than one we could conclude that either the home market effect is non-existent or small.

The textile and apparel industries have strong input-output linkages. The output of the textile industry represents an important intermediate input in apparel production. Thus a well-developed upstream textile industry can be a source of significant cost savings for the downstream apparel industry. Similarly, the textile industry reaps the benefits of forward linkage, as the downstream apparel industry provides a market for its products. The positive spillovers from vertical linkages between the apparel and textile industries can be captured using input-output linkages between the two industries.

The objective of this paper is to provide evidence on the change in the pattern of bilateral trade flows in apparel between the US and the rest of the world (ROW). A *gravity* *model* is used to: (1) conduct an *ex post* analysis of the effects of *quota* removal on the sourcing decisions of U.S. textile and apparel firms; we wish to test if the change in bilateral trade patterns can be explained by the 'home market' and 'vertical linkage' arguments in the absence of market distortions caused by the presence of import quotas; (2) study the role of regional trade agreements on trade flows; and (3) measure the effects of "barriers-to-trade" which include, tariffs, distance, and transportation costs.

II. Background- Quota Removal and its Effects

Early quantitative assessments of the *expected* effects of quota termination, reviewed in USITC (2004), were largely based on computable general equilibrium (CGE) simulations[2]. Although these studies differ in their modeling approach and assumptions, they consistently point to a substantial rise in the market share of countries subject to the biggest quota restrictions, especially, China and India. On the other hand, non-quota restricted developing countries, such as Mexico, Turkey and countries in Latin America and Sub-Saharan Africa are predicted to lose their markets. The studies also predict a sizeable increase in global welfare and trade in T&A, following the termination of quotas. Mayer (2005) however argues that the CGE models overestimate the effect of quota removal on China's market share in global T&A trade. These models are only based on cost considerations and do not sufficiently account for other factors like the pattern of tariff preferences, ROO regulations and industry structure. They assume an overly smooth and rapid transition, and do not take into account safeguard clauses and other protectionist measures used by importing countries, like the U.S. For example, US imposed temporary safeguards on China following the expiration of the ATC to give domestic industry some time to adjust to the new reality.

A more recent study by Brambilla et al. (2008), analyzes China's experience under the U.S. T&A quotas. Unlike CGE models, the study uses real data to track the performance of U.S.

[2] See e.g. Avissa and Fouquin 2001; Diao and Somwaru 2001; Francois and Spinanager 2001; Spinanger (2003); Nordas (2004); Mlachila and Yang (2004) and Matoo et al. (2002).

trading partners under two alternative quota regimes - the Multifiber Arrangement (MFA) in place between 1974 and 1995 and the Agreement of Textile and Clothing (ATC) which stipulated the phasing out of all quota restrictions between 1995 and 2005. The study finds that binding quotas significantly constrained China's exports of apparel and textile to the U.S. However, once the MFA/ATC regime ended the benefit to China was disproportionate. Between China's entry into the WTO in 2001 and the expiration of quotas in 2005 China's share of U.S. imports jumped from 10 to 33 percent.

International trade literature suggests that firms facing quotas have an incentive to export higher-margin goods. Evans and Harrigan (2005 a), consider the effect of U.S. trade policy on the prices of apparel imports. They regress import prices on ad-valorem trade barriers (tariffs and transportation costs), fill rate and a quota dummy that equals one if the quota is "binding" and zero otherwise. Quota effects are measured by - "fill-rate", the percentage of quota utilized for a particular product category by an exporting country, and whether or not a quota is binding, where "binding quota" is one where the fill rate is 90 percent or more. The study finds that U.S. imports of products facing binding quotas exhibit a 6.3 percent price premium relative to unbound imports. They estimate quota rent to be around $6.71 billion between 1990 and 1998.

Evans and Harrigan (2005 b) explore the role of timeliness (i.e. the lag between order and delivery) and distance on global specialization in trade. They use panel data across countries and apparel products over the period 1991 to 1998. Their econometric model considers the effects of proximity and the rate of replenishment, while controlling for trade barriers (tariffs, transportation costs and binding quotas[3]) on apparel import growth over the seven-year period. The study finds that for high replenishment products (i.e. products that are re-ordered often), trade with nearby countries grew by almost 0.64 standard deviations faster than from remote locations. Falling tariffs and transportation costs are associated with higher import growth.

[3] The study only reports the results for trade restrictions that include tariffs and transportation costs but not quotas.

Harrigan and Barrows (2009) consider the evidence from the end of the Multifibre Arrangement (MFA) on the prices and quality of quota constrained categories in textile and apparel. They find that prices of quota constrained categories from China fell by 38 percent in 2005, while prices in unconstrained categories from China and other countries showed little change. This was accompanied by quality downgrading of imports from China for the constrained categories. The study also measures welfare gains following the end of MFA. According to their calculations the saving is about $90 per US household.

The removal of quotas and its effect on the pattern of world trade is likely to be substantial. Yet, given the recentness of the event, the empirical evidence on effect of quota elimination is quite scanty. Results from Evans and Harrigan (2000 a, b) are limited to the period 1990-1998, which accounts for part of the quota phase-out period, but cannot measure the effects of quota elimination following the end of the MFA in 2004. As many studies have shown, a bulk of the quota phase-out did not happen until the end of the 10 year period stipulated in the Agreement on Textile and Clothing (ATC) during the Uruguay Round. Brambilla et al. (2008) and Harrigan and Barrows (2009), measure the effects after one year of quota expiration. The present study, by including data up to 2007, can account for the longer term effects of quota elimination on the realignment of textile and apparel trade.

The gradual phasing out and then elimination of quotas removes a single major distorting factor in the economic geography and trade in textile and apparel products. The resulting realignment of trade will provide an opportunity to test the significance of the size of the home market and vertical linkage hypothesis predicted by "new" trade theories and economic geography models. While the increasing returns argument supports greater concentration, the pattern of U.S. imports is also likely to be tempered by countervailing factors like PTAs - with special rules-of-origin conditions, and proximity issues.

The study is conducted using data for the period 1995 to 2007, by country and apparel product category, based on the OTEXA import classification system. To our knowledge, this is the first study that *empirically* estimates the effects of quota elimination, on U.S. apparel imports using the most recent data.

III. New Trade Theories and Economic Geography

Krugman (1979, 1980) formalized the idea that increasing returns to scale and imperfect competition give rise to trade even in the absence of comparative advantage. The new economic geography theories combined economies of scale with trade costs to provide a new perspective on trade and economic geography (e.g. Krugman 1980, 1991; Krugman and Venables, 1990, 1995). These models predict that firms have an incentive to concentrate production in larger markets to exploit economies of scale and to save on transportation cost. Further, countries export what they have home markets for.

Krugman (1980) modeled consumers in two countries as having different tastes, and showed that trade liberalization leads each country to specialize in and export those goods for which it has a large domestic demand- also described as the *"home market"* effect. Krugman and Venables (1990) consider two countries that differ in size – the large country has access to many markets, while the small country is a peripheral economy. The paper shows that when trade costs are high each country's manufacturing output is proportional to its size. However, at intermediate levels of trade costs, firms will move away from the periphery and agglomerate in the larger country. In the context of trade in textiles and apparel, with greater trade liberalization evidenced by the removal of quotas and decreases in tariffs and a decrease in transport costs, theory supports the agglomeration of textile and apparel production in large countries like China and India which have a significant domestic market for these products and away from smaller locations like the Malawi and Fiji. The market sizes in the larger countries allow firms to reap the benefits of scale economies.

A second important proposition put forward by the new economic geography literature to explain agglomeration, relates to *forward and backward linkages* between firms, especially in situations where labor mobility is low (Krugman and Venables, 1995; and Venables, 1996). When industries are linked through input-output structures, the downstream industry forms a market for the upstream firms. Conversely, having a large number of upstream firms in a location benefits downstream firms who can obtain their intermediates inputs more cheaply –

due to greater competition in the upstream industry and also due to lower transportation cost. This positive reinforcing relationship between upstream and downstream firms provides an impetus for the geographical concentration of industries with strong vertical linkage. Here again, countries like China and India which have well developed textile and apparel industries should benefit from the strong linkages between the two sectors, supporting geographical concentration of T&A production in these locations.

Venables (2006)[4] however, points out that while trade costs have declined, they still account for nearly 30% of the value of goods shipped. Gravity models of trade tell us that the elasticity of trade with respect to distance is greater than 1 and that the majority of trade is observed over a 1000km distance. Other factors such as regional trade agreements, rising wages and land prices, may also lead to dispersion instead of concentration. Evans and Harrigan (2005) show that proximity and timeliness play an important role in trade in high replenishment apparel products. Similarly, Datta and Kouliavtsev (2009) find a significant increase in trade with Mexico and Canada following the passage of NAFTA in 1994. CBTPA, which was passed in 2000, is likely to further extend these benefits to the Caribbean Basin nations.

IV. Methodology

a. Econometric Model

The gravity model provides a useful tool to assess *ex-post* effects of trade policy on the pattern and geography of trade. This framework has become a favored tool for analyzing trade-effects with new advances in trade theories based on increasing returns to scale, imperfect competition and/or product differentiation (e.g. Helpman and Krugman, 1985; Bergstrand 1989; Baier and Bergstrand, 2002; Deardorff 1998, Anderson and Van Wincoop 2003). More recently, the gravity model has been expanded to study trade policy effects on the geography and pattern of trade (e.g. Limao and Venables 2001, Hummels 2001).

[4] Venables, A.J. (2006), “Shifts in Economic Geography and their Causes”. Paper presented at the 2006 Jackson Hole Symposium.

As shown by Deardoff (1998) and Anderson and Van Wincoop (2003, 2004), utility maximization of an identical constant elasticity of substitution (CES) utility function (over countries) yields the following expression for the value of bilateral imports,

(1) $$M_{ijt} = (Y_{it}Y_{jt} / Y_w)(\theta_{ijt} / P_{it}P_{jt})^{1-\sigma}$$

where Y_i, Y_j, Y_w are GDPs for countries i, j and the world, θ_{ijt} is bilateral transport costs, σ is the elasticity of substitution in the CES utility function, and P_{it}, P_{jt} are the country price indexes, also interpreted as the multilateral trade resistance indexes.

In the standard specification (e.g. Hummels 2001a; Anderson and Van Wincoop, 2003) bilateral transport costs θ_{ijt} include distance (D_{it}) and a vector of dummy variables for common border (B_{ij}) and being landlocked ($L_{i(j)}$). Assuming a standard multiplicative form yields

(2) $$\theta_{ijt} = (D_{ij})^{\gamma t} e^{\delta_1.B_{ij} + \delta_2.L_i + \delta_3.L_j}$$

In this study we modify the basic gravity model to test the home market and vertical linkage arguments for the concentration of bilateral trade in apparel between the U.S. and it trading partners.

Krugman (1980) showed that trade liberalization leads a country to specialize in and export those goods for which it has a large domestic market. In this study we use a country's share of world production of industry *n* to assess the effect of the size of the home market on US imports from that country *i*.

(3) $$\varphi_{ni} = (X_{ni} / X_{n\,world})$$

Thus, for example when considering the "home market" effect for the apparel industry in a country like China, φ_A would represent China's apparel output as a share of world output of apparel industry.

The textile and apparel industries have strong input-output linkages. The output of the textile industry represents an important intermediate input in apparel production. Thus a well-developed upstream textile industry can be a source of significant cost savings for the downstream apparel industry. Similarly, the textile industry reaps the benefits of forward linkage, as the downstream apparel industry provides a market for its products. The positive spillovers from vertical linkages between the apparel and textile industries can be captured using input-output linkages between the two industries.

Let us assume that country *i*'s total apparel output is given by X_i, total textile output by Ti and let Zi denote the value of domestic intermediate inputs from industry T_i used in apparel production. Vertical Linkage (Λ) for country *i* is then calculated from the country input-output tables as

$$(4) \qquad \Lambda_i = \left[\frac{Z_i}{(X_i + T_i)}\right] * 100 \qquad \text{(i=country)}$$

Λ_i denotes the total value of inputs from the domestic Textile industry used in the production of the domestic Apparel industry as a share of gross output of Textile and Apparel production in country *i.*

Taking into account the modifications suggested in (3) and (4) and substituting Eq. (2) into Eq. (1). Our estimable equation can be expressed as:

$$(5)\ ln\ M_{ijt} = a_i + v_t + \beta_1 ln\ \varphi_{it} + \beta_2 ln\ \Lambda_{it} + \beta_3 ln\ wage_{it} + \beta_3\ ln\ dist_{ij} + \beta_5\ border_{ij}$$

$$+ \beta_6 lang_i + \beta_7\ lnRER_{ijt} + \beta_8\ ln\ tariff_{it} + \beta_9 ln\ tc_{it}$$

$$+ \beta_{10} QUOTA_{it} + \sum_{k=1}^{n} \delta_k \mathrm{Re}\, gion_k + \varepsilon_{it}$$

where M_{ijt} is the bilateral imports by the U.S. from country *i's* in year *t;* the coefficient of φ_{it} (β_1) estimates the elasticity of U.S. apparel imports (*j=U.S.*) from country *i* with respect to the size of the apparel sector in country *i* at time *t*. Thus a positive and significant β_1 would provide support for the "home market" argument in the equation for the apparel sector. β_2, the coefficient of Λ_{it} measures the elasticity of U.S. apparel imports from country *i* with respect to the magnitude of vertical linkages between the apparel and textile sector in country *i* at time *t*. A positive and significant β_2 would indicate a strong *vertical linkage* between the two industries has a positive spillover effect on trade.

Wage is industry specific labor wages in country *i.* Wage, measures the role of *comparative advantage* in textile and apparel trade. Labor costs have typically accounted for 30 and 50 percent of total production costs for U.S. textiles and apparel (Datta and Christoffersen, 2005). Intuitively, this gives producers in low-wage countries a significant competitive edge, making labor wages in the exporting country a particularly important factor in explaining the sources of U.S. imports. This was found to be true, especially in apparel trade (Datta and Kouliavtsev, 2008). A significant and negative coefficient for wages in country *i* on imports from that country would support the comparative advantage argument; *Dist* = distance between U.S. and country *i.* As Evans and Harrigan (2005b) indicate, distance is a proxy for not just transportation costs, but also timeliness; *Border* = whether countries *j* and *i* share a common border; *Lang* = whether the U.S. and country *i* share a common language; RER_{ijt} = real exchange rate between countries *j* and *i; Tariff* = tariff rates by country and product category; *tc* = transportation costs;

QUOTA = proxy for quota constraints between the U.S. and country *i.* "Fill rate" is the percentage of quota used which determines if a quota is binding. A fill-rate of 90% or more represents countries that face binding quotas for particular products. Imports that are not subject to quota can be thought of as facing zero quota restrictions and therefore will have a fill rate of zero. A dummy variable is used to account for the effect of binding quotas. Binding equals 1 for all country-product categories which face binding quotas in each year, and is zero otherwise.

Further, several region dummy variables are used to account for winners and losers from quota phase out from 1995-2004 and its elimination post-2004; $\sum_{j=1}^{10} Region_j$ = dummy variable for *j* regions: These include regions with which the US has preferential trade agreements such as NAFTA (Mexico and Canada) and the CBTPA (Caribbean Basin countries). These countries have the advantage of low or zero tariffs and no quotas compared to the others. The other regions are: Asia, Africa, Latin, E. Europe, W. Europe, Oceania (includes Australia, New Zealand and other pacific islands), Middle East and North Africa (MENA). The model is estimated using Feasible Generalized Least Squares (FGLS), which account for heteroscedasticity intrinsic in the log-linear form of the gravity model, using data by country and product category over the period 1995-2007.

V. Data Sources

U.S. imports of apparel faced both tariff and quota protection under the MFA. Data on apparel imports and tariff rates are fairly readily available. Our trade data is compiled from the US Department of Commerce, at the 10-digit Harmonized System (HS) level which is the finest level of disaggregation available. The data includes information on import values, import quantities, tariffs, transport costs, source country and year.

The information on quota incidence is more difficult to obtain. Apparel and textile quotas were administered by the Office of Textile and Apparel (OTEXA)[5], a division of the Department of Commerce. Moreover, quotas vary by product, year and trading partner. We obtained records on all apparel quotas from 1995 to 2007. OTEXA has its own import classification system to administer the MFA, which is not directly analogous to other US or international classification systems for trade data. Product categories are broken down by type of fiber - cotton, wool, man-made etc. and by broad categories like “dresses”, “M&B coats”, “sweaters” and the like. Our data includes 39 apparel categories from 239 to 459. In analyzing the data we aggregated the 10-digit HS data to the OTEXA import classification level. Quota

[5] http://otexa.ita.doc.gov/corr.stm

restrictiveness is measured by "fill rate" – the percentage of quota used by a country. The quota fill-rate was calculated for each country-product pair.

Due to lack of consistent data on real labor wages across countries, we use GDP per capita to approximate for real wages. The real GDP per capita and real exchange rate series are taken from the Penn World Tables. Data on distance, common language, common border country are obtained from *CEPII* database. Textile and Apparel production by country is obtained from UNIDO Industrial database[6].

Vertical linkage is measured using input-output statistics from two alternative databases the World Input-Output Tables (WIOT) and the OECD's Inter Country Input-Output (ICIO) tables. The WIOT provides input-output tables in current prices (USD millions) includes 27 countries from Europe, 8 countries from the Asia Pacific region, two from Latin America plus the US and Canada. The industry by industry matrix reflects the linkages between industries and provides data on 35 industries at the 2-digit ISIC. Textile and textile products (apparel) are classified as one sector. The value the domestic intermediate inputs over total output of the textile and textile products sector is used to measure vertical linkage[7]. However, since the focus of the current study is to measure the effects of quota removal on the global pattern of US apparel imports, using this restricted set of countries would compromise the results as it excludes smaller countries and countries in Latin America that are important in textile and apparel trade.

Given the shortcomings of the WIOT data, we also use an alternative input-output database to check for the robustness of our results. The OECD's ICIO tables present inter-industrial flows of goods and services (produced domestically and imported) in current prices (USD million), for all OECD countries and 27 non-member economies (including all G20 countries), covering the period 1995 to 2011[8]. In the ICIO tables the diagonal blocks represent

[6] http://unstats.un.org/unsd/industry/commoditylist2.asp.

[7] Although the share of domestic textile output used in the domestic apparel industry is the ideal measure of vertical linkage, the WIOT database classifies textile and textile products (apparel) as one sector. Thus the gross value of domestic purchases for the sector as share of the sector output is used to measure vertical linkage. It may be argued that the bulk of the domestic intermediate inputs used represent purchases by the apparel industry from the textile sector and not vice versa.

[8] The data is collected every five years. The data for the intervening years is interpolated using the linear interpolation formula.

domestic transaction flows of intermediate goods and services across industries, while the off-diagonal blocks represent the inter-country flows of intermediates via exports and imports. We use the diagonal elements as a share of industry output to measure vertical linkage[9].

VI. Estimation Results

The UNIDO Industrial database used to compute a country's share of world apparel output and the OECD- ICIO data significantly restrict the number of countries. To overcome this problem we first estimate equation (5) without the vertical linkage variable and using a more general measure of market size effect namely, log_rgdpratio instead of apparel share. Since our data is three-dimensional by country, apparel category and year we report the panel regression results by year which allows us to trace the change in the parameter values before and after the expiration of the MFA. The heteroskedasticity intrinsic to the log-linear formulation of the gravity model can result in biased and inefficient estimates when applying OLS. Second, the logarithm of zero is unfeasible. To overcome these problems we use FGLS to estimate our model. The model is estimated using category fixed effects and time fixed effects where relevant, however country fixed effects have to omitted due to collinearity and time-invariant variables in the model.

The results from estimating the gravity equation in (5) using our full sample, which includes data on 39 categories of apparel products for up to 115 countries for the period 1995 to 2007, are reported in Table1-1 and Table1-2 . Table 1-1 highlights the role of comparative advantage, size of GDP and trade barriers. Labor costs have typically accounted for 30 and 50 percent of total production costs for U.S. textiles and apparel. Intuitively, this gives producers in low-wage countries a significant comparative advantage, making labor wages in the exporting country a particularly important factor in explaining the sources of U.S. imports. This was especially found to be true for trade in apparel sector products (Datta and Kouliavtsev, 2008).

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[9] The OECD database classifies textile, textile products (apparel), leather and footwear as one sector, which makes it impossible to combine the OECD sample with the WIOT. Here again the gross value of domestic purchases for the sector as share of the sector output is used as an approximate measure vertical linkage. While the bulk of the domestic intermediate inputs used represent purchases from the textile industry by the apparel industry, a small portion must account for textile and leather inputs purchased by the footwear industry.

Additionally, including wages is important to distinguish between market size and comparative advantage, both of which can play an important role in apparel industry trade.

Labor wages are significant and negative for all years. The elasticity of imports with respect to wages is greater than 1 starting 2004. This would suggest that removal of trade barriers leads to an increase in imports from lower labor cost countries – which supports the theory of comparative advantage. This story seems to be echoed by the distance variable. Although typically the distance variable has a negative sign for most traded goods, the coefficient for the apparel industry is positive. This could be because, a large share of US imports of apparel products are from low wage countries in Asia. Moreover, since apparel is a relatively low transport-cost industry and low wage costs trump distance.

The coefficient estimate on the relative country size, measured by the log of export country GDP to the US, proxies for the size of the home market. Our estimates are positive and significant for all years. This is consistent with the estimation of standard gravity models, which show that bilateral exports are increasing in country income. The elasticity of imports with respect to relative GDP goes from 0.47 in 1995 to 0.93 in 2007, which indicates that the impact of relative country becomes more significant as trade barriers (quotas) are phased out and finally removed. Overall, however the elasticity with respect to country size is less than 1, suggesting that apparel imports are not overly affected by country size.

In keeping with theory, trade barriers, which include tariffs and transportation cost, are consistently negative and significant. Similarly, the effect of real exchange rates, measured in units of country *i's* currency for one US dollar, has the expected sign. A depreciation of country *i*'s currency against the US dollar is associated with an increase US imports from country *i.*

Finally, imports from countries with common border with the US (namely Canada and Mexico) are positive and significant, but common language seems to play an insignificant role in apparel trade.

Table 1-2 reports the effects of quota phase-out and elimination on country-product categories facing binding quotas (fillrate≥0.90). Estimates for the years 1995 to 2004 represent the period of quota phase-outs, following the passing of the ATC at the Uruguay Round, before their final elimination at the end of 2004. . Although the US and Europe were expected to gradually phase out quotas over a ten year period most of changes occurred towards the very end, around 2004.

Binding is 1 for all country-product categories that have a quota fillrate that is equal to or greater than 90% and 0 otherwise. In order to capture the effect of quota elimination post 2004, we use the dummy variable binding2004, which is 1 for quota constrained country-product pairs from 2003-04, for the years 2005 through 2007, and 0 otherwise. Our estimates for binding quotas, which are positive and significant for all years, show a discrete upward shift in 2004 and after. Figure1, which plots the estimates from 1995 to 2007, shows that the estimate for binding quotas remained pretty much constant around an average of 2.98 between 1995 and 2003, which supports the assertion that phase-out probably did not occur until the very end of the 10 year period. However, the estimate for quota constrained country-product categories jumps to 4.22 in 2004, with the average from 2004-07 at around 3.86, which is almost 1 point higher than the average for the previous decade. Our estimates clearly show that once quotas were removed, the quantity of imports from previously quota constrained county-product pairs increased significantly. As we know however, the US imposed VERS (*Voluntary Export Restrictions*) on China immediately following in 2006. Once we control for the China effect, the average imports go down to about 3.37.

In order to determine the winners and losers from the phase-out and elimination of the MFA we estimate equation (5) with 10 region dummies. These include regions with which US has preferential trade agreements: NAFTA (Mexico and Canada) and CBTPA (Caribbean Basin countries); and others including: Asia, Africa, Latin America, E. Europe, W. Europe, Oceania and the Middle East and North Africa (MENA). MENA was eliminated for purposes of estimation. The results from Table 2 show that throughout the period imports from Asia grew. The estimates for Asia jump from an average of 2.1 from 2002-04 to 2.8 in 2005. It shows a slight decline in 2007 which could be accounted for by re-imposition of quotas on China under safeguard measures adopted by the US. The net losers are Africa, Oceania and Western Europe. While imports from the Caribbean Basin countries[10] and NAFTA (Mexico and Canada) are

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[10] US signed the CBTPA, preferential trade agreement, with the Caribbean Basin countries in 2000.

significant and positive, surprisingly Latin America and Eastern Europe show insignificant results.

Finally, Table 3-1 and Table 3-2 report the results of the tests for size of the home market and vertical linkages. Share of country *i* (φ_{Ai}) in world production of apparel products from equation (3) provides a more direct measure of the size of the exporting countries' domestic market. A positive and significant estimate for φ_{Ai} would indicate higher US apparel imports from countries with large "home markets." On the other hand, the estimate for Λ_{it} measures the role of backward-linkages in apparel exports. Thus, if the linkage effect is strong, then a country with a large share of world textile production should also benefit its apparel sector through lower costs, which in turn should translate to higher apparel exports.

The results in Table 3-1 are based on the WIOT database which includes approximately 40 countries from the original data. The results in table 3-2 are based on the OECD-ICIO data. Overall, it is reassuring to see that the results are not too different from those for the full dataset. The labor wage effect remains negative and significant. The distance estimates are mostly insignificant in the WIOT model, but positive in the OECD model which mirrors our results from the larger sample. Exchange rates, measured in units of country *i's* currency for one US dollar, have the expected positive sign. A depreciation in country *i's* currency leads to an increase in US imports from that country. Trade-barriers measured by tariff and transport cost has expected negative sign and is significant for all years. The effect of binding quotas is similar to what we found in the full dataset. The average for the years 2004-07 is higher than the average for the previous 9 years.

Turning to the variables of interest, the estimates for the log of apparel shares are significant and positive for all years. However, the elasticity of imports with respect to size of the home market range between 0.60 and 0.82 in the WIOT model between 0.63 and 0.78 in the OECD model, and show no significant change after quotas were phased out. Overall the estimate is significantly less than 1, suggesting that size of a country's home market does not play a significant role in determining US apparel imports from that country i.e. the "home market" effect is not significant.

The estimate for Λ_i in equation (4), which measures the share of domestic intermediate inputs in the value of output of the Apparel industry of a country, is used to test the vertical linkage hypothesis. The measures of the vertical linkage variable are slightly different between the WIOD and OECD databases, as the first includes textile and apparel products while the latter also includes leather goods besides textile and apparel. The estimate for the vertical linkage variable is positive and significant for all the years, besides the estimates are comparable between both specifications. The values range between 3 percent and 6 percent in the WIOD model and between 3 percent and 7 percent in the OECD model. These estimates suggest that a strong linkage between the apparel and textile industries in the exporting country has a positive and significant effect on its exports of apparel products. A well-developed upstream textile industry can be a source of significant cost savings for the downstream apparel industry.

Tables 4-1 & 4-2, present the results for some variables of interest[11] by OTEXA product categories. OTEXA breaks down product categories by type of fiber – manmade (200), cotton (300) and wool (400). The coefficients for wages and relative GDP have the expected signs and are significant at the 1% level for all product categories. Binding captures imports from quota constrained country-product pairs from 1995-2004. The binding2004 dummy, which includes quota constrained country-product pairs from 2003-04, is used to the capture the effect of quota elimination for the 2005 through 2007 period. Interestingly, only some of our estimates for *binding* are significant and positive for the 1995 to 2004 period. The estimates for *binding2004* for the period 2005 through 2007 (post quota elimination) is consistently positive and significant for all Cotton product categories, except for M&B down-filled coats and other cotton apparel. This shows that imports of cotton garments from quota constrained countries increased significantly following the elimination of quotas.

For Woolen garment categories, the estimates for binding (1995-2004) are positive and significant for all categories except M&B suit – type coats, Other M&B coats and M&B –trousers, breeches & shorts. The estimates for binding2004 (2005-07) are significantly larger in magnitude

[11] Estimates for variables not reported like exchange rate, trade-barriers were significant and negative for all categories.

than in the previous period, but only for M&B suit–type coats, W&G coats, and W&G-trousers, breeches & shorts.

The role of distance differs significantly across apparel product categories. It remains positive for some categories as in the aggregate equation, but is negative or insignificant for others. Overall, distance estimate is positive for most cotton categories but negative for most wool categories. This could be because transportation cost is higher for woolen clothing compared to cottons, or the countries that specialize in woolen clothing exports are closer to the US.

VII. Conclusion

The phasing out and the ultimate expiration of quotas removes a single major distorting factor in the economic geography and trade in textile and apparel products. The resulting realignment of trade provides a unique opportunity to test the significance of increasing returns to scale and vertical linkage hypothesis predicted by "new" trade theories and economic geography models, along with the traditional comparative advantage and distance arguments.

Our results suggest that US imports of apparel products are higher from countries with lower wages – which provides strong support for the comparative advantage argument. This explains why countries like Bangladesh and Pakistan remain significant exporters of apparel to the US. The distance estimate which is positive, suggests that the US imports most of its apparel products from far off countries like Asia, instead of its neighbors. This shows that savings from low wage costs, which account for a significant proportion of apparel production costs, trump the transport costs for apparel products as a whole. However, when looking at the effect of distance by apparel category the distance effect is not uniform. While it is positive for some products, it is significant and negative for some. Thus proximity *is* important for some apparel products either because the transport costs may be relatively higher (e.g. winter coats) or as Evans and Harrigan (2000) point out "timeliness" is important for some high replenishment apparel products.

Imports from quota constrained country-product pairs show a significant increase following the elimination of quotas. The estimate increased from an average of 2.98 between

1995 and 2003 to 3.86 between 2004 and 2007. The estimate shows the biggest jump in 2004 to 4.22.

We use two alternative approaches to measure the effect of home market. In the first model which uses the full dataset, including 115 countries, the relative size of exporting country GDP to the US is used to measure economies of scale. The elasticity of imports with respect to relative GDP size increases from 0.36 in 1995 to 0.75 in 2007. This indicates that a large home market becomes increasingly important as quotas are phased out and finally terminated. Overall, however the elasticity with respect to country size is less than 1, suggesting that apparel imports are not overly affected by country size. In keeping with theory, trade barriers, which include tariffs and transportation cost, are consistently negative and significant.

To determine the winners and losers from the phase-out and elimination of the MFA we included region dummies in our model. Asia shows the biggest gains, followed by the Caribbean Basin countries. The net losers are Africa, Western Europe and Oceania. Surprisingly, Latin American and NAFTA (Mexico and Canada) show insignificant results along with Eastern Europe.

We test our hypothesis for size of home market and linkages alternatively, using the exporting country *i's* production of apparel as a share of world production. Since our current estimates only include the apparel sectors, share of country *i* in world production of apparel products provides a more direct measure of the size of the exporting countries' domestic market for apparel. The estimation is limited to a sample of 40 countries due to a lack of data on textile and apparel production for all countries.

The effect of binding quotas is similar to what we found in the full dataset. The average for the years 2004-07 is higher than the average for the previous 9 years.

When apparel industry production shares were used to measure the size of the home market, the effect is found to be significant for all years but there are no significant differences before and after quota elimination. This suggests that a large home market effect is not overly significant in apparel exports. We find strong support for the vertical linkage theory. A strong linkage between the apparel and textile industries in the exporting country has a positive and significant effect on its exports of apparel products.

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TABLE 1-1: Gravity Estimation for all Apparel Categories: Comparative Advantage, Market Size and Trade Barriers

Dep: Log_Imp	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
log_wages	-0.619***	-0.716***	-0.780***	-0.834***	-0.771***	-0.817***	-0.981***	-0.834***	-1.024***	-1.166***	-1.130***	-1.224***
	(0.0608)	(0.0584)	(0.0624)	(0.0585)	(0.0600)	(0.0602)	(0.0591)	(0.0598)	(0.0602)	(0.0591)	(0.0614)	(0.0612)
log_rgdpratio	0.470***	0.538***	0.600***	0.589***	0.596***	0.588***	0.671***	0.608***	0.755***	0.862***	0.813***	0.932***
	(0.0319)	(0.0325)	(0.0330)	(0.0315)	(0.0315)	(0.0307)	(0.0304)	(0.0296)	(0.0297)	(0.0308)	(0.0297)	(0.0259)
log_distcap	0.829***	0.651***	0.772***	0.315***	0.778***	0.765***	1.049***	1.019***	0.918***	0.333***	0.380***	0.0591
	(0.112)	(0.110)	(0.113)	(0.113)	(0.112)	(0.111)	(0.113)	(0.105)	(0.103)	(0.110)	(0.113)	(0.0999)
log_xrat	-0.0139	0.0118	0.00596	0.0448*	-0.0263	-0.0167	0.0881***	-0.0177	0.0547**	0.0677***	0.112***	0.0827***
	(0.0234)	(0.0240)	(0.0237)	(0.0234)	(0.0237)	(0.0234)	(0.0236)	(0.0225)	(0.0228)	(0.0231)	(0.0231)	(0.0223)
log_trade_barrier	-3.366***	-3.707***	-3.720***	-3.672***	-3.245***	-2.774***	-2.921***	-3.706***	-3.283***	-3.209***	-2.891***	-2.998***
	(0.165)	(0.154)	(0.173)	(0.142)	(0.167)	(0.142)	(0.146)	(0.143)	(0.124)	(0.147)	(0.129)	(0.125)
Border	1.326***	0.238	-0.158	0.928**	3.328***	3.419***	4.540***	3.436***	3.314***	2.172***	2.379***	-0.842
	(0.352)	(0.345)	(0.348)	(0.372)	(0.332)	(0.338)	(0.359)	(0.287)	(0.334)	(0.335)	(0.321)	(0.821)
Common_lang	-0.198	-0.0523	0.0161	0.236**	0.0636	0.0129	-0.0425	-0.127	-0.258**	-0.0905	-0.321***	0.620***
	(0.121)	(0.116)	(0.121)	(0.119)	(0.121)	(0.124)	(0.119)	(0.115)	(0.113)	(0.115)	(0.120)	(0.129)
Cat_Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2098	2124	2190	2242	2290	2314	2329	2335	2330	2220	2160	1934
chi2	508.9	666.2	751.0	3448.2	730.6	704.7	881.1	925.5	1106.2	938.8	7747.3	1184.9

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 1- 2: Effect of Quota Elimination on Country-product pairs facing Binding Quotas (Fillrate > 90%)

Dep: Log_Imp	1995	1996	1997	1998	1999	2000	2002	2003	2004	2005	2006	2007
Binding	2.914***	3.068***	3.122***	3.097***	3.349***	2.914***	2.677***	2.722***	4.217***			
	(0.393)	(0.366)	(0.365)	(0.362)	(0.376)	(0.346)	(0.409)	(0.422)	(0.718)			
Binding2004										3.667***	3.911***	3.629***
										(0.435)	(0.445)	(0.437)

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 1: Estimated β for Country-product pairs facing Binding Quotas

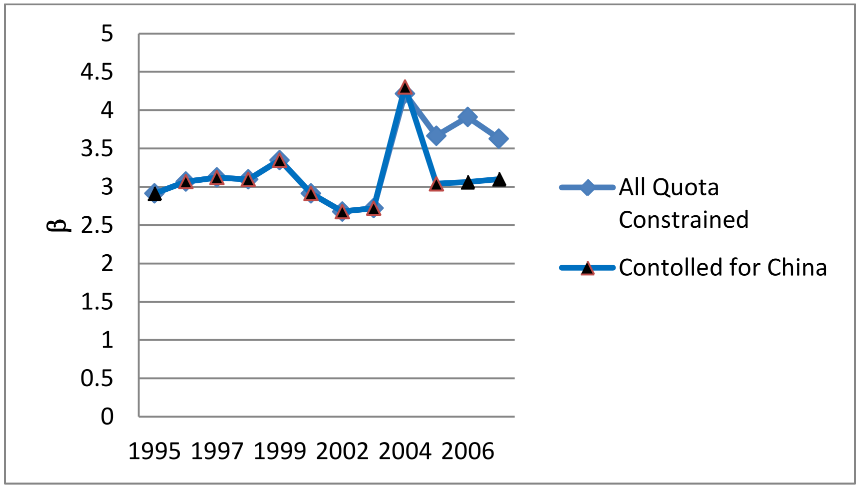

TABLE 2: Winners and Losers

Dep: Log_Imp	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Nafta	-1.472	-1.042	-1.328	0.0878	1.990***	1.613**	1.306*	2.139***	0.705	1.791**	1.570**	1.920***
	(0.914)	(1.047)	(0.830)	(0.815)	(0.717)	(0.639)	(0.679)	(0.670)	(0.685)	(0.711)	(0.627)	(0.273)
Asia	2.129***	2.130***	2.012***	2.307***	2.797***	2.634***	2.303***	2.374***	2.383***	2.871***	2.801***	2.203***
	(0.209)	(0.232)	(0.209)	(0.200)	(0.209)	(0.185)	(0.200)	(0.189)	(0.199)	(0.207)	(0.197)	(0.208)
Africa	-1.050***	-0.863***	-1.533***	-1.612***	-1.318***	-1.453***	-1.933***	-0.878***	-1.034***	-0.945***	-0.412	-1.294***
	(0.293)	(0.276)	(0.278)	(0.286)	(0.276)	(0.275)	(0.286)	(0.269)	(0.305)	(0.328)	(0.305)	(0.289)
Latin	0.182	0.146	0.744***	-0.381	-0.112	-0.0655	-0.554***	-0.00724	-0.134	0.274	0.412**	0.474**
	(0.231)	(0.254)	(0.235)	(0.232)	(0.233)	(0.219)	(0.213)	(0.200)	(0.219)	(0.212)	(0.207)	(0.211)
Caribbean	1.680***	2.208***	3.056***	0.974***	1.553***	0.990**	1.104***	1.236***	0.383	1.161***	0.849*	1.241***
	(0.378)	(0.394)	(0.399)	(0.347)	(0.423)	(0.396)	(0.427)	(0.409)	(0.382)	(0.405)	(0.443)	(0.347)
E. Europe	0.0205	-0.332	0.670***	0.159	0.215	0.313	0.247	0.320	-0.0575	0.592***	0.353	0.535**
	(0.229)	(0.262)	(0.237)	(0.240)	(0.261)	(0.221)	(0.225)	(0.207)	(0.216)	(0.220)	(0.219)	(0.229)
W. Europe	-0.949***	-1.109***	-0.411**	-0.938***	-0.379*	-0.614***	-0.807***	-0.700***	-0.961***	-0.323	-0.256	-0.474**
	(0.210)	(0.226)	(0.205)	(0.194)	(0.204)	(0.182)	(0.188)	(0.188)	(0.192)	(0.206)	(0.193)	(0.204)
Oceania	-0.764**	-0.866**	-1.226***	-1.107***	0.0813	-0.245	-0.532	-0.871***	-1.128***	-0.540*	-0.847***	-1.264***
	(0.337)	(0.342)	(0.371)	(0.327)	(0.332)	(0.328)	(0.329)	(0.315)	(0.335)	(0.313)	(0.301)	(0.254)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cat_Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2098	2124	2190	2242	2290	2314	2329	2335	2330	2220	2160	1934
chi2	2396.6	2662.5	2847.5	3093.4	3266.7	3356.7	4915.3	4032.7	3828.9	3813.4	3787.5	3877.7

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

OECD-ICIO TABLES:

Symmetric *industry-by-industry* IO table at basic price

	Intermediate demand			Final expenditure			Output (*bp*)
	Sector 1	...	Sector 34	Domestic demand	Cross-border exports	Direct purchases	
Sector 1 (domestic)						Expenditure by non-residents	
...							
Sector 34 (domestic)							
Sector 1 (imports, *bp*)	Imports of intermediate products			Imports of final products	Re-imports and Re-exports	Direct purchases by residents	
...							
Sector 34 (imports, *bp*)							
Taxes *less* subsidies on intermediate and final products							
Total intermediate / final expenditure (*pu*)							
Value added (*bp*)							
of which, Labour compensation							
of which, other value added							
Output (*bp*)							

(*pu*): purchasers' prices
(*bp*): basic price

Imports are valued at basic prices of the country of origin, i.e. the domestic and international distribution included in goods imports in c.i.f purchasers' prices are re-allocated to transport, trade and insurance sectors of foreign and domestic industries.

TABLE 3-1: Gravity Estimation for all Apparel Categories: Size of Home Market and Vertical Linkage Effects using World Input-Output Tables

Dep var: log_imp	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
log_wages	-0.628***	-0.891***	-0.648***	-0.895***	-0.879***	-1.048***
	(0.161)	(0.157)	(0.165)	(0.163)	(0.170)	(0.167)
log_appshare	0.631***	0.572***	0.603***	0.628***	0.824***	0.682***
	(0.0714)	(0.0757)	(0.0572)	(0.0645)	(0.0743)	(0.0717)
vert_link	0.0397***	0.0433***	0.0622***	0.0640***	0.0386***	0.0325***
	(0.0119)	(0.0122)	(0.0102)	(0.0114)	(0.0126)	(0.0119)
log_distcap	0.467*	0.175	0.0722	-0.170	0.0584	0.611***
	(0.269)	(0.282)	(0.283)	(0.293)	(0.269)	(0.171)
log_xrate	0.0956**	0.0923**	0.0805*	0.0629	0.0495	0.136***
	(0.0465)	(0.0462)	(0.0468)	(0.0443)	(0.0467)	(0.0400)
log_trade_barrier	-0.857***	-1.182***	-0.601***	-0.877***	-0.449*	-1.385***
	(0.214)	(0.235)	(0.222)	(0.223)	(0.230)	(0.195)
Border	3.862***	3.260***	2.741***	1.865***	2.668***	---
	(0.570)	(0.557)	(0.608)	(0.657)	(0.606)	
common_lang	1.192***	0.891***	0.891***	1.236***	0.937***	0.252
	(0.200)	(0.203)	(0.213)	(0.210)	(0.199)	(0.248)
Binding	0.811**	0.520	3.017***			
	(0.389)	(0.398)	(1.035)			
Binding (2004)				1.401***	1.560***	2.179***
				(0.417)	(0.429)	(0.476)
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	931	924	947	893	880	757
chi-sq	1045.7	1007.6	1076.7	1098.9	1123.6	968.0

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 3-2: Gravity Estimation for all Apparel Categories: Size of Home Market and Vertical Linkage Effects using OECD Inter-Country Input-Output Tables

Dep var: log_imp	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
log_wages	-0.711***	-0.936***	-0.816***	-0.987***	-0.979***	-1.086***
	(0.153)	(0.152)	(0.159)	(0.157)	(0.163)	(0.151)
log_appshare	0.650***	0.632***	0.641***	0.670***	0.672***	0.788***
	(0.0579)	(0.0648)	(0.0494)	(0.0538)	(0.0469)	(0.0538)
vert_link	0.0328**	0.0396***	0.0635***	0.0631***	0.0756***	0.0382***
	(0.0129)	(0.0123)	(0.0108)	(0.0113)	(0.0114)	(0.0102)
log_distcap	1.214***	0.841***	0.481**	0.444**	0.285	0.683***
	(0.201)	(0.203)	(0.199)	(0.205)	(0.199)	(0.172)
log_xrate	0.139***	0.171***	0.223***	0.198***	0.166***	0.232***
	(0.0371)	(0.0378)	(0.0374)	(0.0367)	(0.0383)	(0.0381)
log_trade_barrier	-1.054***	-1.195***	-0.822***	-1.114***	-0.880***	-1.502***
	(0.174)	(0.211)	(0.190)	(0.199)	(0.189)	(0.171)
Border	4.890***	3.532***	3.091***	2.841***	2.644***	-4.938**
	(0.478)	(0.460)	(0.494)	(0.528)	(0.504)	(1.924)
common_lang	1.341***	1.374***	1.241***	1.440***	1.270***	-0.0957
	(0.188)	(0.186)	(0.196)	(0.195)	(0.180)	(0.225)
Binding	1.341***	1.142***	3.599***			
	(0.370)	(0.383)	(0.754)			
Binding (2004)				1.944***	1.871***	3.069***
				(0.394)	(0.397)	(0.449)
Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	1279	1274	1298	1227	1197	1070
chi2	1285.8	1157.9	1333.0	1248.6	1443.2	1033.4

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE4-1: By Apparel Category (Cottons)

cat#	Category	log_wages	log_rgdpratio	log_distcap	binding	binding2004
237	Playsuits, sunsuits etc	-0.905***	0.521***	0.824***	1.145**	1.384***
239	Babies garments and clothing accessories	-1.160***	0.627***	0.552***	1.716*	
330	Handkerchiefs	-0.316***	1.149***	0.529***		
331	gloves and mittens	-0.561***	-0.127**	0.853***	0.553*	5.674***
332	Hosiery	-0.488***	1.178***	-1.715***		
333	M&B suit - type coats	-0.651***	0.744***	-0.0754	5.244	1.170**
334	Other M&B coats	-0.819***	0.448***	1.346***	-1.023***	3.123***
335	W&G coats	-0.480***	0.740***	0.941***	-0.467	3.090***
336	Dresses	-0.964***	0.766***	0.996***	-1.953**	4.069***
338	M&B suit - knit shirts	-1.292***	0.485***	1.323***	-0.760**	4.671***
339	W&G -knit shirts and blouses	-1.198***	0.577***	0.886***	-0.370	4.588***
340	M&B -shirts, not knit	-0.895***	0.735***	0.921***	1.946***	1.212***
341	W&G -knit shirts and blouses, not knit	-0.898***	0.749***	0.271**	-0.0690	4.801***
342	Skirts	-0.993***	0.737***	1.286***	0.197	4.859***
345	Sweaters	-1.136***	0.493***	1.206***	0.772***	3.785***
347	M&B -trousers, breeches & shorts	-1.284***	0.478***	1.804***	0.759	
348	W&G -trousers, breeches & shorts	-1.176***	0.579***	2.045***	3.557*	
349	Brassiers and other body supporting garmets	-0.832***	0.283***	0.189		
350	robes, dressing gowns	-1.142***	0.626***	0.682***	2.128***	
351	nightwear and pajamas	-0.985***	0.378***	1.175***	-0.213	3.411***
352	Underwear	-0.993***	0.530***	0.169	0.857	1.126
353	M&B down-filled coats	-1.059***	0.835***	-0.990***		
359	other cotton apparel	-0.521***	0.746***	0.688***	1.494*	2.115***

TABLE4-2: By Apparel Category (Wool)

Dep: log_imp						
Cat#	**Category**	**log_wages**	**log_rgdpratio**	**log_distcap**	**binding**	**binding2004**
431	gloves and mittens, dpr	-1.146***	0.554***	-0.576**		
432	hosiery	0.183	0.692***	-0.816***		
433	M&B suit - type coats	-0.735***	0.666***	-1.453***	-0.305	1.459***
434	Other M&B coats	-0.607***	0.771***	-0.0787	-0.443	1.036**
435	W&G coats	-0.761***	0.938***	-0.572***	0.841***	2.623***
436	Dresses	-0.374***	0.746***	-0.108		
438	knit shirts and blouses	-0.537***	0.497***	0.610***	2.637***	
439	Babies garments and clothing accessories	-0.398***	0.756***	0.0482		
440	shirts and blouses, not knit	-0.569***	0.793***	0.576***		
442	skirts	-0.330***	0.738***	-0.302**	0.888***	1.621***
443	M&B suits	-1.078***	0.781***	-1.344***	0.859***	0.313
444	W&G suits	-1.082***	0.779***	-0.328	2.298***	
445	M&B sweaters	-0.774***	0.473***	1.445***		
446	W&G sweaters	-0.185**	0.525***	2.332***		
447	M&B -trousers, breeches & shorts	-0.878***	0.829***	-0.478***	-0.250	0.635*
448	W&G -trousers, breeches & shorts	-0.625***	0.747***	-0.151	0.450	1.592***

List of 61 countries in the OECD-ICIO Database

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Belgium	Brazil
Brunei Darussalam	Chile
Bulgaria	Colombia
Cambodia	Costa Rica
Croatia	Mexico
Cyprus	
Czech Republic	**ASIA/PACIFIC/AFRICA**
Denmark	China (People's Republic of)
Estonia	Chinese Taipei
Finland	Hong Kong, China
France	India
Germany	Indonesia
Greece	Israel
Hungary	Japan
Iceland	Malaysia
Ireland	Korea
Italy	Philippines
Latvia	Singapore
Lithuania	Thailand
Luxembourg	Viet Nam
Malta	Saudi Arabia
Netherlands	Tunisia
New Zealand	Australia
Norway	Russian Federation
Poland	South Africa
Portugal	
Romania	**NORTH AMERICA**
Slovak Republic	Canada
Slovenia	United States
Spain	Rest of the world
Sweden	
Switzerland	
Turkey	
United Kingdom	

List of 40 countries in WIOD-database

European Union
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Belgium
Finland
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Greece
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Bulgaria
Hungary
Portugal
Cyprus
Ireland
Romania
Czech Republic
Italy
Slovak Republic
Denmark
Latvia
Slovenia
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Latin America
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Asia and Pacific
China
India
Indonesia
Japan
Taiwan
Turkey
South Korea
Australia
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North America
United States
Canada