EFFECTS OF TRADE COST ON THE TEXTILE AND APPAREL MARKET: EVIDENCE FROM ASIAN COUNTRIES

Abstract: Global textile and apparel industry has since the 1950s been subjected to various forms of trade policy measures. Well noted among these are tariffs and non-tariff barriers/policy indicators. Understanding the dynamics in such relevant policy indicators and the implications they yield for trade is a vital step towards informing relevant policy formulation and agribusiness investment decisions. With the textile and apparel industry being the primary grounds on which development in most Asian countries is founded, we for the first time in literature assess effects of various trade cost indicators on global textile and apparel imports from 37 Asian countries using a "*cost-incorporated*" gravity model for the period 1988-2004. Estimates from this study affirm theory-based associations between trade, distance, cultural linkage, tariffs, and non-tariffs barriers. We however discovered quite interesting associations regarding effects of tariff increments and existence of non-tariff barriers. Although both are primarily imposed/instilled to restrict trade flow, effect of tariff increments was consistently negative across all models, but that for non-tariff barriers was consistently positive, although significant only in the case of apparel imports. Plausible reasons behind the implications for tariffs and non-tariff barriers are elaborated on in this article. A keen discovery from this study however, is that imports of apparels are more responsive than textile imports to dynamics in various trade related cost, geographic and economic indicators.

JEL Classifications: E30, F10, O10, P20

Keywords: Textiles and Apparels; Gravity Model; Tariff Bariers; Non-Tariff Barriers; Exports; Asian Economies

1. Introduction

The textile and apparel industry remains a solid and relevant industry for economic development in many developing and developed countries worldwide, especially in Asian countries - *major players in world textile and apparel production and trade*. In Asia, textile and apparel production and trade serve as a major source of employment for millions of inhabitants, a source of export earnings, and a major contributor to gross domestic product (GDP). In Bangladesh for example, the textile and apparel industry accounts for approximately 86% of exports from the country and employs at least 4 million textile workers in 5,000 registered textile and garment factories (D'Ambrogio, 2014). The industry contributes about 4% and 11% respectively to India's GDP and export earnings, and employs over 45 million workers (making it the second largest provider of employment after agriculture) (D'Ambrogio, 2014). Beside these, the industry accounts respectively for 80% and 15% of total exports from Cambodia and Vietnam, provides employment for at least 15 million people in Pakistan (thus, about 30% of the country's workforce), 2.2 million people in Vietnam, and 1.1 million people in Indonesia (D'Ambrogio, 2014). Given these and many other economic roles played by the industry, global political, economic, and major policy adjustments made in the industry stand yielding major implications for development in majority of the Asian countries.

Globally, the textile and apparel industry has since the 1950s been subjected to various forms of trade policy measures, yielding intra and inter-regional, as well as inter-continental implications for trade. Understanding dynamics in policy measures implemented so far and the implications thereof for trade is a vital step towards informing relevant policy formulation and agribusiness investment decisions. Trends in global textile and apparel

imports have basically been steered by voluntary export restrains for cotton textile products to the US and Europe (Liu and Sun, 2004; Tan, 2005; Raffaelli and Jenkins, 1995), and the use of tariffs and trade liberalization measures. Liberalization of trade in the industry was founded on a gradual phasing-out of quotas between January 1995 and January 2005, as well as the removal in 2009 of restrictions in the Memorandum of Understanding signed between the U.S (world's leading importer) and China (world's leading exporter). In spite of the increase in global imports of textile and apparel products during the transition period and thereafter, not all organizations/regions/countries benefited from such developments. Some exporters from the developed world (including Canada, European Union, the United States, Japan, Hong Kong China and Singapore) generally found themselves on the losing side (being net-importers in the process, based on data from the ERS[1] Bilateral Fiber and Textile Trade Database), while, as shown in *Figure 1*, low-cost producers like China, India, Indonesia, Pakistan, Bangladesh, Thailand, Macau and all other South Asia and North Asia found themselves on the winning side.

[Insert Figure 1 about here]

Instilled with a primary purpose of restricting trade flow, tariff and non-tariff barriers (NTB) are noted in literature to yield diverse implications and are in most cases different in their effectiveness in addressing issues for which they are levied/instilled (Bruce et al., 2012). Trade restriction based on tariff is primarily achieved through price and cost-incentives which favor producers and government in the country that instills them, at the expense of consumers and importers (being made worse-off), yielding a consequent adverse implication for exporters in the foreign country. Thus, on the production side, tariff based measures are instilled to improve the position of domestic producers relative to their foreign counterparts (Cletus et al, 1988), while rents accrue to the government through taxes imposed on consumers and importers who patronize the foreign/competitive product in question.

In the case of non-tariff barriers, importers are generally limited to a maximum number of products or volume of a given product/group of products they can import and sell on the domestic market. This restriction incites domestic producers to expand/intensify current production, and reduces consumption due to reduced availability of the foreign product to meet consumer demand, triggering an increase in price and revenue gain for exporters in the foreign country. Thus, in contrast to rent generation for government under the tariff system, economic rents are generally transferred to the exporters under the quota system (Tan, 2005). Given the fact that tariff and non-tariff barriers are both trade restricting to some extent, relevancy for their instilment is more in their respective impact, rather than their use. In general however, both measures are deemed welfare reducing (Anderson et al., 2008).

Due to the general welfare reducing implications of tariff and non-tariff barriers instilled/imposed on textile and apparel trade in the late 1970s to early 1990s, the World Trade Organization (WTO), through its Agreement on Textile and Clothing (ATC), ordered for their dismantling between January 1995 and January 2005. Under normal circumstances, this should have paved grounds for increased production and exports by the exporting nations that had U.S. and other major net importers like the EU as their export destination. This was however not the case, following total dismantling of such barriers. Majority of the exporters worldwide, who were initially witnessing increasing trends, started observing significant declines after complete dismantling in 2005.

There were heterogeneous responses however in Asian following the gradual removal of restrictions on textile and apparel trade. Using U.S. imports of textile and apparels from the world as a case, and as shown in Figure 2, although total imports of textile and

[1]Economic Research Service of the United States Department of Agriculture.

apparel products by U.S. increased from US$2.7billion in 1989 (under the Mult-Fiber Arrangement (MFA)) to US$89 billion in 2005 (during the gradual dismantling), this significant increase was driven primarily by significant positive trend in exports from the Asean community (to the U.S.) and specifically by few major Asian exporters (namely China, Vietnam, India, Bangladesh, and Pakistan). These countries continued to steer the positive trend in U.S. imports of textile and apparel products, leading to a further increase in value from the 2005 figure to approximately US$105 billion in 2013. In spite of the role, played by the Asean community, and the aforementioned Asian countries in specific, some developed Asian countries like Japan, South Korea, Taiwan, Hong Kong and Singapore on the other hand witnessed consistent decline by value and share of U.S. imports. For example, as shown in Figure 2 and Table 1, total U.S. import from Hong Kong decreased from US$3,686,288,942 in 1989 to US$28,578,790 in the year 2013. This led to a decrease in share for Hong Kong from 12.22% to 0.23% between the aforementioned years.

Heterogeneous responses of countries within a given economic community, sub-region or region to trade enhancing measures have been attributed by some researchers, including Vollrath et al (2004) to differences in established networks, infrastructure and geographic proximity. To the best of our knowledge, none of the studies conducted so far on the textile and apparel industry for Asian countries made effort to capture the role tariffs and non-tariff barriers (trade cost effect) under the MFA may have played in steering the observed trends. Bearing in mind the fact that economic units/agent have limits/constraints to their ability to recover following exposure to various economic and policy stressors or to respond to incentives, ignoring the potential role tariffs and non-tariff barriers under the MFA and during phasing out may have played in the observed trends for the Asian countries is surely not an option (bearing in mind the major role they play in the global textile and apparel industry). To complement research efforts and findings so far on similar issues worldwide, and bridge relevant information gap, we for the first time source assessment of the effect of trade cost on the textile and apparel market for 37 Asian countries using annual data gathered from the World Bank's trade and production database for the pre-reform period (1988-2004). A 'cost-incorporated' gravity model is used in ascertaining the effect of trade cost on textiles and apparel imports from the countries covered.

[Insert Figure 2 about here]

[Insert Table 1 about here]

The remainder of the paper is organized as follows. The next section provides a literature review on the determinants of textile and apparel trade. Section 3 presents briefly the data sources and the econometrics method of gravity model, emphasizing the role of trade cost. Empirical results are presented in Section 4. Section 5 concludes the paper.

2. Literature Review on Determinants of Textile and Apparel Trade

In the wake of global, regional and national distortions to trade, several researches have been conducted worldwide to identify and assess the effects of key determinants of trade in both export and import dimensions of textile and apparel. Regardless of the dimension of interest, various approaches have been applied in analyzing determinants of trade flow. Among the techniques or approaches used so far are co-integration techniques (Lau *et al.* 2010; Siddiqi *et al.* 2012; Shahnawaz, 2004), traditional and modified forms of gravity model (Lau and Bilgin, 2010; Lau *et al.* 2010; Amponsah and Ofori-Boadu, 2007; Chi, 2010; Tsang and Au, 2008), and global generalized equilibrium models (Diao and Somwaru, 2002). Primarily established in trade and as a useful guide in application of the gravity model, trade

flow for the import dimension is believed to be steered by three primary indicator groups (Amponsah and Ofori-Boadu, 2007):

- Economic factors affecting trade flow in the origin country
- Economic factors affecting trade flow in the destination country
- Economic factors enhancing or restricting trade flow

Among the key factors noted in literature that fall under the first and second groups are gross domestic product of importing and exporting countries, per capita income of importing and exporting countries, real exchange rate, real price of the commodity of interest, population of the importing country and infrastructure degree of the importing country (Amponsah and Ofori-Boadu, 2007; Lau and Bilgin, 2010; Chi, 2010; Shahnawaz, 2004; Siddiqi *et al.* 2012). In the third group, emphasis has so far been placed on trade openness, distance between trading partners, tariffs and quotas, and dummies to capture regions/countries under free trade or restriction and other relevant trade arrangements. Due to the challenge posed in appropriate capturing of trade/transaction costs, efforts to reflect such costs have been limited primarily to transportation costs. To however improve representation of trade cost in models, Donaldson (2011) proposed the inclusion of other relevant variables like tariffs and non-tariff barriers, and indices for administrative hurdles, corruption, contractual frictions and the need to secure trade finance. This proposition has so far received an "invisible" amount of attention as majority of researchers who studied determinants of trade flow in the Textile and Apparels market hardly make use of any indicators reflecting these.

In analyzing trade flow in textile and apparel among 13 countries (*China, Pakistan, India, Mexico, Taiwan, South Korea, Thailand, Indonesia, Japan, Hong Kong, Philippines, Canada, and Sri Lanka*) and the U.S. using a commodity-specific model under the traditional gravity framework, Amponsah and Ofori-Boadu (2007) found a positive effect of gross domestic product (of the U.S. and its trading partners) on imports of textile. Same effect was found between per capita income of the trading partners and imports of textiles. Representing production capacity of the exporting nation, increasing GDP of the exporting country reflects the potential to export more of the commodity of interest. In the importing country however, increased GDP reflects a potential to increase purchases and consequently increase imports. As an indirect measure of productivity of labor in output for the exporting country, increasing per capita income generally stimulate exports, while higher per capita income in the importing country enhance demand for high quality imports. Higher price of textile and apparel products in the U.S. were found to stimulate demand for such products from the country's trading partners (substitution of domestically produced commodities with foreign made products). On the other hand, increased price of the foreign commodity renders the exporting country less competitive in the destination market for that commodity, leading to lower import demand by the importing country. Textile and apparel imports were therefore found to decrease with increased price from the source/foreign country.

In analyzing import demand response of MFA apparel/non-apparel fibers and cotton in the U.S. with China and Hong Kong as the trading partners of interest, Lau *et al*., (2010) discovered in the long-run, a positive effect of real GDP of U.S. on the country's import of apparel fibers, non-apparel fibers, apparel cottons and non-apparel cottons from Hong Kong and Mainland China. Increased export prices of the respective commodities led to a decrease in import demand for them. China responded positively to trade liberalization (phasing-out of quotas on textile and apparel) across the four aforementioned products. Response by Hong Kong was generally negative, but significant only in the case of non-apparel cottons. These findings are in conformity with previous discovery by Amponsah and Ofori-Boadu (2007).

In estimating U.S. textile import elasticity with 20 of its largest textile exporters using co-integration technique, Shahnawaz (2004) found that textiles imports into the U.S. were highly responsive to dynamics in price. This was usually the case for smaller exporters of textile

compared to larger exporters. In an empirical study of trade competitiveness in the U.S. technical textile industry (focusing on exports from the U.S. to 15 major trading partners), Chi (2010) found a significant positive effect of GDP on exports from U.S., and GDP and import demand in the destination countries. Increased population in both the U.S. and in the destination countries enhanced trade. Representing high level of economic development, improvements in infrastructure of the destination markets had a significant positive effect on their import demand for textile from U.S.

In building upon the works of Amponsah and Ofori-Boadu (2007) and Lau *et al.* (2010), we in this study source assessment of the effects of trade cost on textile and apparel imports. Beside the common variables (e.g. GDP and distance) noted in trade flow models, we introduce other "*representative*" trade cost variables like tariffs and non-tariff barriers to trade, as well as potential impediments/boosters of trade like language links, common border, and landlocked-status of countries in the selected case study group. Although several approaches can be used to achieve this, we employ a gravity model framework for our study. Selection of this approach over the other possible alternatives is based on its wider use over the past four decades and affirmation of its effectiveness as an international trade analysis tool by distinguished trade analysts including Linnemann (1966), Anderson (1979), and Anderson and van Wincoop (2003).

3. Econometrics Methodology of Gravity Model: Role of Trade Cost

Textile and apparel trade in the world market was characterized and dominated by tariff and non-tariff barriers before the year 2005. The main purpose of this paper is to examine the determinants of textile and apparel trade flow in the world market, emphasizing the effect of trade cost on textile and apparel imports from 37 countries in Asia, including mainland China, Hong Kong and 35 ASIAN countries[2] during the pre-reform period of 1988–2004. Annual data from 1988 to 2004 were collected from the "World Bank Trade, Production and Protection" database[3]. Appendix 1 lists 166 importing countries for Textiles market and appendix 2 shows 159 importing countries for Apparel market used in this study. The database consists of 28 manufacturing sectors, corresponding to the 3 -digit level of the International Standard Industrial Classification (ISIC), Revision 2. The database is freely available for the public to download through the World Bank trade website (www.worldbank.org\trade) under the "Data & Statistics" section. Researchers should however be aware that the database has several limitations. First, the issue of unbalanced panel of the database means a large number of missing data. After removing missing data for various variables we have 6569 observations for the textile market and 4555 observations for the apparel market. Listwise deletion method is used for handling missing data. In this method, an entire record is excluded from analysis if any single value is missing. Listwise deflection method was chosen to avoid seriously biased estimates as discussed in the gravity model of Demirkan et al.(2009) and Konya et al. (2011)[4].

The possibility of entrepôts may be another issue for accurate measurement of bilateral trade. And this could create accounting discrepancies between reported data and mirrored data. The country of origin sometimes mistakenly reports the entrepôt as the destination of the shipment. When researchers use bilateral trade flow data, particular attention needs to be paid to entrepôts such as Hong Kong, Macau, and Singapore. Another important concern is about the protection of data. Data on applied tariff may not include

[2] These countries are Afghanistan; Armenia; Azerbaijan; Bahrain; Bangladesh; Bhutan; Brunei; Cambodia; China; Christmas Island; Cocos Islands; Diego Garcia; Georgia; Hong Kong; India; Indonesia; Iran; Iraq; Israel; Japan; Jordan; Kazakhstan; North Korea; South Korea; Kuwait; Kyrgyzstan; Laos; Lebanon; Macau; Malaysia; Maldives; Mongolia; Myanmar; Nepal; Oman; Pakistan; and the Philippines.

[3] Data is available at <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:21085384~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html>

[4] Konya et al. (2011) examines how GATT/WTO membership can encourage international trade.

smaller agreements of developing countries, and preferential schemes are not always fully utilized. The choice of the aforementioned scope (1988-2004, thus period before 2006) is to help avoid structural breaks and regime shift due to liberalization of MFA, which may lead to biased estimates. We pursue effective analysis and achievement of our objective using a "cost-incorporated" Gravity model. The original data on "Trade, Protection and Production" was organized by the World Bank (Nicita and Olarreaga, 2007).

3.1. Gravity Model

The most important theoretical basis for gravity model was the work of Anderson (1979). For several decades now, gravity model has become a conventional tool for studying (analyzing) trade potential, trade determinants, and trade direction (see for example, Rahman *et al*. 2006; Batra, 2006; and Christie, 2002). Empirical gravity equation takes the form

$$x_{ij} = \alpha_1 y_i + \alpha_2 y_j + \alpha_3 D_{i,j} + \sum_{m=1}^{M} \beta_m \ln(z_{ij}^m) + \varepsilon_{ij} \quad (1)$$

where x_{ij} is the import volume in logarithmic form imported from country i to j, y_i and y_j are the logarithm of GDP of the exporter and importer respectively, $D_{i,j}$is the distance (km) between location i and location j, and z_{ij}^m (m=1,…, M) is a set of observed variables (i.e. dummy variables and tariffs). Researchers have in diverse ways used this gravity model to compare trade flow within an economy (i.e. intra-country/regional) and across borders (i.e. inter-country/regional). For example, it was found that trade volume between the U.S. and Canada is 22 times less than that of trade flow between the U.S. and Canadian provinces after accounting for distance (McCallum, 1995). However, the model specification above (equation (1)) is deemed generally inappropriate because it lacks micro-theoretical foundation and reflects model misspecification (Anderson and van Wincoop, 2003).

Starting from the 1980s, researchers have made effort to derive an appropriate empirical gravity equation from a range of trade theories. In earlier literature, Bergstrand (1985; 1989) showed that the empirical equation can be derived from the monopolistic competition model developed by Krugman (1980), assuming identical countries and differentiated goods. Recently, a gravity model has been derived from a Richardian type of models (Eaton and Kortum, 2002), model of international trade with differentiated goods and firm heterogeneity (Helpman *et al.* 2008 and Chaney, 2008). Anderson and van Wincoop (2003) subsequently derived a micro-founded gravity equation with trade cost. In its logarithmic form, the gravity equation could be represented as shown below:

$$x_{ij} = \alpha_1 y_i + \alpha_2 y_j + \sum_{m=1}^{M} \beta_m \ln(z_{ij}^m) - (1-\sigma)\ln(\Pi_i) - (1-\sigma)\ln(p_j) + \varepsilon_{ij} \quad (2)$$

where Π_i and p_j are country *i's* and country *j's* price indices. p_j represents the inward multilateral resistance index (the supply price), trade flow of goods from country i into country j is motivated (assuming σ >1) by incurring a higher trade cost as asserted by the law of demand, compared to other exporters in country j, as shown by p_j. Moreover, higher barriers (i.e. resistance from higher trade cost) from exporting country i to other international markets imply some trade opportunities reverted back to country i from country j. This situation is shown by the outward multilateral resistance index, Π_i[5]. Table 2 provides detailed description of independent variables used in this study.

[5] Decrease of this figure indicates a higher barrier of trade between county i and other countries; and this may increase exports from country i to country j as a result of substitution effect. For detailed explanation and deviation of equations, please refer to Anderson and van Wincoop (2003).

[Insert Table 2 about here]

The above theoretical formulation could be a potentially efficient formulation for assessing trade flow between the world's leading importers and China for example. Suppose these importers implement some preferential trade agreement with all of their trading partners beside China, this decreases trade cost for all the partners except China. In this way, the multilateral trade barrier decreases because a portion of the importers trade is diverted away from China even if the trade cost is kept the same between China and the importers (Novy, 2008). Put another way, this model captures the fact that changes in trade flow between two countries due to changes in trade cost can affect trade flow of other pairs of countries because of relative price change effects. In this paper, we use fixed effects specifications with importer and exporter dummies to control for the multilateral trade barrier bias (see Anderson and van Wincoop, 2004; Rose and van Wincoop, 2001; Feenstra, 2004; Baldwin and Taglioni, 2006). In addition, random effects specifications were estimated to help check consistency/efficiency across models and to guide selection of appropriate estimators *using Hausman test*.

Moreover, researchers must be aware that "trade costs" play a vital role in the formation of equation (2) because both inward multilateral and outward multilateral resistance indices are functions of trade cost. Following Anderson and van Wincoop (2003), we specify the trade costs function as follows:

$$\ln \tau_{i,j} = \beta_1 \ln D_{ij} + \beta_2 border_{ij} + \beta_3 ldlock_{ij} + \beta_4 com\_lang_{ij} + \beta_5 ntb_{ij} + \beta_6 \ln tar_{ij} + \varepsilon_{ij} \quad (3)$$

D is the geographical distance between countries i and j, border is a dummy variable equal to unity for countries that share a common land border, "com_lang" is a dummy variable equal to unity for country pairs that share a common official language, "ldlock" is dummy variable equal to unity for landlocked countries. The time-varying variable "ntb" represents non-tariff barriers dummy including quantity control and the logarithm with tariff, "lntar" = ln(1+tariff). In this paper, we examine "Textile" sector and "Wearing apparel, except footwear" sector[6].

We assume that transport costs increase with distance and are higher for landlocked countries but are lower for neighboring countries. The dummy for common language facilitates capturing of relevant information cost for trade between countries. Trading partners who share a common language tend to know more about each other's business practices and culture, and hence incur less searching cost. In literature, very few studies used bilateral tariffs and non-tariff barriers due to difficulty/restrictions involved in accessing and downloading data on them. Our study contributes to textile and apparel trade literature by analyzing data covering bilateral tariffs and non-tariff barriers. Following recent procedures in literature, we in this study capture policy related trade costs using tariffs and a dummy for existence of non-tariff barriers (see Head and Reis, 2001; Jacks *et al*. 2008).

4. Empirical Findings

4.1. Textile Market (ISIC.R2. 321)

The empirical findings for equation (3) are reported in Table 3 (textile products: ISIC.R2.321) and Table 4 (apparel products: ISIC.R2.321) respectively. Columns 1, 4,7, and 10 report results for fixed effects. Columns 2, 5, 8, and 11show results for time invariant importer and exporter fixed effects. Finally, columns 3, 6, 9, and 12 present results for random effects. In

[6] ISIC codes 3-digit level: 321 for textile; 322 for wearing apparel, except footwear.

our estimation, we allow sensitivity check for four different tariff specifications[7]. As can be seen from Tables 3 and 4, majority of the coefficients have the expected theory-based a priori signs. Although we estimate 12 primary models for each of the products (textile and apparel), specifications founded on random effects were adjudged most appropriate by a Hausman test (with a Chi(χ2) squared value of 4.15 and p-value of 0.6570 for random effects in Table 3). We henceforth emphasize associations based on random effects.

In using a simple average of applied tariffs on imports, we find a positive association between the size of importing countries and the volume of textile they import. This association yields an elasticity figure of 0.76, implying that an increase in GDP of importing countries by 10 percent increases textile imports from the 37 Asian countries by 7.6 percent, and this effect is statistically significant at the 1 percent level. GDP of the importing country proxies its purchasing power. The result is consistent with the hypothesis of the gravity model in the literature that as size of an economy increases the trade volume will increase. The estimated coefficient is close to a unity and this is predicted as the gravity model is close to a Heckscher-Oline type (Grossman 1998). The inelastic coefficient also implies the evidence of home-bias effect where domestic taste is an important determinant of trade flow in the textile market.

An increase in distance of 10 percent reduces textile imports by around 7.69 percent; again this effect is statistically significant at the 1 percent level. The result of the distance shows that geographical distance and therefore transport cost is an important resistance for trade flows in the textile market; the empirical finding is similar to the distance coefficient estimated by other previous studies for aggregate goods (Buch et al., 2004).We also discover that existence of common border between trading partners and language links imply increments in import of 137 percent and 190 percent (exp[0.864]-1 = 1.37;exp[1.063]-1 = 1.90) respectively. The positive language coefficient indicates language barriers is important in international trade, making the price of traded commodity (i.e textile) cheaper to buy and more easy to sell with better communication and negotiation skill. It is interesting to notice that the language effect is even larger than the common boarder effect. Common language is not only a sign of effective communication but also a signal of similar consumer preference, and the role of language becomes more important when trade expands in face of globalization and trade liberalization. However effective language skills are costly to be acquired. The above findings suggest that economies with similar preferences, cultural link, and demand structures tend to trade more; and this is in line with existing study (see Bilgin et al., 2011).

The various types of tariffs made use of in our analysis yielded consistent negative effects across the four random effects specifications, each being significant at the 1 percent level. Inferring from column 3, Table 3, we note that increasing the tariff factor by 10 percent leads to a 14.44 percent reduction in textile imports, while non-tariff barriers yielded no significant effect. This finding is reasonable as tariff plays an important role in textile trade, especially the presence of trade costs is largely unfavourable to developing counties; tariff rate generally remain higher in developing countries (Kee et al., 2009). Suvankulov (2016) found that tariffs alone accounts for 15.9 % of the trade flow/boarder effect between Canada and the EU. In our study the result indicated that 19% of the boarder effect in textile trade was caused by income effect and tariffs (see column 1, Table 3). The insignificant effect of non-tariff barriers on textile imports is robust across all the twelve specifications (including those with importer and exporter fixed effects and random effects).

Increasing number of Landlocked countries involved in textile trade reduces textile imports by 86 percent (exp[-1.959]-1 = -0.859). The result is within our expectation; landlocked countries are dependent on neighbouring transit countries for their external trade and suffer from extremely high trade-related transaction costs due to their remoteness. Although somewhat higher than that estimated for developing countries in general, this discovery is in conformity with an estimate by UN-OHRLLS (2013), which indicates that on average, the volume of international trade of a landlocked developing country is only 60

[7] Namely “simple average of applied tariffs on imports”, “weighted average of applied tariffs on imports”, “simple average import tariffs for most favored nations”, and “weighted average import tariffs for most favored nations”,

percent of the trade volume of a coastal counterpart, *indirectly implying that landlockedness reduces trade by 40 percent*. This indicates that obstructions to accessing of major export destinations are a major impediment for trade enhancement. Such obstructions are mostly geographic and include dependence on transit neighbors for transportation, infrastructure and other institutional requirements (World Bank/UN, 2014). Inasmuch as transit neighbors with strong institutional and infrastructural base could enhance trade for neighboring landlocked countries, transit neighbors with weaker base could even dampen trade for the neighboring landlocked countries. In general however, we find a significant negative effect of landlockedness on textile imports from the 37 Asian countries. Interestingly, this finding has an important implication on firm's competiveness, and it suggests that improvement of industry infrastructure can foster industry performance, and therefore enhance the domestic business competitiveness (Lau *et al.* 2009).

[Insert Table 3 about here]

Table 5 summarizes the "negative" impacts of four different tariffs on trade, namely "simple average of applied tariffs on imports", "weighted average of applied tariffs on imports", "simple average import tariffs for most favored nation", and "weighted average import tariffs for most favored nation". The effects are in the range -13.52 percent to -14.66 percent for a 10 percent increase in the respective tariff factors. Among the four types of tariffs used in this study, the "simple average import tariffs for most favored nations" had the highest negative impact on import of textiles from the 37 Asian countries.

[Insert Table 5 about here]

4.2. Apparel Market: (ISIC.R2. 322)

The empirical findings for the various specifications on apparel are reported in Table 4. With a p-value greater than 0.10, a Hausman test once again adjudged specifications based on random effects as the most appropriate. Summary of estimates based on random effects are reported in Table 6. In using simple average of applied tariffs on imports as the indicator for tariff factor (*in column 3*), the size of importing countries has a positive and significant impact on apparel imports, with an elasticity figure of 1.02 , which is *close to unit elasticity*. This implies that, an increase in GDP of importing countries by 10 percent increases trade in apparels by 10.02 percent, and this effect is statistically significant at the 1 percent level. Again the result is consistent with the hypothesis of the gravity model in the literature that as size of an economy increases the trade volume will increase. Comparing to the result obtained in the textile market, a larger income coefficient in the apparel market implies weaker home-bias effect of trade flow in the apparel market. An increase in distance between trading partners by 10 percent reduces apparel imports from the 37 Asian countries by approximately 3.13 percent, again this effect is statistically significant at the 1 percent level. The result of the distance shows that transport cost is important for trade flows in the apparel market, but the impact is much less than that of the textile market. We also discover that the existence of common border and language links leads to an increase in apparel imports of 454 percent and 382 percent (exp[1.712]-1 = 4.54; exp[1.572]-1 = 3.82) respectively. It is interesting to notice that the language effect in apparel trade is more important comparing to that of the textile market. Common language and cultural linkage are more important for apparel trade because effective communication of interfacial skills and competencies is needed for marketing strategies in foreign countries and for designers to sell their ideas overseas.

One important determinant of trade flow is trade policy. Trade policies along the lines of tariffs have had a significant negative impact on apparel imports from the Asian countries covered in this study. This claim is backed by a tariff factor coefficient of -3.333, implying that a tariff factor increase of 10 percent leads to a 33.33 percent reduction in apparel imports.

Landlockedness of countries involved in apparel trade leads to a 93 percent (exp[-2.699]-1 = -0.93) decrease in imports. In conformity with the association observed for the textile case, this finding confirms once again that landlocked countries face constraints imposed by their unique geography and this impedes their exploitation of trade opportunities.

In contrast to the insignificant effects of non-tariff barriers on textile imports (i.e.*3 percent increase in imports*), we discover a significant increase in apparel imports in the midst of non-tariff barriers. Import of apparels increased by 24 percent (exp[0.219]-1 = 0.24) in the midst of non-tariff barriers. This association signifies that, although non-tariff barriers and import tariffs have trade restricting aims, their effectiveness in restricting trade differs. With the effect for import tariffs being driven by cost and prices, non-tariff barriers generally remove costs and prices from the equation (Naumann, 2006). By this, inasmuch as tariffs drain profits of the exporter, non-tariff barriers (quotas in specific) generally transfer economic rents to the exporters (Tan, 2005) and this creates incentive for movements across countries and trading of shares under flexible quota arrangements to increase exports of apparel from the 37 Asian countries (hence increasing world imports of apparel from them).

As clearly elaborated on by Brambilla *et al.* (2007), the MFA/ATC agreements during the scope of this study (1988-2004) granted trading partners some flexibility to borrow and lend quotas across groups and years in response to market shocks. Given less restrictive intra-regional (Asian) movement[8], lower investment cost, relatively lower skilled labor requirement for apparel production and trade compared to that for textiles (Naumann, 2006; Nordås, 2004), and rent transference in favor of exporters under non-tariff barriers, highly constrained countries like China, Bangladesh, Indonesia, India, Pakistan, and Sri Lanka may have made efficient use of the opportunities that come with the flexibility permitted under non-tariff barriers to increase exports as they were and still are the major exporters of apparel from Asia. The significant positive association observed between apparel imports and existence of non-tariff barriers could also be attributed to the ability of less constrained Asian countries to scale up their production following re-allocation of shares under non-tariff barriers. Inasmuch as some of such countries may have limited incentive to scale up production under import tariffs due to increased cost of engaging in exports, they are generally incentivized to do so under non-tariff barriers specifically quota as prices and costs are removed from the equation and they stand gaining from increasing exports *if they were not exporting as much as is allotted them*. The insignificant effects of non-tariff barriers on textile imports in the midst of these possible alternatives of increasing textile imports could be due to the capital intensive and relatively higher skilled labor requirements for textile production and trade, *which impedes some exporters from responding to trade opportunities*. The responsiveness of apparel imports to various indicators covered in this study is noted to be generally higher than that for textile imports and this could in part be the reason for the higher growth in apparel trade during the period 1990-2003 ("*doubling of clothing exports, while textile increased by a substantially smaller margin*" (Naumann, 2006)) and thereafter.

[Insert Table 4 about here]

Table 6 summarizes the "negative" impacts of four different tariffs on trade, namely "simple average of applied tariffs on imports", "weighted average of applied tariffs on imports", "simple average import tariffs for most favored nation", and "weighted average import tariffs for most favored nation". The effects are in the range-30.76 percent and -33.33 percent for a 10 percent increase in the respective tariff factors. Among the four types of tariffs used in this study, the "simple average of applied tariffs on imports" had the highest negative impact on apparel imports from the 37 Asian countries.

[Insert Table 6 about here]

[8] This allows for relocation of some production centers across countries and forming of strategic production and sourcing partnerships (Naumann, 2006).

5. Conclusion

Global textile and apparel industry has since the 1950s been subjected to various forms of trade policy measures, noted amongst which are tariffs and non-tariff barriers. Dynamics in these policy measures and other geographic and economic indicators either stimulate or dampen trade in one country/region or another. Understanding the dynamics in such relevant indicators and the implications they yield for trade is a vital step towards informing relevant policy formulation and agribusiness investment decisions. With the textile and apparel industry being the primary grounds on which development in most Asian countries is founded, we for the first time in literature assess effects of various trade cost indicators on global textile and apparel imports from 37 Asian countries. Use was made of a "*cost-incorporated*" gravity model to facilitate assessment of the effects of trade costs (i.e. distance, border, common language and landlocked-status, tariffs and non-tariff barriers) on world imports of the aforementioned commodity groups from Asia.

This study covered the period 1988-2004. Use of this scope helped in avoiding structural breaks and regime shifts due to liberalization of MFA, which may have led to biased estimates. Regardless of the scope, this study provides insight not only into past trends and determinants, but also current trends and plausible determinants of future trends. Although tariffs and non-tariff barriers are both imposed/instilled to restrict trade flow, we discovered that they were primarily different not only in effect, but also in magnitude of influence. The effect and magnitude of influence of the two trade restriction measures were guided by the cost-and-price based nature of tariffs (which transfer rents to producers and government in the importing nation) and broadly share allocation nature of non-tariff barriers (which basically transfer rents to key license holders, mostly exporters from the foreign country). The effects and magnitude of influence also differed across the two industries due to plausible differences in financial and human capital requirements. Production and trade in textile products are relatively more capital (both financial and human/skills) intensive and give little room to rapid adjustment following liberalization of trade in textile. This, foremost, precludes majority of the low cost producers (yet major exporters in the textile industry) and poor traders from immediately exploiting opportunities presented in the global industry following liberalization of trade in textiles. Restrictions to trade flow compound (*through further increase in cost of production*) the already gloomy nature of the textile industry, making the apparel industry more attractive to majority of the low cost producers and poor traders, who are not only generally poor, but also less skilled. With this, whenever, there are increments in tariff on imports of textile and apparels, there is likely to be a greater effect on the apparel industry than the textile industry, because majority of the low cost producers and poor traders readily engage in apparel production and trade to a greater extent than in textiles and are likely to be the most affected. This proposition is backed by the relatively higher magnitude of effect of tariff increments on import of apparels than on textiles. We discovered that for a 10 percent increase in any of the four types of tariffs considered in this study, declines in import of textiles from the 37 Asian countries were in the range of -13.52 to -14.66 compared to -30.76 to -33.33 for apparel products. The share allocation nature of non-tariff barriers led to increments in both textiles and apparel, instead of declines. Increments were however only significant in the case of apparels. In the midst of minimized cost of production, re-allocation of shares pave grounds for exporters who initially had lower share to scale up their production and export volumes, while those who have higher shares than needed engage in trading of shares to facilitate efficient use of apportioning and overall increase in production and exports. Increments for textiles were in the range of 2.66 to 3.34 compared to 21.29 to 25.6 for apparels. This shows that tariffs are more effective in restricting trade flow than non-tariff barriers and the effects are industry-dependent. Should tariffs and non-tariff barriers be imposed on imports of textile and apparels in the near future, we expect the overall welfare reduction in the 37 Asian countries to be higher under tariffs and on the apparel sector than in the textiles sector.

Beside the association observed between the respective sectors and the two cost measures, we also discovered a positive association between size of importing countries and

their import of both textile and apparel products. This association, in case of apparel is close to unit elasticity, while that for textile is with an elasticity of 0.76. Inasmuch as sharing of common border and language links stimulate trade in textile and apparel, increasing distance and number of landlocked countries engaged in trade in both commodity groups dampen trade, with effects for the later ranging from a decrease of 86 percent for textile to 93 percent for apparel trade.

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Figures and Tables

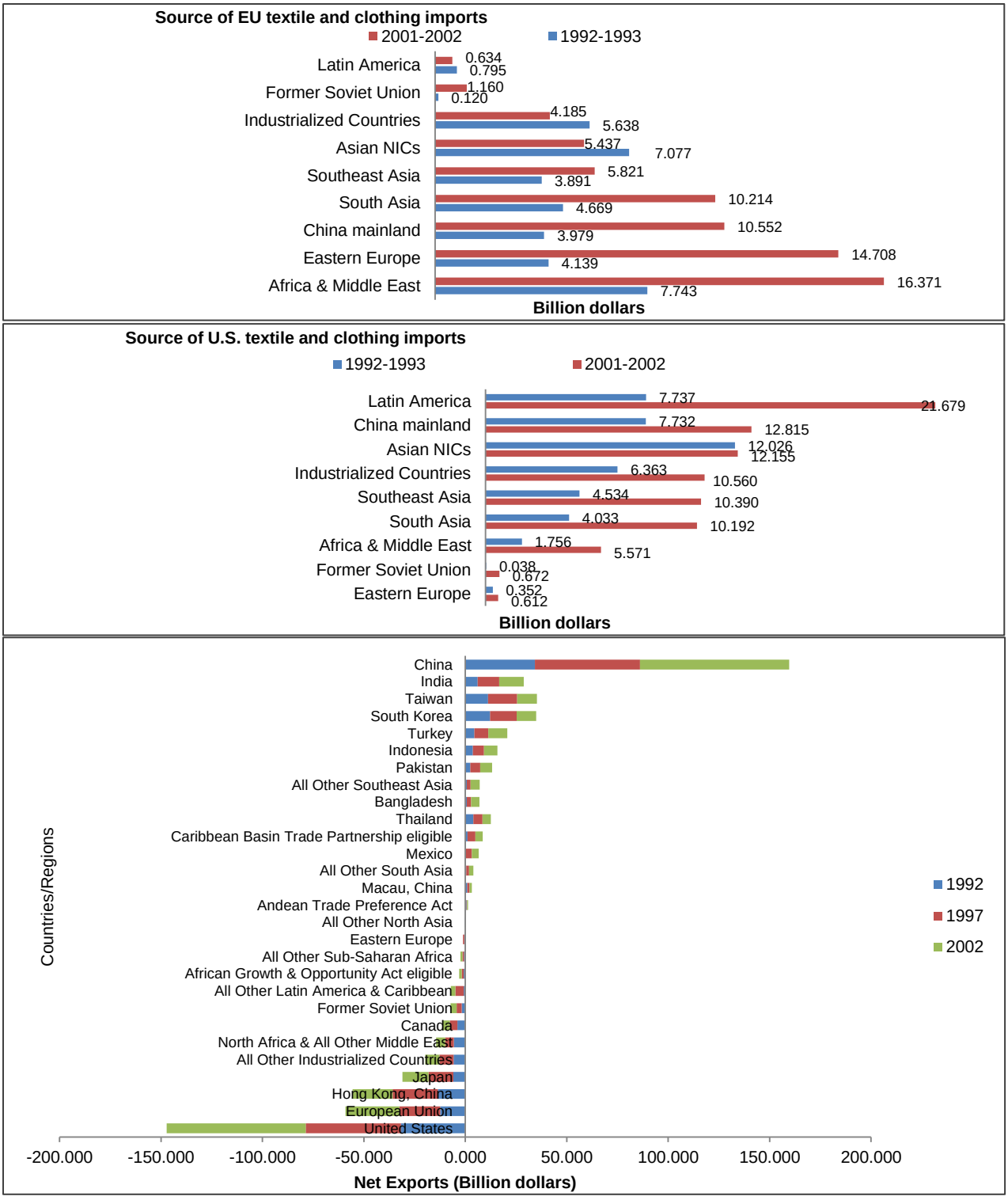

Figure 1. Developments in global textiles and clothing trade between the years 1992 and 2002
Source: Authors construct with data from ERS (USDA), 2013

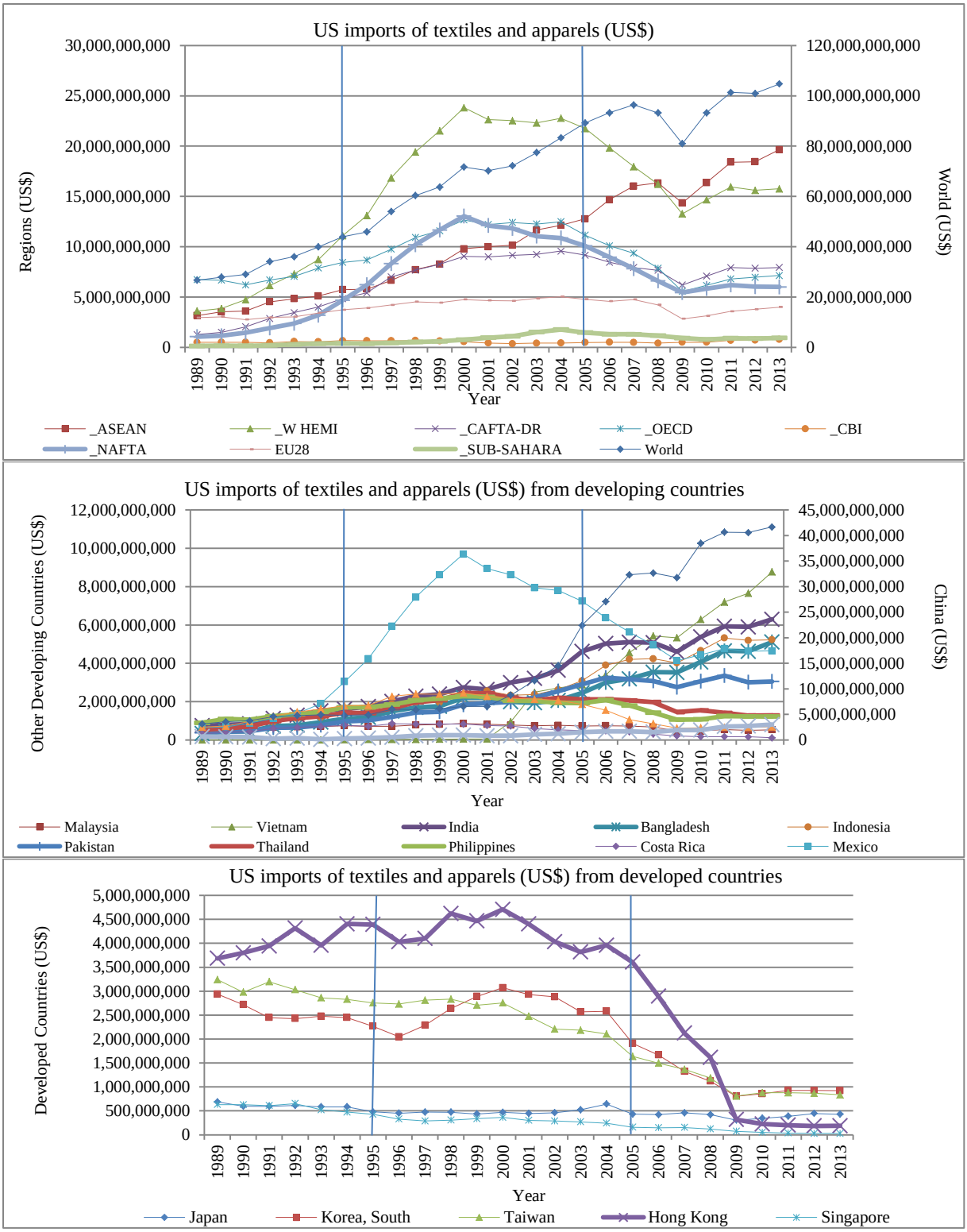

Figure 2: trends in US imports of textiles and apparels across selected regional units and countries

Source: Authors construct with data from U.S. Department of Commerce, Office of Textiles and Apparel

Table 1. Regional shares in total U.S. imports of textile and apparels

Class	Region / Country	1990-1994	1995-1999	2001-2005	2009-2013
Regions	ASEAN	12.960	12.773%	14.467%	18.129%
	W HEMI	18.431	30.598%	28.542%	15.641%
	CAFTA-DR	8.339	12.407%	11.764%	7.697%
	OECD	20.686	18.447%	15.428%	6.787%
	CBI	1.609	1.267%	0.558%	0.686%
	NAFTA	6.093	15.344%	14.260%	6.144%
	EU28	9.135	7.782%	6.117%	3.609%
	SUB-SAHARA	0.753	0.899%	1.758%	0.934%
Developing Countries	China	12.915%	10.351%	16.273%	40.133%
	Malaysia	1.883%	1.403%	0.973%	0.520%
	Vietnam	0.002%	0.050%	2.316%	7.323%
	India	3.320	3.743%	4.355%	5.840%
	Bangladesh	1.978	2.701%	2.716%	4.564%
	Indonesia	2.729	3.221%	3.303%	5.075%
	Pakistan	1.762	2.267%	2.949%	3.165%
	Thailand	2.779	3.178%	2.813%	1.444%
	Philippines	3.704	3.537%	2.597%	1.212%
	Costa Rica	1.664	1.488%	0.788%	0.172%
	Mexico	3.555	10.920%	10.333%	4.702%
	Dominican Republic	3.596	3.970%	2.675%	0.678%
	Haiti	0.305	0.290%	0.371%	0.679%
Developed Countries	Japan	1.777	0.862%	0.638%	0.397%
	Korea, South	7.490	4.525%	3.279%	0.922%
	Taiwan	8.914	5.164%	2.704%	0.887%
	Hong Kong	12.217	8.063%	5.051%	0.232%
	Singapore	1.727	0.629%	0.322%	0.045%
	Italy	3.257	3.355%	2.722%	1.634%

Source: computed by authors with data from U.S. Department of Commerce, Office of Textiles and Apparel

Table 2. Definition of variables.

EXPLANATORY VARIABLES	Descriptions
ln_cgdp_current	Exporter GDP in its current value (Log).
ln_pgdp_current	Importer GDP in its current value (Log).
ln_km	Distance between exporter and importer (KM in log) .
border	Dummy variable equal to unity for countries that share a common land border.
com_lang	Dummy variable equal to unity for country pairs that share a common official language.
ntb	Dummy variable equal to one for the existence of an Non-trade Barrier.
ln_tar_savg_ahs	"lntar" = ln(1+tariff): "simple average of applied tariffs on imports".
ldlock	Dummy variable equal to unity for landlocked countries.
ln_tar_iwahs	"lntar" = ln(1+tariff): "weighted average of applied tariffs on imports".
ln_tar_iwmfn	"lntar" = ln(1+tariff): "simple average import tariffs for most favored nations".
ln_tar_savg_mfn	"lntar" = ln(1+tariff): "weighted average import tariffs for most favored nations".

Table 3. Textile market

VARIABLES	(1) Fixed Effects	(2) Fixed Effects_EX_IM	(3) Random Effects	(4) Fixed Effects	(5) Fixed Effects_EX_IM	(6) Random Effects	(7) Fixed Effects	(8) Fixed Effects_EX_IM	(9) Random Effects	(10) Fixed Effects	(11) Fixed Effects_EX_IM	(12) Random Effects
ln_cgdp_current	1.150***	1.165***	0.714***	1.157***	1.183***	0.716***	1.173***	1.194***	0.720***	1.155***	1.171***	0.712***
	(0.0900)	(0.124)	(0.0389)	(0.0910)	(0.126)	(0.0390)	(0.0907)	(0.125)	(0.0389)	(0.0907)	(0.124)	(0.0391)
ln_pgdp_current	0.895***	0.694***	0.762***	0.893***	0.692***	0.760***	0.892***	0.692***	0.761***	0.893***	0.692***	0.764***
	(0.0707)	(0.113)	(0.0247)	(0.0707)	(0.113)	(0.0247)	(0.0708)	(0.113)	(0.0247)	(0.0707)	(0.113)	(0.0248)
ln_km		-1.073***	-0.769***		-1.074***	-0.761***		-1.074***	-0.761***		-1.073***	-0.779***
		(0.0604)	(0.0868)		(0.0605)	(0.0866)		(0.0605)	(0.0868)		(0.0605)	(0.0873)
border		0.380**	0.864**		0.379**	0.864**		0.380**	0.860**		0.380**	0.874**
		(0.148)	(0.366)		(0.148)	(0.365)		(0.148)	(0.366)		(0.148)	(0.368)
com_lang		-0.0116	1.063***		-0.0125	1.063***		-0.0126	1.058***		-0.0119	1.049***
		(0.0958)	(0.272)		(0.0959)	(0.271)		(0.0960)	(0.272)		(0.0959)	(0.273)
ntb	0.0684	0.0720	0.0329	0.0634	0.0676	0.0280	0.0621	0.0663	0.0263	0.0656	0.0691	0.0290
	(0.0496)	(0.0638)	(0.0501)	(0.0497)	(0.0638)	(0.0502)	(0.0497)	(0.0638)	(0.0502)	(0.0497)	(0.0638)	(0.0500)
ln_tar_savg_ahs	-1.442***	-1.439***	-1.444***									
	(0.176)	(0.319)	(0.158)									
	(0.0955)		(0.0877)	(0.0954)		(0.0872)	(0.0954)		(0.0872)	(0.0958)		(0.0876)
ldlock			-1.959***			-1.957***			-1.949***			-1.997***
			(0.366)			(0.366)			(0.366)			(0.368)
ln_tar_iwahs				-1.334***	-1.277***	-1.352***						
				(0.177)	(0.322)	(0.159)						
ln_tar_iwmfn							-1.285***	-1.245***	-1.370***			
							(0.176)	(0.319)	(0.158)			
ln_tar_savg_mfn										-1.389***	-1.372***	-1.466***
										(0.180)	(0.319)	(0.158)
Constant	-43.42***	-31.29***	-22.89***	-43.56***	-31.70***	-23.00***	-43.96***	-31.96***	-23.10***	-43.48***	-31.41***	-22.79***
	(2.921)	(3.626)	(1.414)	(2.945)	(3.660)	(1.413)	(2.938)	(3.642)	(1.413)	(2.939)	(3.623)	(1.422)
Observations	6,569	6,569	6,569	6,569	6,569	6,569	6,569	6,569	6,569	6,569	6,569	6,569
R-squared	0.189	0.767		0.188	0.767		0.187	0.767		0.188	0.767	
Number of id	1,307		1,307	1,307		1,307	1,307		1,307	1,307		1,307
Country FE	YES			YES			YES			YES		
TIME FE	YES			YES			YES			YES		
Exporter FE		YES			YES			YES			YES	
Importer Dummy		YES			YES			YES			YES	
Country RE			YES			YES			YES			YES
TIME RE			YES			YES			YES			YES

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 4. Apparels market

VARIABLES	(1) Fixed Effects	(2) Fixed Effects_EX_IM	(3) Random Effects	(4) Fixed Effects	(5) Fixed Effects_EX_IM	(6) Random Effects	(7) Fixed Effects	(8) Fixed Effects_EX_IM	(9) Random Effects	(10) Fixed Effects	(11) Fixed Effects_EX_IM	(12) Random Effects
ln_cgdp_current	0.600***	0.831***	0.195***	0.573***	0.786***	0.183***	0.745***	0.955***	0.224***	0.777***	1.000***	0.231***
	(0.117)	(0.180)	(0.0516)	(0.118)	(0.184)	(0.0517)	(0.115)	(0.175)	(0.0513)	(0.113)	(0.173)	(0.0512)
ln_pgdp_current	1.268***	1.269***	1.020***	1.265***	1.267***	1.018***	1.257***	1.261***	1.019***	1.258***	1.260***	1.022***
	(0.0896)	(0.145)	(0.0345)	(0.0896)	(0.145)	(0.0344)	(0.0899)	(0.145)	(0.0345)	(0.0899)	(0.145)	(0.0346)
ln_km		-1.035***	-0.313***		-1.034***	-0.305***		-1.033***	-0.318***		-1.033***	-0.327***
		(0.0736)	(0.117)		(0.0737)	(0.117)		(0.0742)	(0.117)		(0.0743)	(0.117)
border		0.640***	1.712***		0.641***	1.686***		0.644***	1.654***		0.643***	1.680***
		(0.164)	(0.466)		(0.164)	(0.464)		(0.164)	(0.466)		(0.164)	(0.467)
ldlock		3.472***	-2.699***		3.219***	-2.722***		4.207***	-2.593***		4.525***	-2.558***
		(1.201)	(0.463)		(1.219)	(0.462)		(1.178)	(0.463)		(1.160)	(0.464)
com_lang		0.461***	1.572***		0.462***	1.564***		0.461***	1.560***		0.460***	1.576***
		(0.121)	(0.355)		(0.121)	(0.354)		(0.121)	(0.355)		(0.121)	(0.356)
ntb	0.272***	0.314***	0.219***	0.247***	0.287**	0.194**	0.253***	0.290**	0.193**	0.284***	0.325***	0.226***
	(0.0828)	(0.118)	(0.0844)	(0.0829)	(0.119)	(0.0845)	(0.0833)	(0.119)	(0.0847)	(0.0831)	(0.118)	(0.0846)
ln_tar_savg_ahs	-3.287***	-3.407***	-3.333***									
	(0.244)	(0.438)	(0.206)									
ln_tar_iwahs				-3.270***	-3.447***	-3.321***						
				(0.243)	(0.444)	(0.205)						
ln_tar_iwmfn							-3.000***	-3.194***	-3.287***			
							(0.247)	(0.439)	(0.213)			
ln_tar_savg_mfn										-2.806***	-2.942***	-3.076***
										(0.229)	(0.414)	(0.198)
Constant	-39.59***	-35.92***	-20.44***	-38.82***	-34.64***	-20.11***	-43.16***	-39.27***	-21.12***	-44.05***	-40.58***	-21.32***
	(3.867)	(5.958)	(1.943)	(3.891)	(6.035)	(1.943)	(3.833)	(5.858)	(1.939)	(3.797)	(5.793)	(1.940)
Observations	4,555	4,555	4,555	4,555	4,555	4,555	4,555	4,555	4,555	4,555	4,555	4,555
R-squared	0.238	0.829		0.238	0.830		0.231	0.829		0.232	0.829	
Number of id	931		931	931		931	931		931	931		931
Country FE	YES			YES			YES			YES		
TIME FE	YES			YES			YES			YES		
Exporter FE		YES			YES			YES			YES	
Importer Dummy		YES			YES			YES			YES	
Country RE			YES			YES			YES			YES
TIME RE			YES			YES			YES			YES

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5. Textile market: Random effects

VARIABLES	(1) Random Effects	(2) Random Effects	(3) Random Effects	(4) Random Effects
ln_cgdp_current	0.714***	0.716***	0.720***	0.712***
	(0.0389)	(0.0390)	(0.0389)	(0.0391)
ln_pgdp_current	0.762***	0.760***	0.761***	0.764***
	(0.0247)	(0.0247)	(0.0247)	(0.0248)
ln_km	-0.769***	-0.761***	-0.761***	-0.779***
	(0.0868)	(0.0866)	(0.0868)	(0.0873)
border	0.864**	0.864**	0.860**	0.874**
	(0.366)	(0.365)	(0.366)	(0.368)
ldlock	-1.959***	-1.957***	-1.949***	-1.997***
	(0.366)	(0.366)	(0.366)	(0.368)
com_lang	1.063***	1.063***	1.058***	1.049***
	(0.272)	(0.271)	(0.272)	(0.273)
ntb	0.0329	0.0280	0.0263	0.0290
	(0.0501)	(0.0502)	(0.0502)	(0.0500)
ln_tar_savg_ahs	-1.444***			
	(0.158)			
ln_tar_iwahs		-1.352***		
		(0.159)		
ln_tar_iwmfn			-1.370***	
			(0.158)	
ln_tar_savg_mfn				-1.466***
				(0.158)
Constant	-22.89***	-23.00***	-23.10***	-22.79***
	(1.414)	(1.413)	(1.413)	(1.422)
Observations	6,569	6,569	6,569	6,569
Number of id	1,307	1,307	1,307	1,307
Country RE	YES	YES	YES	YES
TIME RE	YES	YES	YES	YES

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 6. Apparel market: Random effect

VARIABLES	(1) Random Effects	(2) Random Effects	(3) Random Effects	(4) Random Effects
ln_cgdp_current	0.195***	0.183***	0.224***	0.231***
	(0.0516)	(0.0517)	(0.0513)	(0.0512)
ln_pgdp_current	1.020***	1.018***	1.019***	1.022***
	(0.0345)	(0.0344)	(0.0345)	(0.0346)
ln_km	-0.313***	-0.305***	-0.318***	-0.327***
	(0.117)	(0.117)	(0.117)	(0.117)
border	1.712***	1.686***	1.654***	1.680***
	(0.466)	(0.464)	(0.466)	(0.467)
ldlock	-2.699***	-2.722***	-2.593***	-2.558***
	(0.463)	(0.462)	(0.463)	(0.464)
com_lang	1.572***	1.564***	1.560***	1.576***
	(0.355)	(0.354)	(0.355)	(0.356)
ntb	0.219***	0.194**	0.193**	0.226***
	(0.0844)	(0.0845)	(0.0847)	(0.0846)
ln_tar_savg_ahs	-3.333***			
	(0.206)			
ln_tar_iwahs		-3.321***		
		(0.205)		
ln_tar_iwmfn			-3.287***	
			(0.213)	
ln_tar_savg_mfn				-3.076***
				(0.198)
Constant	-20.44***	-20.11***	-21.12***	-21.32***
	(1.943)	(1.943)	(1.939)	(1.940)
Observations	4,555	4,555	4,555	4,555
Number of id	931	931	931	931
Country RE	YES	YES	YES	YES
TIME RE	YES	YES	YES	YES

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Appendix 1: List of Partner countries for Textiles Market.

Afghanistan	Brazil	Djibouti	Guatemala	Kenya
Albania	Bulgaria	Dominica	Guinea	Korea, Rep.
Algeria	Burkina Faso	Dominican Republic	Guinea-Bissau	Kuwait
Angola	Burundi	Ecuador	Guyana	Kyrgyz Republic
Argentina	C?te d'Ivoire	Egypt, Arab Rep.	Haiti	Lao PDR
Armenia	Cambodia	El Salvador	Honduras	Latvia
Aruba	Cameroon	Eritrea	Hong Kong SAR, China	Lebanon
Australia	Canada	Estonia	Hungary	Liberia
Austria	Central African Republic	Ethiopia	Iceland	Libya
Azerbaijan	Chad	Fiji	India	Lithuania
Bahamas, The	Chile	Finland	Indonesia	Macao SAR, China
Bahrain	China	France	Iran, Islamic Rep.	Macedonia, FYR
Bangladesh	Colombia	French Polynesia	Iraq	Madagascar
Belarus	Congo, Dem. Rep.	Gabon	Ireland	Malawi
Belize	Congo, Rep.	Gambia, The	Israel	Malaysia
Benin	Costa Rica	Georgia	Italy	Maldives
Bermuda	Croatia	Germany	Jamaica	Mali
Bhutan	Cyprus	Ghana	Japan	Malta
Bolivia	Czech Republic	Greece	Jordan	Mauritania
Bosnia and Herzegovina	Denmark	Grenada	Kazakhstan	Mauritius
Mexico	Philippines	Suriname	Vanuatu	
Moldova	Poland	Swaziland	Venezuela, RB	
Mongolia	Portugal	Sweden	Vietnam	
Morocco	Qatar	Switzerland	Yemen, Rep.	

Mozambique	Romania	Syrian Arab Republic	Zambia
Namibia	Russian Federation	Tajikistan	Zimbabwe
Nepal	Rwanda	Tanzania	
Netherlands	Saudi Arabia	Thailand	
New Caledonia	Senegal	Togo	
New Zealand	Seychelles	Tonga	
Nicaragua	Sierra Leone	Trinidad and Tobago	
Niger	Singapore	Tunisia	
Nigeria	Slovak Republic	Turkey	
Norway	Slovenia	Turkmenistan	
Oman	Solomon Islands	Uganda	
Pakistan	South Africa	Ukraine	
Panama	Spain	United Kingdom	
Papua New Guinea	Sri Lanka	United States	
Paraguay	St. Lucia	Uruguay	
Peru	Sudan	Uzbekistan	

Appendix 2: List of Partner countries for Apparel Market.

Albania	Burkina Faso	Dominican Republic	Haiti	Latvia
Algeria	Burundi	Ecuador	Honduras	Lebanon
Angola	C?te d'Ivoire	Egypt, Arab Rep.	Hong Kong SAR, China	Liberia
Argentina	Cambodia	El Salvador	Hungary	Libya
Armenia	Cameroon	Estonia	Iceland	Lithuania
Aruba	Canada	Ethiopia	India	Macao SAR, China
Australia	Central African Republic	Fiji	Indonesia	Macedonia, FYR
Austria	Chad	Finland	Iran, Islamic Rep.	Madagascar
Azerbaijan	Chile	France	Ireland	Malaysia
Bahamas, The	China	French Polynesia	Israel	Maldives
Bahrain	Colombia	Gabon	Italy	Mali
Bangladesh	Congo, Dem. Rep.	Gambia, The	Jamaica	Malta
Belarus	Congo, Rep.	Georgia	Japan	Mauritania
Belize	Costa Rica	Germany	Jordan	Mauritius
Bermuda	Croatia	Ghana	Kazakhstan	Mexico
Bhutan	Cyprus	Greece	Kenya	Moldova
Bolivia	Czech Republic	Guatemala	Korea, Rep.	Mongolia
Bosnia and Herzegovina	Denmark	Guinea	Kuwait	Morocco
Brazil	Djibouti	Guinea-Bissau	Kyrgyz Republic	Mozambique
Bulgaria	Dominica	Guyana	Lao PDR	Namibia
Nepal	Saudi Arabia	Tanzania		
Netherlands	Senegal	Thailand		

New Caledonia	Seychelles	Togo
New Zealand	Sierra Leone	Trinidad and Tobago
Nicaragua	Singapore	Tunisia
Niger	Slovak Republic	Turkey
Nigeria	Slovenia	Turkmenistan
Norway	Solomon Islands	Uganda
Oman	South Africa	Ukraine
Pakistan	Spain	United Kingdom
Panama	Sri Lanka	United States
Papua New Guinea	St. Kitts and Nevis	Uruguay
Paraguay	St. Lucia	Uzbekistan
Peru	Sudan	Vanuatu
Philippines	Suriname	Venezuela, RB
Poland	Swaziland	Vietnam
Portugal	Sweden	Yemen, Rep.
Qatar	Switzerland	Zambia
Romania	Syrian Arab Republic	Zimbabwe
Russian Federation	Tajikistan	