

**DIFFERENCES IN PRC AND INDIAN TEXTILE AND
APPAREL INDUSTRY RESPONSES TO THE
ELIMINATION OF THE MFA: DO CULTURAL
DIFFERENCES MATTER?**

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ABSTRACT

The intent of this paper is to compare PRC and Indian responses to the elimination of textile and apparel (T&A) quotas by the US. On the demand side, the paper estimate whether or not PRC and Indian T&A items, formally under quota control, are substitutes or complements in the US market. On the supply side, the paper focuses on institutional differences between each country's T&A sectors, the different domestic government policies that have contributed to their growth and the unique cultural differences which will determine the future progress in each country's T&A sectors.

This paper's findings are as follows. On the demand side there is very little competition between PRC and Indian T&A items formerly under quota control. The primary reason is that the Indian T&A sector is still under the illusion that low cost producers will continue to dominate the market. The PRC in contrast has moved away from this model to a model where they embrace a the complete value chain including developing their own design and marketing links. While both India and the PRC have strong State interventions the bias of the Indian policy makers has been to assure the employment interests of their farmers and small scale textile industry at the expense of efficiency. The PRC, on the other hand are far more interested in export led growth and thus have adopted policies that do not have to satisfy short term constituencies. The end result from these very different cultural perspectives is that India is no match for the PRC in this industry.

I. INTRODUCTION

International trade in textiles and apparel has, as of January 1, 2005, been set free from the very intricate Multi-Fiber textile and apparel quota Arrangement (MFA). This event has raised many uncertainties about the new international trade climate and has placed enormous pressure on the Peoples Republic of China (PRC) as the expected clear cut beneficiary of this liberalization.¹ Other countries considered to be major contenders include India which also has a large population employed in the textile and apparel (T&A) sector. Since the old quota system had provided a certain degree of market certainty to competing T&A producers, will the new free trade environment lead to a shake out where mass producers with large economies of scale dominate the new reality?

The removal of T&A quotas will create opportunities for India and the PRC along with other developing countries, but it will also expose them to additional competition from each other. The outcome of this competition will depend on the demand in the US, the ability of the exporting countries to differentiate their exports and on their ability to transfer

¹ The PRC is currently the major exporter of apparel products. In 2000, it accounted for roughly 18% of total world trade in apparel, double its 1990 performance; garments in 2000, up from 9% in 1990. The PRC is the largest supplier of apparel products to the EU and Japan, and the second largest to the US market. Expectations are that with the demise of the MFA, the PRC's market share of the EU and US markets will rise substantially above its current rate of 14 and 11 percent, respectively. The PRC's export potential is seen by other developing countries as a source of crowding out. This concern may be overstated because the PRC's apparel products have increased in quality far more than its competitors, its export prices are much higher than its competitors, and its labor costs are rising far more than its competitors.

additional resources to expand domestic output in the direction of the new ‘free market signals’ and away from rent seeking objectives. Obviously, exporting countries that adjust to this new environment quickly will improve their competitiveness, and will be the new beneficiaries of a quota free international trade in textiles and apparel.

The intent of this paper is to compare PRC and Indian responses to the elimination of T&A quotas by the US. On the demand side, the paper estimate whether or not PRC and Indian T&A items, formally under quota control, are substitutes or complements in the US market. On the supply side, the paper focuses on institutional differences between each country’s T&A sectors, the different domestic government policies that have contributed to their growth and the unique cultural differences which will determine the future progress in each country’s T&A sectors.

The specific textile and apparel items to be compared are based on the pre-2005 quota limits where both India and the PRC were constrained. The full list of the PRC products under quota control includes 77 three digit T&A categories divided by fiber between fabric, textiles and apparel. The full set of Indian products under quota control which intersects with the PRC product list includes 57 three-digit categories. The full list is presented in Table 1. For this paper the review of Indian and PRC product competition is restricted to this list of 57 categories.

The paper is divided into the following sections. A brief description of the post 1995 agreement on T&A is presented in Section II. Section III presents the methodology we adopt in order to estimate the demand side competition between the PRC and India. The results presented in that section include own- and cross- price elasticities across the subgroup of products where there is competition on the demand side. Section IV focuses on a comparison in the supply side responses between the PRC and Indian T&A sectors. It

is in this section that we try to isolate the cultural elements ingrained in the economic data. Concluding remarks are presented in Section V. The appendix describes the data sources.

II. THE AGREEMENT ON TEXTILES AND CLOTHING AND THEREAFTER

The Agreement on Textiles and Clothing (ATC) was designed to eliminate the MFA quotas system by the year 2005 and to integrate textiles and apparel trade into the WTO regime. The governing paradigm has been that immediately after the removal of the MFA quota system PRC T&A exports would grow exponentially. However, what analysts ignored was that in the case of the PRC, the shift to a quota free world did not make it free and clear in the case of the US. When the PRC acceded to the WTO they had to sign a separate bilateral Memorandum of Understanding which assured the U.S. of a unique bilateral consultation mechanism to remain in effect for four additional years beyond the end of quotas for the rest of the WTO countries (through December 31, 2008).² These more

² The Memorandum of Understanding regarding PRC's accession to the WTO was signed on February 1, 1997. Listed under paragraph 242 of the Report of the Working Party on the Accession of China to the World Trade Organization (Accession Agreement), the United States (and any other WTO member country) is offered the right to institute a safeguard measure on textiles and apparel of Chinese origin that, due to a market disruptions, are threatening to impede the orderly development of trade. *Procedures for Considering Requests from the Public for Textile and Apparel Safeguard Actions on Imports from China*, The Committee for the Implementation of Textile Agreements, Federal Register Vol. 68, No. 98, pg 27787. Upon receipt if the request, China has agreed to hold its shipments to a level no greater than 7.5 percent (6 percent for wool categories) above the amount entered during the first 12 months of the most recent 14 months preceding the request for consultations.

extensive “safeguard” measures between the US and the PRC provides the US with rights to re-impose quotas under specified circumstances.³

This measure has been used, since 2003, four times by the United States. In 2003, three categories⁴ had one-year restraints placed on them. In 2004, one category underwent the same procedure and twelve categories were petitioned.⁵ In the first 6 months of 2005, ten categories have been petitioned and now are open to public comment. The first category in 2003 to have restraints returned to it was Category 222: Knit Fabric. The United States established a 12 month limit on PRC origin knit fabric not to exceed 9,664,477 kilograms. The reasons cited in this case became the benchmark for all subsequent cases that came to the Court of International Trade (CIT). In this case, it was shown that U.S. imports from the PRC were increasing in absolute terms, U.S. imports from the PRC were increasing rapidly relative to other imports, the PRC average unit values were well below values from other countries, U.S. imports from the PRC were likely to increase greatly, and that the U.S.

³ This safeguard mechanism allows the U.S. to seek to extend quotas with the PRC for specific goods where the elimination of such restrictions would result in “...market disruption, threatening to impede the orderly development of trade between the two countries.” See United States International Trade Commission. 1999. *Assessment of the Economic Effects of China’s Accession to the WTO*. Investigation No. 332-403, Publication 3229. Washington, DC: USITC.

⁴ Textiles and apparel are grouped into categories based on what product they are (i.e. wool socks, knit fabric, etc). These are given a three digit identification number that relates directly to the 10 digit harmonized tariff schedule of the United States.

⁵ The 12 cases had an injunction placed on them in the Court of International Trade that was lifted May 5, 2005.

knit fabric industry was vulnerable to any increase in imports. Like knit fabric, the other categories in front of the CIT have been petitioned for harm to domestic industries or threat thereof. In 2004, Category 222 was petitioned again, but was grouped into the twelve cases under injunction. Like knit fabric, the other categories in front of the CIT have been petitioned for harm to domestic industries or threat thereof. Cross Category 350/650, man-made fiber dressing gowns and robes, announced bilateral negotiations with the PRC in 2003 for similar reasons to Category 222. U.S. imports from the PRC were increasing rapidly in absolute terms, U.S. imports from the PRC were increasing rapidly relative to other imports, PRC average unit values were well below average of other countries, U.S. imports from the PRC were likely to increase in the near future, and the industry was very vulnerable to any increase in imports.

In 2005, the ten cases open for public comment, plus the twelve that were under injunction, were being petitioned for the same reasons. The CIT is now confronted with the option of potentially granting 22 safeguards on PRC imports, or none at all. The court will review data presented to it in the same manner as before, along with the public comments that are submitted, and make a decision based off of that information. However, the Office of Textiles and Apparel (OTEXA), CITA, and the Department of Commerce as a whole, now must decide how they will guide the future of PRC T&A imports. The cases have taken on a broader role as indicators of trade measures and protectionist policy for the United States in regard to textile and apparel imports. It is important to note that the CIT has and will act, for as long as deemed necessary, as a mechanism to prevent rapid surges in T&A imports from the PRC. It is also likely that these cases and negotiations with the PRC will

eventually result in a broader agreement, such as a voluntary export restraint, export taxes⁶, and more, that will be satisfactory for both the United States and the PRC.

III. ESTIMATING THE IMPACT OF QUOTA REMOVAL: METHODOLOGICAL CONSIDERATIONS

How will the volume and composition of Chinese and Indian exports to the United States change as a result of increased market access? To date what we have are projections unanimously expecting PRC domination and US litigation under the guise of market disruption. A recent WTO study (August 2004) predicted that the PRC would increase its share of the U.S. textile market from 11 percent to 18 percent after quotas were eliminated, and would boost its apparel market share from 16 percent to 50 percent. A similar projection for India is not as upbeat. The major difference is accounted for by the institutional differences between the two countries.

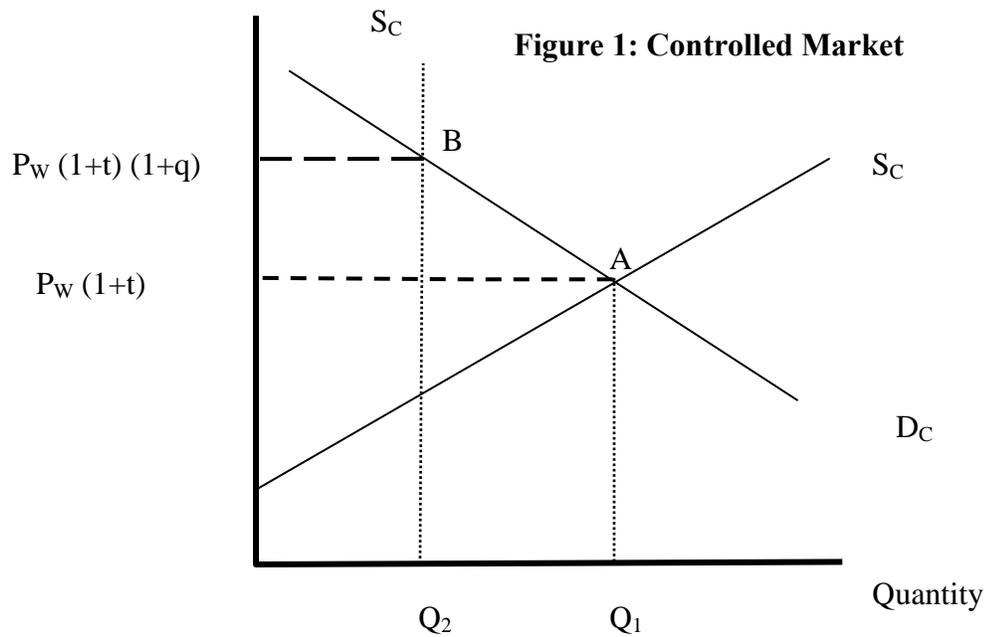
Methodological Issues:

The most important characteristic of textile and apparel quota system was that it was an ex-post set of trade restrictions imposed on a subset of developing countries on a subset of three-digit T & A categories which are fiber based with room to borrow across categories and time. These restrictions, while binding in most cases, created a rent seeking cycle for exporting producers who took advantage of the restrictions and the accompanying quota

⁶ Export taxes are already utilized by the Chinese government. They were implemented on January 1, 2005 in order to set a price floor on textiles and apparel. Duties range from 0.2 to 0.5 yuan per piece and have been applied 148 tariff lines, including the most sensitive categories such as coats, shirts, pajamas, etc.

licenses. It also encourages upgrading and a shift of domestic resources to a set of products whose sales are pre-determined. In many cases both the domestic competition in importing countries and the exporters in developing countries shared the benefits of higher prices.

The controlled markets for a specific T & A category can be seen in Figure 1. The introduction of a quota limit turns the supply curve to a perfectly inelastic portion.



The quota free equilibrium occurs at point A, where the import price is tariff inclusive. Equilibrium at point B is after the imposition of the quota. The price gap is the effective quota rent that will be removed with the demise of the MFA. Tariffs are unaffected by the new trading regime.

With all other things held constant, an elimination of the quotas on T & A imported from the PRC and India will cause US imports to increase as US buyers substitute the now lower-priced uncontrolled foreign goods for US substitutes (trade creation) or US imports from other countries (trade diversion). The total expansion of US imports from either the PRC or India would be the sum of the trade creation and trade diversion effects. Since our

concern, on the demand side, lies in determining changes in Indian or PRC dollar earnings resulting from expanded exports to the United States, total trade expansion (or gross trade creation) will be measured.

The partial equilibrium approach mentioned above can be described by a system of demand and supply equations for the two beneficiary countries and the United States. Let the United States be denoted as country i and are two beneficiary countries as j , where $j = 1, 2$. Then a series of equations for trade in k three-digit categories ($k = 1, \dots, K$) can be described as follows:

$$M_{ik} = f(P_{ik}^D); \quad (1)$$

$$P_{ik}^D = t_{ik} \delta_{ik} P_{jk}^W; \quad (2)$$

$$X_{jk} = g(P_{jk}^W); \quad (3)$$

$$M_{ik} = X_{jk}; \quad (4)$$

$$R_{jk} = P_{jk}^W X_{jk}, \quad (5)$$

where M is the quantity of US imports, X is the quantity of beneficiary country exports, P_{ik}^D is the domestic US price for commodity k , P_{jk}^W is the world market price assumed to be the price at which India and PRC export to the United States, t is one plus the ad-valorem MFN duty rate (Γ) applied by the United States, δ is one plus the ad-valorem tariff equivalent of the quota estimated by the price gap in figure 1, and R is the beneficiary country's export revenue on products exported into the United States.

Totally differentiating equations (1) through (5) and solving for the proportional changes in imports, export prices, and revenues yields:

$$\widehat{M}_{ik} = \left[\frac{\eta_{ik}}{(1 - \eta_{ik} / e_{ik})} \right] \widehat{\delta}_{ik} ; \quad (6)$$

$$\widehat{P}_{jk}^W = - \left[\frac{\eta_{ik}}{(\eta_{ik} - e_{jk})} \right] \widehat{\delta}_{ik} ; \quad (7)$$

$$\widehat{R}_{jk} = \eta_{ik} \left[\frac{(1 + e_{jk})}{(e_{jk} - \eta_{ik})} \right] \widehat{\delta}_{ik} , \quad (8)$$

where η is the relative price elasticity of import demand, e is the export supply elasticity, and $\widehat{\delta}_{ik}$ denotes percent change.

Within this partial equilibrium framework, export flows, import flows, and export revenues are each a function of the percentage change in relative prices due to the elimination of quotas and the elasticities of import demand and export supply. From the perspective of India and the PRC, as long as the US import demand is elastic, each country will gain if their products are sufficiently differentiated and their export supply elasticity is infinite. In the event that their supply elasticity was zero, each exporting country suppliers would simply receive the amount of the quota rent as added profit.

In order to derive empirical estimates of the effects of MFA elimination on these two beneficiary country exporters using the model described above, several things would be needed. To determine the responsiveness of U.S. buyers and Indian and PRC sellers to removal of the quota premiums on goods imported from these countries, reliable estimates of U.S. import demand and Indian and PRC export supply elasticities would be required. In addition, it would be necessary to make assumptions about the potential price response by Indian and PRC exporters to a change in U.S. import quota equivalent duties. If the individual country suppliers perceive the market as being less than competitive, then they may pass through all, some, or none of the duty equivalent reduction to U.S. buyers by

maintaining export prices unchanged, raising them by a fraction of the tariff equivalent of the quota elimination, or raising them by the full amount of the quota rent. In sum, an estimate of the total trade expansion will depend on the U.S. import demand elasticity, the export supply elasticity and pricing strategy of the two beneficiaries, the magnitude of the change in U.S. tariffs equivalents of the quota, and the current volume of U.S. imports from the region.

Using the detailed three-digit textile category data covering the 1995-2004 period for 57 categories where the PRC and India compete we first proceed to estimate the import demand equations for the PRC and India. In this way we estimate the own price elasticities of demand, the cross price elasticities for India's competition with the PRC, and that of the aggregate uncontrolled market. Estimates of PRC and Indian supply elasticities are not estimated but are relegated to a discussion of each country's T&A sectors and the applicable institutional and cultural factors.

The relative sensitivity of equation (8) to the elasticities used can be seen from the following scenarios of changes in exporters' revenues that might occur for different magnitudes of the demand and supply elasticities:

Demand Elasticity (η)	Supply Elasticities (e)				
	0	0.5	1	2	∞
-0.5	$-\hat{\delta}$	$-\frac{3}{4}\hat{\delta}$	$-\frac{2}{3}\hat{\delta}$	$-\frac{3}{5}\hat{\delta}$	$-\frac{1}{2}\hat{\delta}$
-1	$-\hat{\delta}$	$-\hat{\delta}$	$-\hat{\delta}$	$-\hat{\delta}$	$-\hat{\delta}$
-2	$-\hat{\delta}$	$-\frac{6}{5}\hat{\delta}$	$-\frac{4}{3}\hat{\delta}$	$-\frac{3}{2}\hat{\delta}$	$-2\hat{\delta}$

It should be clear, therefore, that a slight modification in the elasticities will bring about a major change in the estimated results.

Empirical estimation:

In order to address the question of competition between the PRC and India we first have to establish that on the demand side their T & A products are either compliments or substitutes. In order to accomplish this we estimate an import demand equation for each of the 57 three-digit T & A categories for the PRC and for India. Each of the demand equations is specified as a function of its specific market price, the price of an identical three digital category from the alternative market, the world uncontrolled market price, the domestic price of a competing good, and a real activity variable, or

$$M_{ij}^D = \alpha_0 + \alpha_1 P_{Cj} + \alpha_2 P_{Ij} + \alpha_3 P_{Wj} + \alpha_4 P_{Dj} + \alpha_5 E + \mu \quad (9)$$

where M = quantity of import demand for commodity j from i (PRC or India); P_{Cj} = import price from the PRC; P_{Ij} = import price from India; P_{Wj} = average uncontrolled world market price of imports; P_{Dj} = domestic price of the competing product; E = real activity variable; and μ = random error term. Since there are two differentiated regions, there are two import demand equations that depend on all three prices over time.

This Armington (1969) specification of the import demand equations requires the following set of assumptions. First, it is necessary for these import demand equations to be weakly separable between textile and apparel products and other products which enter the consumer's utility function. In effect, each of our products is treated as a distinct good with imperfect substitutes differentiated by country of origin. Second, Armington's two step process assumes that the marginal rate of substitution for any two products (differentiated by source) is

independent of the quantities demanded of third goods entering the consumer's utility function. This assumption of a zero income compensated cross price effect between textile and apparel goods and third goods. It means that a change in the price of this third good will have an impact on the demand for textile and apparel imports, but only when it has an impact on real expenditures. The restrictive nature of this assumption, if violated, may result in a misspecification bias in our estimated import demand equations.⁷

While Armington's assumptions may be reasonable for textile and apparel end products, they may present a problem for some of the intermediate textile products. In the case of intermediate imports, such as yarn and fabric, the import demand equations noted by equation (5) are, in fact, derived demand functions. The assumption of independence between the marginal rates of substitution of different classes of intermediate inputs, such as man-made fibers for cotton or vegetable fibers for both may represent a problem. In these latter cases the import demand equations will include the prices of all possible substitutes. Omission of these prices clearly will cause the import demand equations for the intermediate textile imports to be misspecified.

Table 2 presents the OLS estimates for US import demand of T&A products from the PRC, and Table 3 presents the results for India. The overall conclusion that one can draw from these results is that out of a total of 57 three digit categories where competition is possible, there are only five categories where the cross price elasticity of a change in India's prices on US imports from the PRC is significantly different from zero. In category 237, playsuits, sunsuits, etc, for every 1 percent increase in India's price US imports from the PRC would rise by .86 percent, a substitute product; in category 300, carded cotton yarn, for every 1 percent increase

⁷ For a discussion of the theoretical implications of the weak separability assumption, see Winters (1984).

in India's price US imports from the PRC would fall by .63 percent, suggesting complementarity; in category 336, cotton dresses, for every 1 percent increase in India's price US imports from the PRC would fall by .95 percent, suggesting complementarity; in category 345, cotton sweaters, for every 1 percent increase in India's price US imports from the PRC would fall by 1.30 percent, suggesting complementarity; and in category 642, MMF skirts, for every 1 percent increase in India's price US imports from the PRC would fall by .61 percent, suggesting complementarity. In the other 52 product categories there was no statistically significant cross price elasticity between a movement in India's prices and US import demand from the PRC.

When we estimate US import demand from India and ask what would be the partial equilibrium impact of an increase in PRC prices we get almost the same results. Out of the 57 total possible cases where there can be some competition on the demand side, there are only three cases where the cross-price elasticity is significantly different from zero. In category 218, fabrics of yarns of different colors, for every 1 percent increase in PRC's price US imports from India would fall by 1.41 percent, suggesting complementarity; in category 348, W/G Cotton trousers/slacks/shorts, for every 1 percent increase in PRC's price US imports from India would rise by 2.12 percent, suggesting a substitute product; and in category 642, MMF Skirts, for every 1 percent increase in PRC's price US imports from India would rise by 1.22 percent, suggesting a substitute product.

Overall, these results confirm the hypothesis found in the industry that the PRC and India compete in apples and oranges. When one digs deeper into the trade and price data, one observes that US imports from the PRC tend to be more expensive than comparable three-digit T&A categories from India. Given that there is no head to head competition between these two suppliers what is the probable outcome on the supply side?

IV. THE SUPPLY SIDE RESPONSE IN TEXTILES AND APPAREL: ECONOMICS & CULTURE

During the long history of the MFA, the search for low wage producers was a key explanatory variable for the world's distribution of quotas. In the past decade, this has changed drastically. The primary ingredient for a successful T & A sector is quick turnaround time for apparel and economies of scale for textiles. In the apparel segment of the industry, which is considered by many to be fashion-oriented, time sensitivity is even more crucial. While the low-wage sewing provides some competitive advantages to developing countries, it is only applicable to the assembly process of low end garments and does not necessarily lead to the development of a sophisticated T&A sector. The PRC, which represents the higher end T&A industry, has managed to combine its export-led strategy in T&A with the development of higher value-added segments of the supply chain. This was achieved by integrating scale economies with diversification of its labor pool, upgrading domestic skills in local design, material sourcing, quality control, logistics and retail distribution.

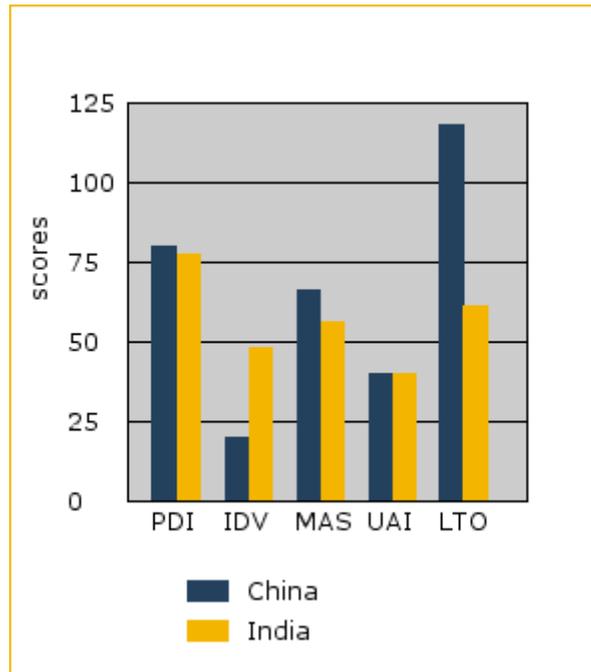
The industries in each country are affected by the culture of that country because culture impacts how people think and react. House et al, (2004, p1) writes "As economic borders come down, cultural barriers will most likely go up and present new challenges and opportunities in business. When cultures come into contact, they may converge on some aspects, but their idiosyncrasies will likely amplify". There are numerous studies that support the hypothesis that national culture has impact on the economy and business. For example cultural differences between subsidiaries and HQ in MNC's impact the probability for sending expatriates to manage subsidiaries (Richards, 2001; Boyacigiller, 1990). There is also evidence that culture influences foreign trade (Guo, 2004). The T&A industries in the PRC

and India are no different, so we see culture as one more factor that can explain part of the differences between the Indian and PRC industry structure.

One of the major research studies on national cultural differences in the International Business field that was published by Hofstede (1980; 1983). It is based on research conducted on individuals from 50 countries, using 116,000 questionnaires. The questions demonstrated the differences among countries in four cultural dimensions: Power Distance Index (PDI), Individualism (IDV), Masculinity (MAS) and Uncertainty Avoidance (UAI). Hofstede and Bond (1984; 1988) discovered a fifth dimension, named Long-Term Orientation (LTO). Hofstede's culture dimension are still a key layer in culture evaluations and empirical tests (Crotts and Erdmann 2000; Downey et al. 2005; Dwyer et al. 2005). Hofstede measures continue to enjoy strong support among researchers (Sivakumar and Nakata, 2001) and serve as a *de facto* set of benchmark measures. Figure 2 shows the scores of the five culture dimensions for the PRC and India.

Figure 2:

Hofstede's Five Cultural Dimensions for the PRC and India



As can be seen from Figure 2 the PRC and India have a significant difference in the LTO and the IDV dimensions.

Long-Term Orientation (LTO) focuses on the degree the society embraces, or does not embrace long-term devotion to traditional, forward thinking values. High Long-Term Orientation ranking indicates the country prescribes to the values of long-term commitments and respect for tradition. This is thought to support a strong work ethic where long-term rewards are expected as a result of today's hard work. Business people in long-term oriented cultures are accustomed to working toward building strong positions in their markets and do not expect immediate results.

Individualism (IDV) focuses on the degree to which society reinforces individual or collective, achievement and interpersonal relationships. IDV has to do with the extent to which the self or, alternatively, the group, is the prime social identifier (Hofstede, 1997). In individualist cultures, job specialization, personal achievement, personal accountability, and performance based evaluation are pronounced, with people considering themselves as independent and autonomous; A Low Individualism ranking typifies societies of a more collectivist nature with close ties between individuals. These cultures reinforce extended collectives where everyone takes responsibility for fellow members of their group. there emphasis is placed on group coordination (Very, Lubatkin, and Calori, 1996), non-monetary rewards, and stable group membership (Hofstede, 1997), coupled with group decision-making and job design maximizing the social aspects of the job (Gelfand, et al., 2004).

The information reported in Figure 2 shows that the PRC with a much higher value on the LTO dimensions than India; the PRC score is 118 and India's score is just 61. The PRC score in the LTO dimensions is the highest in the world. Other culture researches that are less quantitative also emphasize the long term behavior characteristic of the PRC. (Chen, 2001). We expect to see the PRC's supply chain in the T&A industry to possess a more long term strategy of development, organization and growth than the supply chain of the T&A industry in India.

The culture data also supports the notion that the PRC is a more collective culture than India. The PRC ranks lower than any other Asian country in the Individualism (IDV) dimension. As can be seen in Figure 2 the PRC scored 20 on the Individualism dimension as compared to India which scored 48, meaning that the PRC is substantially a more collective society as compared to India. Other researches have found similar results of high collective

culture in the PRC. [Pye (1992)] This finding could be partly attributable to the Maoist ideology which praises the group interest above self-interest [Yeh, (1989); Weldon and Jehn, (1992)].

From the culture perspective this is the factor that can partly explain the variance between the two countries. We expect to find a more organized, long term strategic planed, concentrated and monopolistic market in the T&A supply chain industries in the PRC as compared to that in India.

In describing the supply side responses of India and the PRC resulting from the elimination of quotas, one needs to appreciate the fact that what is called the T&A sector is composed of a chain of separable activities. This linear chain of production functions starts with agriculture where we have the initial fiber stage.

Cotton Fiber

Textiles are produced by both natural and man-made fibers. In the natural fiber side, a country's potential comparative advantage is affected by the traditional factor endowment availabilities, e.g. land, climate, and by domestic internal subsidy programs, e.g. cotton. In the synthetic fiber area, the industry is a derivate of chemical producers. Economies of scale in this sector have traditionally benefited the developed countries.

In the case of the PRC, cotton is regarded as a "strategic" commodity.⁸ Consequently, every aspect of cotton from production, internal and external sales, and firm consumption are part of a complex set of State interventions. Despite the PRC's openness with respect to international trade, the central government had until 1998, determined cotton's procurement prices and resale prices and established a State monopsony/monopoly

⁸ For a detailed discussion of the PRC's domestic and international policies with respect to Cotton, See OECD (2005).

(the Supply and Marketing Cooperatives (SMCs)) as the sole agent for purchasing cotton from the rural sector. From 1985 to 1998, cotton farmers were obligated under a production “contract” to supply the SMC with a certain quantity of cotton at the planned procurement price; they could also sell any above-quota quantity of cotton to the SMC. The introduction of market reform, decentralized purchases and direct links between producers and consumers of cotton did not begin in earnest till the late 1990s.

Beginning in 1996, SMCs were allowed to trade cotton directly with local textile mills. This decentralized linkage system still had a local constraint in that the tradable quantities were still bound by assigned quotas for importing and exporting regions. Furthermore, the definition of a market price actually meant that the two parties to a trade were allowed to decide the terms of trade within a very limited price band of $\pm 4\%$ of the state-set cotton allocation price.

As of September 1999, cotton prices in the PRC are to be determined by market forces, while the government issued a minimum price at the end of the year. These minimum prices serve as purchase prices for the SMCs, who as of 1999 no longer have exclusive rights to purchase cotton from producers, but do purchase stocks of cotton for special reserve holdings by the State. These reserves along with rules for international purchases of cotton are designed to stabilize local cotton prices, the major input into the textile industry.

The role of the State is very much part of the PRC’s external arrangement with respect to cotton, as well. Trade in cotton, despite the PRC’s accession to the WTO is still dominated by a State Owned Enterprise (SOE) - China National Textiles Import and Export Company (Chinatex.). As part of the WTO accession process the PRC introduced a tariff rate quota system where there was an in-quota tariff of 3% and an over-quota tariff of 90%.

This distortion combined with the role of SOEs as purchasing agents guarantees a limited role for international market prices to affect the local cotton industry. This may change as the PRC begins to reduce the role of SOEs to a third of the volume of trade.

In contrast to the PRC's use of price and trade controls to encourage the development of a large scale cotton industry in regions as far away as Xinjiang, India's government policy affecting cotton and textiles was designed to promote small scale production and fragmentation.⁹ The Government of India, in order to assure employment at the smallest locality put in place policies and regulations to ensure that mechanization did not occur and that labor-intensive textile production was the predominant industrial structure in the cotton textile area. These inefficient producers were primarily supported by a subsidized price for cotton supplies.

Unlike the situation in the PRC, cotton is the predominating fabric used in the Indian textile industry – nearly 60% of all overall consumption in textiles and more than 75% in spinning mills is cotton. Despite the heavy reliance on cotton, Indian cotton production has been falling due to inefficiencies in the many of the growing areas.¹⁰ The Indian cotton sector is controlled by the Government through the maintenance of low

⁹ One should not lose sight of the fact that as a result of the partition of India and Pakistan, India lost its major cotton belt while retaining the country's major textile centers.

¹⁰ Despite India's reliance on Cotton as its major textile fiber, India's cotton productivity is very low by international standards. The average yield of irrigated cotton in the Northern Region during 1991-92 to 1993-94 was less than or close to half of the other major irrigated cotton producers in the world, including China, Egypt, the United States, and Uzbekistan. Rainfed cotton yields in Maharashtra and the Central and Southern regions are likewise considerably lower than the mostly rainfed cotton yields in Brazil. See World Bank, 1999.

government procurement pricing, control of seed pricing, assured the development of a low quality cotton production.

One of the problems facing India early in its development was the trade off of exporting cotton versus upstream products like yarn or textiles.¹¹ With expanded output of cotton, India found itself to be an exporter of cotton. Since more than half of the production cost of cotton yarn is cotton, Indian planners thought that providing inexpensive cotton to the domestic spinning industry and by restricting its exports this would eventually allow cotton yarn to develop. Along the same logic path, it was thought that restricting cotton yarn exports would develop the downstream cotton weaving industry in the long-run. Because of its intention to control the market directly, the government chose to use quotas rather than taxation to increase the supply of inexpensive cotton to domestic spinning mills, and, hence cotton yarn to weavers. At the same time that the Government of India suppressed cotton prices by restricting exports, the government attempted to negate the impact on farm income through a series of ameliorating measures including income tax exemption, subsidized electric power rates, fertilizer and herbicides. Despite the fact that India has by far the largest acreage of cotton cultivation in the world and is the only country

¹¹ The number of households who cultivate cotton is around 5 million, the total number of the cotton farmers is estimated to be around 10 million. This is a substantial voting block. It is not surprising that Indian cotton policy has been so skewed. Cotton farmers are politically even more influential in the states where the economies are more dependent on cotton. In particular, politics in the states of Maharashtra and Gujarat are very sensitive to cotton interests. The now defunct cotton procurement price scheme was born in this region.

to produce a full range of varieties of nearly all staple lengths, its cotton production remains among the least productive in the world.¹²

This set of distortions has created a perfect price wedge assuring continued exports of Indian cotton. In the past few years, the difference between nominal domestic Indian cotton prices and export prices has been around 15 per cent (Pursell and Gupta, 1996). Compared to this, the margin left for traders after deducting sales tax and transportation costs is only about 0.5 per cent in the domestic cotton market. A further incentive to export cotton is the uncertainty of receiving payment from local spinning mills. Due to the poor financial situation of many domestic cotton spinning mills, sales based on a line of credit is considered to be fairly risky in India. Exporting cotton is far less risky since payment is guaranteed by a letter of credit on the importing side upon delivery of loading at an Indian port. When you add to this price certainty a further Indian government incentive of exemption from income tax the returns to exporting cotton are far larger than continued sales.

The possibility of an expanded demand for textiles in a quota free world will most likely mean that India's cotton producers would have to fight against these incentives to export unprocessed cotton and/or import, a growing share of its cotton from the

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Production and Average Yield of Cotton in the World			
Country	Production (million ton)	Area (thousand ha)	Yield (kg/ha)
Israel	27	16	1,697
Australia	329	260	1,266
Turkey	580	559	1,039
China	3,739	4,985	750
USA	3,515	5,173	679
Egypt	411	371	538
Pakistan	1,312	2,804	468
India	2,085	7,315	286
World Total	16,673	30,527	546
Source: ICAC (1994).			

international market, thus imposing higher costs to the inefficient and small scale textile producers. Add to this the failure of Indian farmers to adequately treat their cotton products from infestation and you have a recipe for cotton price inflation.

Despite the appearance of similarity in the general use of government intervention in both the PRC and India, whose index of Individualism is low, (20 and 40, respectively) the objective function of the two governments is very different. While in India, the emphasis was on an attempted poverty reduction based on supporting small scale household production which proved to be inefficient, the PRC's policy was designed to support export led growth and thus use its intervention to assure the domestic availability of cotton in sufficient quality and availability. While the PRC's intervention has created a great disparity between the incomes of rural and urban areas, India's policy has not lowered the enormous rural poverty by maintaining small scale inefficient cotton farming. Consequently, India's cotton sector will not be able to respond positively to increased demand from a quota free international market.

Textiles

The textile mill products sector of the textile industry includes all operations that are involved in converting fiber to finished fabric and the production of many non-apparel consumer products. Technological innovations have greatly increased the speed of operations and resulted in huge productivity gains. Traditionally the developed countries have innovated more in this segment of the industry. The PRC has not lagged far behind. However, non-clothing applications of textiles – the so-called “technical textiles” – are now more important than clothing applications and account for the fastest-growing segment of total textile production in developed countries.

It is generally understood that in markets like the United States, the textiles sector makes fabric in three steps that are often made by different factories. The first step is spinning fibers into thread or yarn, the second is weaving or knitting thread or yarn into fabrics and the third is chemical processing to finish the fabric. In addition, there are non-woven fabrics that are produced by mechanically, thermally or chemically bonding or interlocking fibers, filaments or yarns. These processes in the United States are highly capital-intensive and are subject to economies of scale.¹³ Having said that, we still have in many developing countries, textile industries that are utilizing very simple technology within the household or in micro-enterprises. In the new quota free world, these latter small-scale producers are destined to expire.

After the PRC received MFN status in the US in 1979 a whole set of domestic reforms were initiated to induce domestic PRC producers to enter the global market. These incentives were not only important for the success of the PRC in the textile industry it also introduced new forms of corporate governance which has enabled the PRC to compete in the Textile sector with developed countries like the United States. The primary institutional shift was a set of reforms that allowed the rural companies to form alliances with the State-owned enterprises (SOEs), enabling the new corporate form to take advantage of a merger of cheap rural labor with high investments in new technology in the textile industry SOEs.

According to the OECD, the PRC textile and apparel sector continues to receive a sizeable share of total state subsidies from the central government. It is estimated that the percentage of the total subsidies that the central government granted to textile SOEs rose from 1.61 % in 1990 to 20.57 % in 1998. The PRC's central government intervention in the Textile industry does not depend only on price incentives. It also involves setting

¹³ See Pelzman and Martin (1981) where estimates of textile and apparel production functions are presented.

performance targets. In order to appreciate the importance of Central Planning to the development of this industry one need only review the goals established for textiles in the Tenth Five-Year Plan (2000-05) seeking to upgrade the value added of textiles.

The following goals were contained in the Tenth Five-Year Plan for 2000-2005:¹⁴

1. Increasing the value added of the sector from 267.8 billion Yuan in 2000 to 430 billion Yuan in 2005, or an increase of 60.6 %.
2. Increasing the production volume of textile fiber from 12.1 million tons in 2000 to 14.25 million tons in 2005, and increasing the apparent consumption per person from 6.6 kgs. to 7.4 kgs. for the same period.
3. Increasing exports from 52 billion dollars in 2000 to between 70 and 75 billion dollars in 2005.
4. Increasing labor productivity from 25,000 Yuan per worker in 2000 to 35,000 Yuan in 2005.
5. Reducing energy consumption for every 10,000 Yuan of production by 15 %.
6. Using recycled water in production for 30 % of current consumption by 2005; in the prints sector, reducing water consumption for every 100 meters from 3.6 tons to 3.0 tons.

In order to reach the goals that have been set, the PRC government provided a stable area for growing cotton. It guaranteed the textile industry that it would supply 4.5 million tons of cotton annually. It provided incentives for technological progress by fomenting alliances between companies and research centers and establishing development centers for the large SOEs.

According to the USITC, the PRC Textile industry in 2000, had 18,900 SOEs with a sales volume higher than 5 million yuan; with total assets of 977,300 million yuan, which generated tax revenue of 267,800 million yuan in value added taxes and which represented

¹⁴ See USITC. 2004..

11.9 %, 8.3 % and 11.3 %, respectively, of the entire manufacturing industry. Employment in Textiles was around 13 million.¹⁵

Since the mid 1990's the PRC accounted for more than 25 % of the global spinning machines (USITC 1999).¹⁶ This share has increased substantially in the past ten years. Furthermore, the industry created both forward and backward linkages integrating a large number of production segments namely, cotton and other fibers; accessories; thread, yarn, and textile manufacturing; and the processing of these products into garments, rugs, and industrial textiles (USITC 2004). The PRC now has the national and global supply and input companies necessary to make almost all products. This is not the case for India.

The current textile market requires rapid turnaround. The differences between the PRC and India are even more apparent here as well. During the past two decades the PRC developed a highly competitive maritime transportation system, ensuring that its products arrive on the East Coast of the United States between 12 and 18 days from boarding, while its competitors in India may take three times as long to arrive. (USITC 2004).

The Indian textile industry which is domestically oriented is composed of the organized mill sector (traditional weaving and spinning), the powerloom sector (mechanized looms) and the handloom sector which remains the beneficiary of years of inconsistent

¹⁵ *Ibid.*, The total workers in Textiles and apparel has been estimated by the ILO to be 19 million or approximately 22 percent of all manufacturing sector employment. According to the ILO another 80 million people are directly linked to this combined sector. The number of Apparel companies are estimated to be 40,000 of which only 6 percent are SOEs. We do not have current estimates of apparel sector employment.

¹⁶ *Ibid.*, In 2002 China had around 22.8 % of all spinning machines and had acquired more than 50 percent of them during 2000-2002.

government policy, bias against mechanization and aversion to the introduction of economies of scale and export led growth. If one were to set up a cultural variable to explain the difference between the PRC's government and that of India in this area it would be the degree of democratization and constituency politics. India which could be considered a "socialist democracy" has had to deal with various competing constituencies and has had to appease the most vocal - including farmers, organized labor and business representatives. The PRC on the other hand, has a centralized government with market orientation. It can transfer long-term views to its public without having to meet short-term demands from competing constituencies. The latter can therefore focus better on export-led growth policies with an expectation that welfare improvements will eventually confirm this economic direction. In the case of the PRC the end result has justified the 20 year investment in export led growth.

A major defining characteristic of the Indian Textile industry is its great similarity to the socialist variety that one used to find in the former Soviet Union and East Europe in the 1980s. The industry is composed of both outdated and inefficient vertically integrated Soviet style SOEs that are always in the process of privatization, and a variety of small and medium sized (SMEs) that are struggling to find niche markets. In addition, the Indian government, until the early 1990s, insisted on following a bankrupt model of import substitution and an emphasis of protecting local textile workers. Exports were consequently treated as in the FSU, an outlet for surplus merchandise. The enormous domestic labor pool demanded policies which assured full employment. This produced a series of domestic measures and regulation favoring labor employed by handlooms but discriminating against

composite mills.¹⁷ Restrictions on mechanization and on expansion of loom capacity in the 1950s, price controls and lower tax rates for handlooms in the 1960s and 1970s created a long-term distortion in the mindset of textile entrepreneurs. This bias when added to the Indian Government concern for adequate access by the poor to their cotton clothing translated into a heavy tax burden on manmade fiber, licensing to restrict entry of more competitive producers.

The last decade has seen a progressive relaxation of distortionary policies imposed on the textile industry and a greater emphasis on improving efficiency and competition. The three domestic policies adopted by the Indian government to reduce domestic restrictions on the industry were the Textile Policy of 1985¹⁸ and The Statement of Industrial Policy of 1991¹⁹ and the Textile (Development and Regulation) Order of 1992.²⁰

¹⁷ This discrimination was found in Factories Act of 1948 which enforced employment rigidities and increased labor costs on non-handloom textile producers.

¹⁸ The 1985 Textile Policy (i) dismantled the sector approach to the industry, while retaining a special role for handlooms; (ii) adopted a multi-fiber orientation and fiber flexibility; (iii) provided adequate raw materials at reasonable and stable prices; (iv) reduced the level of duties on synthetic raw materials; (v) easing entry and exit barriers; (vi) emphasized modernization and technology and machinery imports at international prices; and (vii) attempted to make Indian textiles more competitive in the world market. See World Bank (1999).

¹⁹ The Industrial Policy of 1991 eliminated the need for mills to obtain licenses for new capacity, removed the restrictions that had kept large companies coming under the Monopolies and Restrictive Prevention Act from making new investments, and provided for some automatic clearances for foreign investment proposals. See World Bank (1999).

²⁰ The 1992 Order made certification of powerlooms automatic, except in very special cases. See World Bank (1999).

All these yet-to-be-liberalized policies and regulations have had little impact on the fundamental competitive weakness of the Indian textile industry, its dualistic and highly fragmented structure as shaped by the prior policy of replacing imports and preserving jobs. That legacy includes a predominant concentration on markets for low-quality textile products and tremendous variation in levels of efficiency and competitiveness in spinning, weaving, and apparel. Containing only a small proportion of internationally competitive enterprises, the industry as a whole is performing below potential. It is no match for the PRC textile industry.

Apparel

The global apparel industry has evolved substantially from its earliest form where the industry in the developing countries acted like subcontractors, where garment were sewn from imported inputs ready for assembly. In the current market these operations are still found in simple non-competitive producers of homogenous apparel items. Slightly more sophisticated is a subcontracting process most commonly as original equipment manufacturing (OEM). The characteristics of this outsourcing operation include the supplying firm making a product according to a design specified by the buyer; the product is sold under the buyer's brand name; the supplier and buyer are separate firms; and the buyer lacks control over distribution. The most sophisticated upgrading of this outsourcing process is commonly referred to as Original brand name manufacturing (OBM) where the developing country apparel manufacturer begins to design their own end product and then sell it under their own brand name.

The critical element in the apparel chain is therefore the retailer. In the United States at the beginning of the 1990s, the five largest retail chains represented 45 percent of the apparel market. By 1995, these five largest retailers—Wal-Mart, Sears, Kmart, Dayton Hudson Corporation and JC Penney – accounted for 68 per cent of all apparel sales. The next top 24 retailers represented an additional 30 per cent of these sales. The two top discount giants, Wal-Mart and Kmart, control one quarter of all apparel (in terms of unit sold) in the United States. By 2000, only 10 percent of the apparel sold by these chains was of US origin. These retailers' overseas operations are not primarily handling a middle-man function of just facilitating the transfer of apparel to the US market, they are actively engaged in product design, fabric selection and procurement, and monitoring contracted sewing as well as other

production functions handled by offshore manufacturers. Another new development is the growth of private-label goods, which have been estimated to cover up to 25 per cent of the United States apparel market in 2000.

As a result of these linkages and the new practice in the US of reducing inventory costs, time factors play a far more crucial role in determining international competitiveness. With the removal of the quota system, low-wage countries like India that had depended on being an offshore assembly center relying on their quota allocations will find itself vulnerable because of the inherent cost disadvantage of their business model based on production fragmentation. Time factors can be an important trade barrier for intermediary inputs involved in an internationally fragmented production process.

The emergence of more competitive and integrated suppliers in the PRC, who will now increase their sales in a quota free world, will exert considerable pressure on fragmented suppliers like India.²¹ The comparative advantage of India in the assembly process, *i.e.* in low-wage sewing, does not necessarily translate into a comparative advantage in the management of the entire supply chain when all services-related dimensions are taken into consideration. Efficiency in managing the entire supply chain is required, including in design,

²¹ As wages in the PRC keep rising they are taking advantage of their upscale production and marketing skills and have implemented a number of preferential policies in order to encourage its T & A manufacturers to invest more in other developing countries. These measures include preferential loans, simplified administrative procedures, and enhanced information and intelligence support. The PRC appears to be entering this new market in order to subcontract its apparel production. The PRC's current focus is on Africa where they have started discussions with Morocco and in Asia with Bangladesh.

fabric procurement, and logistical skills in transport, quality control, export financing and clearing of trade formalities. The latter has become more of the PRC model.²²

The Indian textile and apparel industries are based on a system of decentralized and fragmented production which was designed as the optimal way of assuring full employment because of its focus on small-scale labor-intensive firms.²³ Combine that with the usual high tariff protection throughout the supply chain, from natural and man-made fibers to textile and clothing products and you have a recipe for an economic nightmare. The Indian textile and apparel structure and government policy has continuously discouraged entrepreneurs from investing in large scale production plants. Consequently, India is ill prepared to take advantage of the opportunities created by the elimination of quantitative restrictions.

V. CONCLUDING REMARKS

With the unprecedented act of removing T&A quotas the developing countries of Asia have been thrown into of an uncomfortable position of having to compete for market shares. Even more disturbing is the fact that low wages will not guarantee these countries a

²² The PRC has made great strides in the Apparel sector. Output in the sector rose by 37 percent from 1995 to 1999, while industry employment fell by 27 percent. See UN (2002). The PRC's increase in its apparel quality and productivity comes at the same time that it has accepted the necessity to import its better quality textiles from abroad. Eighty percent of Japan's import apparel is currently of PRC country of origin. Achieving such a high penetration rate is proof that PRC Apparel can compete at the highest quality end. The PRC is the benchmark that India will have to measure itself to.

²³ One contributing factor to the small size of apparel facilities is the disincentive of having additional labor market regulation on all firms employing more than 100 workers. Consequently Indian firms have chosen to set up a whole set of small apparel firms rather than one or two large establishments.

market in the United States. The two big players that have been identified as major potential winners of this uncontrolled trade environment are the PRC and India. This paper resolves part of the puzzle by analyzing the question via a partial equilibrium review of each beneficiaries' potential demand side competitiveness with respect to each other, the supply side responses and the differing objective functions of the state and business community which are taken as representative of cultural differences.

On the demand side, we find no strong competition between the items that were bound by quota across both countries. In the majority of three-digit categories there was no significant cross-price elasticity of demand. The reality behind the regression results was that the quality of PRC T&A products drastically improved while that India declined. On the supply side, it was apparent that the single most important systemic difference which can be attributed to cultural differences was the reliance in the PRC on the central planning to organize the development path of the entire T&A industry. It was the State that encouraged major technological changes, a search for economies of scale and a shift from merely producing as sub-contractors to developing a unique fashion and downstream linkages mechanism.

India, because of its low wages, has also been projected by most international agencies as a potential beneficiary. Our results do not point to the same optimistic outlook for India's success in the T&A sector. The Indian T&A sector, while a major employer has suffered from a legacy of industrial fragmentation, an aversion to mechanization and the avoidance of economies of scale. Rather than focusing on export led growth, India focused on assuring its T&A sector employees of full employment at very low wages and consequently very little prospects of competing with the PRC.

DATA APPENDIX

Trade Data: The textile trade data, in terms of value and quantity, are based on the three digit textile category system. This data was for the time period 1995-2004 and was provided by the U.S. Dept. of Commerce. Office of Textiles and Apparel. (OTEXA).

Prices: Domestic producer prices were matched to the textile category level when possible. In cases where a clear concordance was not possible, the more aggregate WPI for the aggregate Textiles and/or Apparel was used. Import prices both for the PRC, India and the uncontrolled country suppliers were based on unit values.

Tariffs: Ad-valorem tariff equivalents were calculated at the three digit textile category level for the entire 1995-2004 period and was provided by the U.S. Dept. of Commerce. Office of Textiles and Apparel. (OTEXA).

Activity Variables: Based on the nature of the commodity in question a number of activity variables were used. In all cases an effort was made to make a distinction between end products and intermediate goods. The list of activity variables includes:

- (1) Retail sales of apparel and accessory stores;
- (2) Total personal consumption expenditures;
- (3) Personal consumption expenditure for non-durables;
- (4) Personal consumption expenditure for clothing and shoes;
- (5) Personal consumption expenditure for clothing;

Output: Domestic output measured at the three digit textile category level was provided by the U.S. Dept. of Commerce. Office of Textiles and Apparel. (OTEXA).

Quota Levels: Quota levels by Country/Product were provided by the U.S. Dept. of Commerce. Office of Textiles and Apparel. (OTEXA). These limits have been corrected for the periodic borrowing and lending over categories and time. The restrictions used, therefore, present a true upper limit as exercised by the U.S. Government.

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Table 1
Textile Category Description

CAT	DESCRIPTION	UNIT
	218 FABRICS OF YARNS OF DIFF. COLORS	M2
	219 DUCK FABRIC	M2
	220 FABRIC OF SPECIAL WEAVE	M2
	222 KNIT FABRIC	KG
	224 PILE / TUFTED FABRICS	M2
	225 BLUE DENIM FABRIC	M2
	226 CHEESE CLOTH, BATISTES, LAWNS/VOILE	M2
	227 OXFORD CLOTH	M2
	237 PLAYSUITS, SUNSUITS, ETC	Doz
	300 CARDED COTTON YARN	KG
	301 COMBED COTTON YARN	KG
	313 COTTON SHEETING FABRIC	M2
	314 COTTON POPLIN / BROADCLOTH FAB.	M2
	315 COTTON PRINTCLOTH FABRIC	M2
	317 COTTON TWILL FABRIC	M2
	326 COTTON SATEEN FABRIC	M2
	331 COTTON GLOVES AND MITTENS	DPR
	333 M/B SUIT-TYPE COATS, COTTON	Doz
	334 OTHER M/B COATS, COTTON	Doz
	335 W/G COTTON COATS	Doz
	336 COTTON DRESSES	Doz
	340 M/B COTTON SHIRTS, NOT KNIT	Doz
	341 W/G COT. SHIRTS/BLOUSES, N-KNIT	Doz
	342 COTTON SKIRTS	Doz
	345 COTTON SWEATERS	Doz
	347 M/B COT. TROUSERS/BREECHES/SHORTS	Doz
	348 W/G COTTON TROUSERS/SLACKS/SHORTS	Doz
	351 COTTON NIGHTWEAR/PAJAMAS	Doz
	352 COTTON UNDERWEAR	Doz
	360 COTTON PILLOWCASES	Doz
	361 COTTON SHEETS	Doz
	363 COTTON TERRY / OTHER PILE TOWELS	No
	613 MMF SHEETING FABRIC	M2
	614 MMF POPLIN / BROADCLOTH FABRIC	M2
	615 MMF PRINTCLOTH FABRIC	M2
	617 MMF TWILL AND SATEEN FABRIC	M2
	619 POLYESTER FILAMENT FABRIC, LIGHT-WEIGHT	M2
	620 OTHER SYNTHETIC FILAMENT FABRIC	M2
	625 MMF POPLIN/BROADCLTH STAP/FIL	M2
	628 MMF TWILLS/SATEENS STAP/FIL	M2
	629 OTHER MMF FABRICS OF STAP/FIL	M2
	634 OTHER M/B MMF COATS	Doz

635 W/G MMF COATS	Doz
636 MMF DRESSES	Doz
638 M/B MMF KNIT SHIRTS	Doz
639 W/G MMF KNIT SHIRTS / BLOUSES	Doz
640 M/B NOT-KNIT MMF SHIRTS	Doz
641 W/G NOT-KNIT MMF SHIRTS / BLOUSES	Doz
642 MMF SKIRTS	Doz
643 M/B MMF SUITS	Doz
644 W/G MMF SUITS	Doz
645 M/B MMF SWEATERS	Doz
646 W/G MMF SWEATERS	Doz
647 M/B MMF TROUSERS/BREECHES/SHORTS	Doz
648 W/G MMF SLACKS/BREECHES/SHORTS	Doz
651 MMF NIGHTWEAR / PAJAMAS	Doz
652 MMF UNDERWEAR	Doz

Source: US Department of Commerce, Office of Textiles and Apparel.

Table 2
 OLS Estimates of China's Import Demand Equations
 (By T & A Category, 1995-2004)

CAT Description	lprcvt	lindvvt	luwmp	lusppi	lpce	_cons	
222 KNIT FABRIC	-3.87588	-1.2414	-5.37405	41.28253	13.96397	-248.631	Adj R-squared = 0.7050
	-2.69	-0.72	-0.75	1.61	1.27	-1.53	F(5, 4) = 5.30
	0.055	0.514	0.495	0.182	0.273	0.201	
224 PILE / TUFTED FABRICS	-3.02592	0.197784	-1.67588	18.8556	3.394249	-95.0017	Adj R-squared = 0.7433
	1.34	0.56	2.27	6.36	3.22	40.71	F(5, 4) = 6.21
	0.087	0.742	0.502	0.041	0.351	0.08	
225 BLUE DENIM FABRIC	7.243525	8.156986	-6.37753	-20.8623	-3.32514	123.6565	Adj R-squared = 0.7538
	3.15	4.76	3.71	13.19	6.39	76.47	F(5, 4) = 6.51
	0.083	0.162	0.161	0.189	0.63	0.181	
237 PLAYSUITS, SUNSUITS, ETC	-2.12257	0.863459	2.91586	12.23223	1.830328	-67.5535	Adj R-squared = 0.9086
	0.28	0.34	0.79	1.81	0.46	12.51	F(5, 4) = 18.90
	0.002	0.064	0.021	0.003	0.017	0.006	
300 CARDED COTTON YARN	-4.35269	-0.63879	0.566983	27.87685	3.289778	-140.487	Adj R-squared = 0.9211
	0.73	0.18	1.54	6.72	1.95	38.44	F(5, 4) = 22.03
	0.004	0.024	0.731	0.014	0.166	0.022	
301 COMBED COTTON YARN	0.667958	0.022305	0.219467	-28.9923	3.980976	120.0916	Adj R-squared = 0.8976
	0.17	0.52	3.89	18.77	5.09	102.78	F(5, 4) = 16.78
	0.016	0.968	0.958	0.197	0.478	0.308	
326 COTTON SATEEN FABRIC	-2.33183	-10.1155	-15.9849	40.74594	1.467583	-187.83	Adj R-squared = 0.8504
	1.31	8.65	7.46	24.45	11.39	138.86	F(5, 4) = 11.23

	0.15	0.307	0.099	0.171	0.904	0.248	
331 COTTON GLOVES AND MITTENS	-2.13675	-0.22429	0.35866	6.39402	-0.64194	-15.0171	Adj R-squared = 0.9774
	0.34	0.19	0.93	1.99	1.59	15.94	F(5, 4) = 79.01
	0.003	0.306	0.72	0.032	0.708	0.4	
333 M/B SUIT-TYPE COATS, COTTON	-1.8922	0.23681	0.41331	-33.5585	2.396019	158.377	Adj R-squared = 0.8625
	0.78	0.21	0.82	12.79	0.89	63.15	F(5, 4) = 12.29
	0.073	0.332	0.642	0.059	0.055	0.066	
336 COTTON DRESSES	-1.68011	-0.95696	2.591622	9.307612	1.801064	-48.3892	Adj R-squared = 0.9379
	0.31	0.34	0.73	4.16	1.06	18.68	F(5, 4) = 28.17
	0.006	0.049	0.023	0.089	0.165	0.061	
342 COTTON SKIRTS	-2.32055	0.516507	-2.92472	4.792254	2.298493	-9.29989	Adj R-squared = 0.6502
	0.54	0.85	1.85	10.21	0.79	40.91	F(5, 4) = 4.35
	0.012	0.576	0.19	0.663	0.044	0.831	
345 COTTON SWEATERS	-0.86575	-1.3048	-0.96275	21.85527	-3.22212	-66.8578	Adj R-squared = 0.8537
	0.24	0.59	1.07	4.40	1.93	14.27	F(5, 4) = 11.50
	0.023	0.091	0.418	0.008	0.17	0.009	
347 M/B COT. TROUSERS/BREECHES/SHORTS	-3.23364	0.85251	2.338036	26.23118	-0.09996	-118.032	Adj R-squared = 0.7412
	1.70	0.62	3.00	12.53	1.27	61.41	F(5, 4) = 6.16
	0.131	0.244	0.479	0.104	0.941	0.127	
360 COTTON PILLOWCASES	-0.66769	-0.05367	0.299528	2.830358	2.403012	-18.3886	Adj R-squared = 0.7668
	0.35	0.21	0.40	7.56	0.69	37.17	F(5, 4) = 6.92
	0.127	0.809	0.496	0.727	0.025	0.647	
361 COTTON SHEETS	-1.54801	0.562919	-2.34639	29.78556	2.465495	-142.632	Adj R-squared = 0.6090

	0.55	0.56	1.26	13.45	0.86	63.43	F(5, 4) = 3.80
	0.049	0.371	0.135	0.091	0.046	0.088	
363 COTTON TERRY / OTHER PILE TOWELS	-1.4344	0.075421	1.231656	-1.3907	2.841576	0.844209	Adj R-squared = 0.6268
	0.49	0.46	1.39	9.61	1.48	49.21	F(5, 4) = 4.02
	0.043	0.878	0.424	0.892	0.127	0.987	
613 MMF SHEETING FABRIC	-1.44362	-0.14496	0.112949	-39.4616	6.038473	164.9838	Adj R-squared = 0.6617
	1.07	0.63	0.45	24.91	2.29	120.24	F(5, 4) = 4.52
	0.249	0.828	0.814	0.188	0.058	0.242	
620 OTHER SYNTHETIC FILAMENT FABRIC	-1.12421	-1.84381	2.856102	40.10514	7.265769	-225.311	Adj R-squared = 0.8718
	0.99	1.37	2.91	22.18	1.89	104.76	F(5, 4) = 13.25
	0.318	0.249	0.381	0.145	0.018	0.098	
625 MMF POPLIN/BROADCLTH STAP/FIL	3.481294	-0.59627	2.195255	-130.634	15.39821	553.4632	Adj R-squared = 0.8040
	1.23	0.30	0.71	52.14	3.04	238.37	F(5, 4) = 8.38
	0.047	0.114	0.036	0.066	0.007	0.081	
628 MMF TWILLS/SATEENS STAP/FIL	1.17888	0.636764	-2.09718	66.47859	0.395294	-315.799	Adj R-squared = 0.7305
	2.28	0.61	1.16	34.26	3.54	155.24	F(5, 4) = 5.88
	0.632	0.356	0.145	0.124	0.916	0.112	
629 OTHER MMF FABRICS OF STAP/FIL	0.298414	-0.35904	-0.74275	28.21403	13.03563	-202.602	Adj R-squared = 0.9530
	0.83	0.61	2.86	31.60	2.26	157.96	F(5, 4) = 37.51
	0.738	0.589	0.808	0.422	0.004	0.269	
634 OTHER M/B MMF COATS	-1.43561	-0.14073	1.534907	14.13656	1.218662	-67.3693	Adj R-squared = 0.6642
	0.85	0.50	0.96	8.42	0.65	42.84	F(5, 4) = 4.56
	0.167	0.793	0.184	0.168	0.134	0.191	
636 MMF DRESSES	-1.62126	-0.00035	0.975329	6.318372	1.818864	-29.2043	Adj R-squared = 0.9532

	0.20	0.29	0.69	2.70	0.57	12.59	F(5, 4) = 37.62
	0.001	0.999	0.23	0.08	0.033	0.081	
638 M/B MMF KNIT SHIRTS	-0.13185	0.095111	0.417981	-3.1535	-2.11598	32.33153	Adj R-squared = 0.6600
	0.96	1.51	1.50	17.09	1.62	79.19	F(5, 4) = 4.49
	0.897	0.953	0.794	0.863	0.261	0.704	
639 W/G MMF KNIT SHIRTS / BLOUSES	3.153522	-0.33212	-1.70618	-31.8609	0.94648	149.9112	Adj R-squared = 0.6138
	1.49	0.44	1.00	18.89	0.56	90.75	F(5, 4) = 3.86
	0.102	0.491	0.163	0.167	0.166	0.174	
642 MMF SKIRTS	-1.29768	-0.60594	-1.56465	-3.29889	0.670228	33.56944	Adj R-squared = 0.8713
	0.27	0.28	1.18	4.65	1.28	19.50	F(5, 4) = 13.19
	0.008	0.097	0.255	0.517	0.629	0.16	
645 M/B MMF SWEATERS	1.547335	0.090994	-1.84222	-55.5579	0.123791	273.0552	Adj R-squared = 0.8164
	0.59	0.18	0.48	18.08	0.64	81.89	F(5, 4) = 9.00
	0.06	0.64	0.019	0.037	0.855	0.029	
647 M/B MMF TROUSERS/BREECHES/SHORTS	-2.61861	0.398971	1.936152	17.60475	2.611639	-90.1522	Adj R-squared = 0.6091
	0.70	0.29	1.09	8.91	0.76	43.15	F(5, 4) = 3.80
	0.02	0.235	0.149	0.119	0.026	0.105	

The results are listed on the first line, followed by the standard errors, followed by the probability that that the coefficient is greater than zero. All parameters are estimated in logs.

Table 3
 OLS Estimates of India's Import Demand Equations
 (By T & A Category, 1995-2004)

CAT Description	lprcvt	lindvvt	luwmpt	lusppl	lpce	_cons	
218 FABRICS OF YARNS OF DIFF. COLORS	-1.40826	-0.66031	-2.20613	5.651973	2.747523	-29.9346	Adj R-squared = 0.6565
	0.36	0.32	0.57	2.21	0.94	13.98	F(5, 4) = 4.44
	0.018	0.111	0.018	0.063	0.043	0.099	
220 FABRIC OF SPECIAL WEAVE	1.39707	-2.50787	-1.59886	-2.25045	-0.5069	23.02346	Adj R-squared = 0.8204
	1.48	0.64	0.93	6.46	2.03	34.78	F(5, 4) = 9.22
	0.398	0.017	0.162	0.745	0.815	0.544	
222 KNIT FABRIC	-1.44367	-0.52748	5.10466	0.519247	17.78799	-106.503	Adj R-squared = 0.8924
	0.85	1.03	4.24	15.13	6.50	96.30	F(5, 4) = 15.93
	0.165	0.635	0.295	0.974	0.052	0.331	
224 PILE / TUFTED FABRICS	-1.71332	0.005334	-9.68173	45.92308	15.21918	-285.548	Adj R-squared = 0.9191
	3.81	1.59	6.45	18.06	9.14	115.58	F(5, 4) = 21.44
	0.676	0.997	0.208	0.064	0.171	0.069	
225 BLUE DENIM FABRIC	-1.54539	-8.82932	3.802108	0.67059	-16.8886	101.6002	Adj R-squared = 0.9535
	1.81	2.73	2.13	7.57	3.67	43.90	F(5, 4) = 37.94
	0.441	0.032	0.149	0.934	0.01	0.082	
226 CHEESECLOTH, BATISTES, LAWNS/VOILE	0.078264	-2.80885	0.837827	-5.70264	-3.32504	53.05885	Adj R-squared = 0.8319
	1.66	0.66	1.56	13.04	4.35	86.26	F(5, 4) = 9.91
	0.965	0.013	0.62	0.684	0.487	0.572	
227 OXFORD CLOTH	0.063289	-9.71602	2.982143	6.300092	-9.58909	33.46967	Adj R-squared = 0.8032

	0.19	5.17	2.44	17.01	6.21	108.85	F(5, 4) = 8.35
	0.755	0.133	0.289	0.73	0.197	0.774	
237 PLAYSUITS, SUNSUITS, ETC	0.579379	-0.84704	-0.13994	-5.66745	-4.59886	59.27044	Adj R-squared = 0.8454
	0.83	1.02	2.38	5.45	1.40	37.64	F(5, 4) = 10.84
	0.525	0.454	0.956	0.357	0.03	0.19	
301 COMBED COTTON YARN	0.046219	-2.13407	2.933361	-10.7583	-9.40406	107.7222	Adj R-squared = 0.9440
	0.09	0.42	2.43	9.70	2.84	52.44	F(5, 3) = 27.97
	0.631	0.015	0.314	0.348	0.046	0.132	
313 COTTON SHEETING FABRIC	1.035812	1.936859	3.505628	-6.64386	-3.76463	63.92302	Adj R-squared = 0.7390
	0.93	1.31	0.93	5.75	1.14	31.74	F(5, 4) = 6.10
	0.328	0.213	0.02	0.312	0.03	0.114	
334 OTHER M/B COATS, COTTON	2.428064	-1.84291	2.614513	-41.5685	5.165002	159.0756	Adj R-squared = 0.8081
	1.29	1.09	1.98	13.23	1.70	57.00	F(5, 4) = 8.58
	0.133	0.166	0.256	0.035	0.038	0.049	
335 W/G COTTON COATS	1.279299	-0.86272	0.809301	6.384972	4.096595	-55.1926	Adj R-squared = 0.8459
	0.86	1.04	0.73	11.49	1.33	54.45	F(5, 4) = 10.88
	0.21	0.452	0.329	0.608	0.037	0.368	
336 COTTON DRESSES	0.132451	-0.96548	1.141825	-0.01072	2.139325	-7.12796	Adj R-squared = 0.9148
	0.56	0.62	1.31	7.50	1.91	33.64	F(5, 4) = 20.32
	0.825	0.194	0.432	0.999	0.326	0.843	
340 M/B COTTON SHIRTS, NOT KNIT	1.067907	-0.63065	0.550339	-12.2057	1.362609	54.46825	Adj R-squared = 0.8078
	0.95	0.50	1.78	7.85	0.60	36.91	F(5, 4) = 8.57
	0.322	0.276	0.773	0.195	0.087	0.214	

341 W/G COT. SHIRTS/BLOUSES,N-KNIT	0.723	-0.96974	-0.31496	-1.05141	0.819979	10.9076	Adj R-squared = 0.7616
	0.57	0.67	0.91	7.65	0.41	32.16	F(5, 4) = 6.75
	0.27	0.219	0.748	0.897	0.117	0.752	
342 COTTON SKIRTS	0.08177	0.825949	-2.39468	-12.8657	1.665868	65.7025	Adj R-squared = 0.9323
	0.41	0.66	1.43	7.88	0.61	31.59	F(5, 4) = 25.78
	0.853	0.276	0.17	0.178	0.053	0.106	
345 COTTON SWEATERS	-0.02691	-3.8002	-7.5752	43.536	-12.8666	-77.1669	Adj R-squared = 0.7913
	0.66	1.61	2.91	12.01	5.26	38.94	F(5, 4) = 7.83
	0.97	0.077	0.06	0.022	0.071	0.119	
347 M/B COT. TROUSERS/BREECHES/SHORTS	1.000544	-0.94292	-1.58892	-7.55146	2.784272	33.55144	Adj R-squared = 0.7700
	2.93	1.07	5.15	21.53	2.19	105.54	F(5, 4) = 7.02
	0.75	0.429	0.773	0.744	0.273	0.766	
348 W/G COTTON TROUSERS/SLACKS/SHORTS	2.121549	-0.98666	-2.23655	-17.1667	1.41613	85.22404	Adj R-squared = 0.9591
	0.76	0.49	1.27	7.09	0.88	32.29	F(5, 4) = 43.26
	0.049	0.112	0.153	0.073	0.184	0.058	
351 COTTON NIGHTWEAR/PAJAMAS	0.064725	-0.86328	0.142651	-0.07759	1.759351	-0.78477	Adj R-squared = 0.8930
	0.70	0.59	1.35	15.22	1.70	57.56	F(5, 4) = 16.02
	0.931	0.219	0.921	0.996	0.36	0.99	
352 COTTON UNDERWEAR	2.020725	-2.75113	-2.05653	50.50225	1.236705	-237.631	Adj R-squared = 0.8850
	1.74	0.62	3.99	37.19	3.66	173.48	F(5, 4) = 14.86
	0.309	0.012	0.633	0.246	0.752	0.243	
360 COTTON PILLOWCASES	0.009237	-1.763	-1.45795	8.320271	9.005541	-81.033	Adj R-squared = 0.9869
	0.92	0.55	1.06	20.00	1.82	98.31	F(5, 4) = 136.40
	0.992	0.032	0.241	0.699	0.008	0.456	

361 COTTON SHEETS	-0.79432	-2.36781	0.138133	-5.5373	12.98116	-32.5239	Adj R-squared = 0.9776
	1.26	1.28	2.87	30.69	1.97	144.77	F(5, 4) = 79.48
	0.562	0.137	0.964	0.866	0.003	0.833	
363 COTTON TERRY / OTHER PILE TOWELS	-0.44324	-0.59213	-1.26532	-11.4163	3.992891	45.22948	Adj R-squared = 0.9578
	0.42	0.40	1.20	8.32	1.28	42.59	F(5, 4) = 41.83
	0.355	0.212	0.351	0.242	0.036	0.348	
629 OTHER MMF FABRICS OF STAP/FIL	0.314283	-2.16372	8.024332	69.47248	18.7998	-442.183	Adj R-squared = 0.8816
	1.40	1.03	4.81	53.15	3.80	265.73	F(5, 4) = 14.40
	0.834	0.103	0.171	0.261	0.008	0.171	
635 W/G MMF COATS	1.289963	0.061293	-1.03102	-3.70176	1.067721	14.93464	Adj R-squared = 0.8992
	0.63	1.13	1.11	10.85	1.49	52.44	F(5, 4) = 17.06
	0.112	0.959	0.406	0.75	0.512	0.79	
638 M/B MMF KNIT SHIRTS	1.219204	1.822266	-5.22605	16.62531	9.77842	-123.257	Adj R-squared = 0.9361
	1.73	2.73	2.71	30.94	2.93	143.37	F(5, 4) = 27.38
	0.52	0.542	0.126	0.619	0.029	0.438	
639 W/G MMF KNIT SHIRTS / BLOUSES	-1.34876	-1.93094	1.614132	25.43102	5.227401	-139.835	Adj R-squared = 0.9389
	1.85	0.55	1.24	23.47	0.69	112.74	F(5, 4) = 28.66
	0.507	0.024	0.263	0.339	0.002	0.283	
640 M/B NOT-KNIT MMF SHIRTS	11.32782	-1.65718	-20.3796	118.9179	-2.3547	-510.677	Adj R-squared = 0.9352
	4.94	0.81	6.03	32.79	2.45	131.34	F(5, 4) = 26.99
	0.083	0.11	0.028	0.022	0.39	0.018	
642 MMF SKIRTS	1.218348	-0.0512	1.320319	7.483947	-1.62809	-31.0923	Adj R-squared = 0.8483
	0.31	0.32	1.36	5.37	1.48	22.50	F(5, 4) = 11.06

	0.017	0.882	0.387	0.236	0.334	0.239	
645 M/B MMF SWEATERS	0.296408	-3.59761	0.360916	79.80903	-0.95437	-365.309	Adj R-squared = 0.9318
	0.90	0.67	0.78	33.02	1.37	146.30	F(5, 3) = 22.85
	0.762	0.013	0.677	0.094	0.537	0.088	
647 M/B MMF TROUSERS/BREECHES/SHORTS	3.3145	0.745722	-9.29399	-4.48221	5.365626	16.58102	Adj R-squared = 0.9519
	2.69	1.11	4.20	34.47	2.94	166.89	F(5, 4) = 36.60
	0.286	0.537	0.092	0.903	0.142	0.926	
652 MMF UNDERWEAR	2.685645	-0.38384	-1.58167	14.60846	5.01552	-97.7833	Adj R-squared = 0.8356
	2.33	0.71	8.20	169.35	2.65	807.86	F(5, 3) = 9.13
	0.332	0.628	0.859	0.937	0.154	0.911	

The results are listed on the first line, followed by the standard errors, followed by the probability that that the coefficient is greater than zero. All parameters are estimated in logs.