NBER WORKING PAPERS SERIES

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Working Paper No. 3673

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
April 1991

We are grateful to the World Bank for research support. We would also like to thank Ronald Chan, Carl Hamilton, Paula Holmes and Yun- Wing Sung for providing us with valuable data; Phillip Swagel for helpful comments; and Monique Skruzny and Christopher Holmes for excellent research assistance. This paper is part of NBER's research program in International Studies. The findings, interpretations, and conclusions expressed in this paper are those of the authors and not those of the National Bureau of Economic Research or the World Bank, its Executive Directors or the countries they represent.

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ABSTRACT

Available estimates of tariff equivalents of quotas and welfare calculations on the costs of MFA quotas for developing countries are based on the premise of perfect competition in both product and license markets. It is also assumed that the exporting countries which administer the MFA quotas receive all the scarcity rent. We argue that in the presence of market power on the buyers' side in the product market combined with concentration in the license markets, the importing countries may retain part of this rent, i.e. share it with the exporters.

We analyze US imports of apparel products from Hong Kong to see if the data conform with all the relevant predictions of the competitive model. Our method essentially tests whether the license price inclusive Hong Kong price, adjusted for tariffs and transport costs, is equal to the domestic (US) price. A deviation between the two prices is taken to indicate rent sharing. We test the hypothesis with homogeneous goods, modify it to take into account compositional differences and, finally, consider differentiated goods. We find evidence that importers retain a substantial portion of the MFA quota rents.

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1 Introduction

The post-World War II era is often hailed as a period of great trade liberalization — through successive rounds of negotiations conducted under the auspices of GATT, industrial country tariffs have been pared down to their present average level of about 4% on manufactured goods. Unfortunately, this reduction in tariff rates has been accompanied by a proliferation of non-tariff barriers. Among the most important of these non- tariff barriers for developing countries is the MFA, or Multi- Fibre Arrangement, which sanctions a structure of country- and product-specific quotas on apparel and textiles, often the most important area of manufacturing advantage for developing countries.

The MFA has been widely studied and much attention has been devoted to its welfare consequences. [1] However, this literature has been based on the presumption of perfect competition in all relevant markets and has suppressed dynamic aspects of the issues. In such models, as is well known, tariffs and quotas are equivalent and license prices, when available, equal the implicit specific tariff. This makes it straightforward to calculate the welfare effects of the system and to identify losers and winners from the MFA and any of its proposed reforms.

The assumption of competitive markets in the study of the MFA is usually defended on the grounds that there are a large number of producers in the textile and apparel market. In the case of some advanced exporters, notably Hong Kong, further justification is provided by the fact that the quotas are efficiently implemented and are, to a large extent, transferable. For example, Morkre (1984) estimates that US clothing import quotas on Hong Kong in 1980 spawned quota rents of $218 million, or 23% of the total value of clothing imports from Hong Kong. The central feature of his methodology is that "... the price of rights to export textiles from Hong Kong measures the gap between import price and unit cost in Hong Kong. The rationale is that textile quotas are openly traded in Hong Kong so that the market price for transfers is expected to reflect the value of the price-cost difference." [2]

Hamilton (1986) also uses Hong Kong quota prices to measure rent income. In addition, he uses specially-compiled sets of clothing import statistics to calculate f.o.b. unit values for Hong Kong exports to the US, which serve as proxies

[1] See, for example, the papers contained in Hamilton (1990) which analyze the effects of the MFA and its proposed reforms from a variety of viewpoints.

[2] Morkre (1984) p.2. He dismisses the suggestion of quota monopolization on the basis of two observations. First, he finds no evidence of concentration in quota holdings among the top four firms in 10 product categories in 1980. (However, he does acknowledge that this evidence may not be definitive because there may be ownership links between different quota holders.) Secondly, the quota utilization rates in 1980 exceed 100% in all but one category, whereas he expects quota monopolization to result in short-shipping. His first observation, as we shall see, is not consistent with the data we have, which show high degrees of concentration in certain categories like men's wool coats (MFA category 434) and cotton woven shirts (MFA category 340). His second observation is not relevant because the implementation of the restraint system creates incentives for quota holders to use up all their licenses.

for the rent-inclusive export prices. Dividing rent income by the rent-inclusive US value of exports, he arrives at the US export tax equivalent rate of textile and apparel quotas on Hong Kong, which he then converts to the import tariff equivalent (MTE) rate by taking the ratio of c.i.f. and f.o.b. values of clothing imports from Hong Kong. He calculates this MTE rate as 9% in 1981 and 37% in 1982.

Trela and Whalley (1988, 1990) employ a general equilibrium model to analyze the effects of bilateral quota restrictions imposed by the US, Canada and the EC on 14 product categories from 34 developing countries (including Hong Kong). Like Morkre, their methodology for obtaining the supply price of quota restricted products involves the use of data on Hong Kong quota prices: they compute the Hong Kong supply price by subtracting the quota price from the US price, then they compute the production costs of quota restricted products in other exporting countries by multiplying the unit cost in Hong Kong with the ratio of the exporting country's relative wage rate in the textile and apparel industry compared to Hong Kong. Using 1986 data, they estimate both global and national welfare costs of the MFA. Their results suggest global gains from the elimination of quotas and tariffs of more than $17 billion — of which $11 billion will accrue to developing countries — and gains to the US from the removal of quotas of $3 billion.

We do not, in this paper, question the assumption of perfect competition a priori. Rather, we ask if it is possible to test whether all the results of the static competitive model are borne out in the data. Oddly enough, this basic issue has never been addressed in the literature. Note that conceptually, there exist two markets: the market for products and the market for licenses. In the product market, there can be imperfect competition on the side of the buyers, i.e. monopsony or oligopsony, and/or on the side of the sellers, i.e. monopoly or oligopoly. In the license market, we need to consider as well who owns the licenses —that is, whether the licenses are in the hands of the exporters (who may or may not be the producers themselves) or the importers or buyers (be they consumers or independent retailers). Again, there can be market power on either or both sides of the license market. Clearly, many different combinations of imperfections can arise in the two markets and it is beyond the scope of this paper to study them all. Our approach is not to point to and model a particular form of imperfection but to see whether the implications of perfect competition in all markets do in fact hold.

It is well understood that when market imperfections exist, product prices become endogenous, thus allowing producers to appropriate quota rents by raising their supply price. In this case, a quota has very different effects from a tariff which generates the same level of imports. In particular, the price difference between the quota-restricted and world markets, which we will call the potential rent per license, need not equal the tariff which would induce this level of imports. For this reason, licence prices need not reflect import-equivalent tariffs. (See Krishna (1990a).)

Moreover, the potential rent per license need not equal the actual license price if there is "rent sharing". This is to be distinguished from "rent appropriation". The distinction is crucial. By affecting product prices themselves, producers with market power in effect appropriate rents from quotas. We will call this "rent appropriation" and use "rent sharing" to denote the sharing of potential rents between the license holders and other agents, given the price differential created by the quota. In other words, rent sharing is said to occur when the the license price falls short of the price differential in the quota- restricted and world markets. As we argue in the next section, the theoretical literature in the area has focused on rent appropriation and has ignored rent sharing. Our paper attempts to fill this gap by testing for rent sharing in the MFA.

We base our empirical case on Hong Kong because it is often held up as the best-functioning and most competitive exporter of clothing to the US. Licenses are relatively freely traded in Hong Kong compared to other MFA-restricted countries, and the quota implementation process is clearly documented. As a result, it is the least likely to exhibit behavior consistent with market imperfections. Evidence of any such behavior from Hong Kong would therefore cast substantial doubt on the suitability of the static competitive model for analyzing the effects of the MFA.

The paper is organized as follows. In the next section, we first outline the competitive model, then we discuss how different kinds of imperfections may affect the results of this model. We argue that rent sharing can occur when there is market power on the side of buyers, which may or may not be combined with imperfections in the license market. As our focus is not theoretical, we use very simple versions of these models. However, the flavor of the results carries over in more general versions. In Section 3, we briefly discuss the data we use. Details of how the data were put together can be found in Appendix B, which carefully describes our sources and procedures as well as the problems that remain with the data. In Section 4, we give a quick summary of Hong Kong's textile quota system.

Section 5 sets up the first model we test. This model deals with testing for rent sharing in the presence of quotas when imports and domestically-produced goods are homogeneous. We extend this in Section 6 to incorporate compositional differences in the aggregate goods whilst maintaining the homogeneity assumption of its component parts. Section 7 deals with the implications of product differentiation. Section 8 summarizes our results and makes some concluding remarks.

2 The Basic Models

2.1 Perfect Competition

The base case (which constitutes our null hypothesis in Section 5) is one with competition in all the relevant markets. Both the demand and supply sides of the product market are assumed to be competitive and, in addition, license holders act competitively and are willing and able to sell at the price that clears the license market.

This model is illustrated diagramatically in Figure 1, which is the standard textbook depiction. In Figure 1, RD represents residual demand from the importing country which we will call the US. It is given by subtracting US supply and supply from sources other than Hong Kong from total demand in the US. RS depicts the residual supply from Hong Kong. This is supply from Hong Kong less demand from all sources other than the US. The intersection of the two gives the world price in the absence of quotas and the level of imports from Hong Kong to the US. If a quota is set allowing only V units to be imported, the home price at which this level of imports is demanded exceeds the world price at which it is supplied. Their difference gives the license price, which can be interpreted as the implicit tariff. That is, if the quota were replaced by a specific tariff at this level, the same amount of imports would be induced. Tariffs and quotas are therefore equivalent.

2.2 Market power on the seller's side: "rent appropriation"

As is well known, the above argument breaks down with imperfectly competitive markets. Bhagwati (1965) analyzes three departures from the base model of competition (which he calls case 1). He looks at the effect of monopoly in domestic supply and in the license market, as well as some combinations of these. When there is monopoly only in domestic supply, a quota makes demand less elastic for price increases, thereby augmenting monopoly power. As a tariff does not eliminate the foreign supply response, we get non-equivalence between the two. This is his case 2.

In his case 3, he considers competitive supply at home and abroad, but monopoly in license holdings. By affecting the utilization of licenses, the monopolist holder of licenses affects their value. The utilization rate is chosen to maximize total license value. This makes the effective quota endogenous and creates non-equivalence between tariffs and quotas.

In his case 4, he adds monopoly in domestic supply to his case 3. He considers two sub-cases: 4a, where the license holder is not the domestic monopolist; and 4b, where he is the domestic monopolist. Thus, 4a becomes a case where the home market is a duopoly. The solution concept chosen is essentially a Cournot-Nash equilibrium. Here, a quota changes the market structure whereas a tariff

does not, so the two are not equivalent. In 4b, the monopolist holds all the licences and so he can even further augment his monopoly power over case 2 by effectively choosing his utilization ratio to maximize the sum of profits and license revenues. As a quota enhances his monopoly power, it is again not equivalent to a tariff.

Bhagwati does not address the possibility of foreign market power. If the foreign sellers have market power, no supply curve exists as the supply price is chosen to maximize profits. This makes the world price a choice variable and its determination the result of profit-maximizing decisions of the suppliers. If the sellers have no licenses, they will have an incentive to raise their price to obtain the rents from the quota. [3]

Take, for example, the case where there is a single foreign supplier of the product and markets are segmented. It is clearly optimal for the monopolist to raise his price in response to a quota so as to appropriate the entire quota rent. By closing the gap between the demand price and the supply price, the monopolist effectively strips the licenses of any value. This model with segmented markets is developed diagramatically in Takacs (1987) and is mentioned in Shibata (1968) as well, and most recently in Krugman and Helpman (1989).

Krishna (1990b, 1990c) further develops a model in which there is costless arbitrage between the markets so the foreign monopolist cannot practise price discrimination. [4] The monopolist's price is an endogenous variable —by charging a high price, he can appropriate rents and he chooses to do so if this is profitable. Of course, this price depends on the quota level and his allocation of licenses. Even here, as long as the license market is frictionless and competitive, it is still the case that the value of a license equals the difference in the domestic price and the world price. However, in this model as well as in those of Bhagwati discussed previously, the license price is endogenous and depends on other parameters such as the allocation of licenses and the product market structure and behavior.

To summarize, the existence of market imperfections in general can result in the non-equivalence of tariffs and quotas. However, our focus is not on the equivalence issue but on what the licence price reflects. In other words, we are concerned with rent sharing and not rent appropriation. When there is product market power on the seller's side, the license price becomes an endogenous variable used by the producer to effect rent appropriation. However, the identity continues to hold that the license price is equal to the difference between the domestic (demand) price and the world (supply) price, so that there is no rent sharing.

[3] On the other hand, if they own some licenses, then this incentive is tempered as they take into account the value of their license holdings.

[4] There may be domestic competitive supply in which case the monopolist's demand in what follows should be interpreted as the residual demand curve.

2.3 Market power on the buyer's side: "rent sharing"

If there is monopsony power, that is, if there is a single buyer, then the story is quite different. Assume that the licence market is competitive as is the supply side. In Figure 2, the monopsonist retailer has a marginal revenue curve, MR, which is derived from the market demand for apparel, D, and he faces an upward sloping supply, S. His marginal cost curve, MC, lies to the left of S; this is because he has to pay a higher price for all the inframarginal units in order to purchase an additional unit of apparel.

Under free trade, the monopsonist will import V^F units of apparel, which is given by the intersection of MC and MR. The lowest price at which this quantity will be supplied is P^F, and the monopsonist is willing to pay up to P^*. Since he is the sole importer, however, he can choose his price and so he will offer the lowest price, P^F, and sell the goods in the home market at price P^*.

Now suppose a quota, V, is imposed on apparel imports. The monopsonist's supply curve then becomes the kinked line, ABE and his marginal cost curve becomes ACE. The lowest price at which the quota amount will be supplied is $P^S(V)$, and the monopsonist will not pay more than $P^D(V)$, which is the price for which he will sell the imports in the home market. If he pays P, where $P^S(V) \leq P \leq P^D(V)$, then the price of a quota license will be $P - P^S(V)$, i.e. the difference between the price paid and the supply price charged. Of course, the monopsonist will never choose to pay more than the supply price charged so he will buy the V units at price $P^S(V)$ and the license price will be zero. Note that this occurs not because there is no price differential in the home and world markets, but because the monopsonist, as the only importer of the good, can prevent trade from equalizing these prices. The more restrictive the quota is, the lower will be the price paid by the monopsonist. In any case, the competitive exporters are paid exactly enough to induce them to sell and they receive no rent. [5]

It is important for us to emphasize that in this case, unlike all the previous ones discussed, the license price is *not* given by the deviation of the domestic price from the world price. The license to import only has value if the price offered by the monopsonist exceeds the supply price. Since the monopsonist has sole buying power, the license price is always zero. The difference between the home price and the world price, however, is given by $P^D(V) - P^S(V)$ in Figure 2, and it is *not* equal to zero. Thus, monopsony power causes the license price to diverge from the difference in the supply and demand price.

Now suppose there is competitive supply but concentration in license holdings as well as market power on the buyer's side. This seems like a better assumption for the US-Hong Kong apparel trade situation, since the mere existence of active trading in quota licenses in Hong Kong is evidence that the license have value. In this case, there is bilateral monopoly power, and the issue becomes one of sharing the potential license rents. The potential rent from a

[5] Similar results can be shown to go through for oligopsony. See Krishna and Tan (1991).

license equals the difference in the supply price in Hong Kong and the demand price in the US market. If a price between these is the outcome of the bargaining process, then the license price is positive. However, the two prices are not separated by exactly the license price because of rent sharing. [6]

As a stark illustration of this argument, suppose that all the import licenses are held by a single exporter (who may or may not be a producer), and that the license price is determined by a Nash bargaining process between the monopsonist and the license holder. The license holder's objective is to maximize his profit π_L, where:

$$\pi_L = VL.$$

The monopsonist's objective is to maximize his profit π_M, where:

$$\pi_M = [P^D(V) - L - P^S(V)]V.$$

$P^D(.)$ is the inverse residual demand function and $P^S(.)$ is the inverse residual import supply function, so $P^D(V)$ is the demand price and $P^S(V)$ is the supply price for the quota, V units. The license price is found by maximizing the weighted product of both parties' deviation from their fall-back payoff:

$$\Pi = (VL)^{\beta}[(P^D(V) - P^S(V) - L)V]^{1-\beta}.$$

For simplicity, we assume both parties receive nothing in the absence of an agreement, so their fall-back payoffs are equal to zero. [7] The parameters β and $(1-\beta)$ represent the bargaining strengths of the license holder and the monopsonist respectively, where $0 \leq \beta \leq 1$.

The first order condition is:

$$VL^{-(1-\beta)}[P^D(V) - P^S(V) - L]^{-\beta}[\beta(P^D(V) - P^S(V)) - L] = 0,$$

which yields the solutions:

$$\begin{aligned} L &= 0, \\ L &= P^D(V) - P^S(V), \text{ and} \\ L &= \beta[P^D(V) - P^S(V)], \end{aligned}$$

[6] The two prices may not be separated by exactly the license price for other reasons as well. These include factors such as unmeasured costs created by te quota and licensing system itself. For example, if it is hard to get through the paperwork and bureaucracy imposed by the implementation system or to obtain licenses, then the difference between the demand and supply prices will exceed the license price. Thus, no test of whether the two prices are separated by the license price (plus any tariff and transport costs that apply) will be entirely clear about the cause of the difference. Also, the absence of this difference does not rule out market power on the supply side as argued earlier, so it does not imply competitive supply.

[7] This is not an unreasonable assumption for the license holder because quota licenses are product- and country- specific so that in the absence of an agreement with the monopsonist, the exporter does not have the option of selling his licenses elsewhere.

of which only the third satisfies the second order condition for a maximum. Therefore the license price which is the outcome of the Nash bargaining setup between the license holder and the monopsonist is given by:

$$L = \beta[P^D(V) - P^S(V)].$$

The more powerful the license holder is, the higher is the license price. In the extreme case when $\beta = 1$, the license holder has all the bargaining power and so he extracts the entire quota rent VL, where the license price L is exactly equal to the difference between the demand and supply prices. At the opposite extreme when $\beta = 0$, the monopsonist calls all the shots: for each unit, he pays only the supply price P and reaps the rent given by the difference between the demand and supply prices. The license holder gets nothing as the license price is equal to zero. For a value of β between 0 and 1, an intermediate result will obtain and the license price will not reflect the full difference between the demand and supply prices.

In Section 5, we look at the relationship between the US price and the Hong Kong price, which includes the license price as well as tariffs and transport costs. In the absence of rent sharing, as argued above, these two should be equal. Moreover, their difference should not depend on factors such as concentration in quota holdings and the quota size and utilization ratio. In this way, we estimate the extent of rent sharing and the factors that seem to be influencing it. In Section 6, we allow for compositional effects to create differences in aggregate prices and in Section 7, we test if prices differ because of product differentiation.

3 The Data

The data utilized in this study cover the time period 1981-88 and pertain to three broad areas: domestically-produced apparel, imported apparel from Hong Kong and license holdings for apparel imports from Hong Kong. We did not attempt to obtain data on all categories of apparel. There are severe difficulties in assembling a consistent panel of data due to the different and changing classification systems used in reporting information on imports and domestic production. Therefore, we chose groups of apparel such that these consistency problems were minimized. Our objective was to get as many relatively consistently-defined, disaggregated groups that we could find or develop concordances for between the different classification systems employed.

We identified ten such groups. They are: (1) dresses; (2) skirts; (3) playsuits; (4) sweaters; (5) trousers; (6) men's coats; (7) women's coats; (8) woven shirts; (9) knit shirts; and (10) underwear. We obtained data for these groups for the following variables between 1981 and 1988. The variables are defined below. In our notation, the subscript i indexes the apparel group, and t indexes the year.

P_{it}^{US} = Unit value of US production.

$\tilde{P}_{it}^{HK}$ = F.o.b. Hong Kong price. This includes the license price.

t_{it} = Ad valorem tariff in the US.

T_{it} = Transport cost per unit from Hong Kong to the US.

P_{it}^{HK} = Adjusted Hong Kong price, where $P_{it}^{HK} = \tilde{P}_{it}^{HK}(1 + t_{it}) + T_{it}$.

Q_{it}^{HK} = Imports from Hong Kong.

H_{it} = Numbers equivalent of the Herfindahl index of concentration in licence holding.

V_{it} = Quota level for imports.

U_{it} = Utilization ratio of imports, where $U_{it} = \frac{Q_{it}^{HK}}{V_{it}}$.

The sources of these data and details on how they were created can be found in Appendix B.

4 Hong Kong's Textile Quota System

Hong Kong prides itself on administering an efficient textile quota system. The initial quota allocation is historically based. Past performance, transfers and quota level changes guide the process by which these allocations change in subsequent years.

When a product category is newly brought under restraint, the quotas are allocated according to past performance, [8] i.e. each company gets a quota amount corresponding to its share in total shipments of that particular category to the market concerned. Where the manufacturer and the exporter are not the same company, they each share the quota pertaining to a shipment on a 50/50 basis. [9] If the level of total shipments exceeds the restraint limit, the allocations are scaled down proportionately. If the quota is larger than total past performance, then the balance remaining is put into a "free quota pool", which is open to any firm registered with the Hong Kong Trade Department which has documentary proof of an overseas order.

Quota holders are allowed to transfer a part of their quota to other firms. There are two types of quota transfers: permanent transfers, in which the transferee obtains the use of the quota for the year in question and, based on its performance against the transferred amount, receives a quota allocation in the following year; and temporary transfers, in which the transferee obtains the use of the quota for the year in question, but the performance against the transferred quantity is attributed to the transferor. In order to allow sufficient time

[8] The reference period is usually the most recent 12-month period for which shipment performance can be ascertained prior to the introduction of the restraint.

[9] In the case of finished piece-goods, quotas are allocated on a 40/30/30 basis among the exporter, the finisher and the weaver. In the case of finished fabrics manufactured using imported grey fabrics, quotas are allocated on a 50/50 basis to the exporter and the finisher.

for the transferee to obtain the quota, transfer applications are not normally accepted after the middle of November. Free quotas are not transferable.

Under Hong Kong's textile quota system, both the utilization rate and the amount of transfers are important factors in determining a firm's future quota allocation. A firm which uses less than 95% of its quota holding will obtain an allocation in the subsequent year equal to the amount it used; a firm which uses 95% or more of its quota holding will be given an allocation equal to 100% of its holding; and a firm which uses 95% or more of its quota holding and does not transfer out any of its quota (on either a temporary or permanent basis) will be awarded an additional amount equivalent to the growth factor for that category provided for in the restraint agreement.

In addition, a firm which transfers out 50% or more of its quota holdings on a temporary basis in a year is liable to have its quota allocation reduced in the following year, [10] whereas a firm which transfers in 35% or more of its quota holdings on a temporary basis during the year is eligible for a bonus allocation in the following year.

Finally, a firm which obtains a free quota and utilizes 95% or more of it qualifies for a quota allocation in the subsequent year; a firm which fails to utilize at least 95% of its free quota may be debarred from future participation in free quota schemes for a period of time.

To a certain extent, unused quotas may be transferred between categories (under the "swing provision") and between years (under the "carry-over" and "carry-forward provisions").

As quota entitlements in a subsequent restraint period are based on shipment performance in the preceding period, quotas can only be allocated after this performance has been fully verified against shipping documents. This verification process usually takes two to three months. In order to make a portion of the quotas available during the first few months of the year, therefore, the Trade Department makes preliminary quota allocations to companies. Final quota allocations are normally made in March and they supersede any preliminary allocations.

All textile and apparel exports from Hong Kong have to be covered by valid export licenses issued by the Director of Trade. Export licenses are only issued to firms which are able to supply quota to cover the consignment in question. Valid licenses are required to bring the shipment on board. An export license is normally valid for 28 days from the date of issue (or, where applicable, until the end of the year, whichever is earlier). The consignment must be shipped within this period. The final licensing date is the first day of December. All licenses covering shipments applied for against quotas held by a company have to be taken out not later than this date, although shipments may be effected up to the last day of the year.

[10] This amount was reduced to 35% in June 1985, but was changed back to 50% in July of the following year.

Further details of Hong Kong's textile quota system can be found in the Hong Kong Trade Department publication, Textiles Export Control System. A good description of the system is also contained in Morkre (1979, 1984).

5 Testing for Rent Sharing: Homogeneous Goods

In this and the following two sections, we develop and implement procedures to test for the existence of rent sharing. In the case of homogeneous goods, if there is no rent sharing, the license price equals the difference in the price of US goods and the price of imports from Hong Kong when the latter is adjusted for tariffs and transportation costs. Our data-set for the ten apparel groups does not contain license prices explicitly. However, the license price is included in the f.o.b. Hong Kong price. Therefore, we can test for rent sharing by looking at whether the f.o.b. price in Hong Kong, adjusted for tariffs and transport costs, equals the US price.

Figures 3(i)-(x) are scattergrams of these two sets of prices for each of the ten apparel groups. In each scattergram, the points either lie entirely above the 45 degree line or entirely below it, indicating that the US price and the license-inclusive Hong Kong price are not equal. However, when the data are pooled, as in Figure 3(xi), the points appear to lie more or less around the 45 degree line – this prima facie evidence, then, seems to discount the existence of rent sharing! Yet, while it seems reasonable to assume that Hong Kong producers are competitive, it is not clear that market power does not exist in the market for quota licenses and on the side of the US purchasers. For example, an editorial in the Hong Kong trade journal, Textile Asia, alleges that: "Quota price fluctuations do not in fact reflect normal supply and demand but the course of manipulation by the quota holders;" [11] and Goto (1989) claims that: "Although governments of exporting countries under the MFA often allocate export licenses in a manner that helps exporters capture the quota rent, many of these exporters face large importing enterprises that can negotiate prices that capture some of the rent for themselves." [12] As argued in Section 2, the existence of monopsony power can lead to rent sharing.

This is separate from the issue of whether or not product markets are perfect on the sellers' side. Imperfect product markets per se do not imply rent sharing as we define it, although they do affect who gains and who loses from a quota. We focus only on rent sharing, which results from buyer power and not on rent appropriation, which results from seller power.

In regression (1), we regress the adjusted Hong Kong price on the US price, a constant, the quota utilization ratio, the quota level and the numbers equivalent of the Herfindahl Index, which measures concentration in the license holdings and proxies for market power in the license market. The numbers equivalent

[11] Textile Asia, March 1989.

[12] Goto (1989) p.218.

of the Herfindahl Index is defined as $\frac{1}{\Sigma s_i^2}$, where s_i equals the share of license holder i in total licenses. Regression (1) is therefore of the form:

$$P_{it}^{HK} = \alpha + \beta P_{it}^{US} + \gamma H_{it} + \delta U_{it} + \phi V_{it} + \epsilon_{it} \quad (1)$$

The right-hand-side variables can be considered as exogenous variables. If the US is a large country, P_{it}^{US} is properly taken as given. As quota license allocations are historically determined, H_{it} can be also taken as given though it does vary over time with the composition of exports. The quota level, V_{it}, is exogenously determined. The utilization rate, U_{it}, should be unity if the quota is binding, and any departure from unity is assumed to reflect exogenous difficulties in attaining full utilization due to frictions in the implementation system.

The regression is run on pooled data across the ten apparel groups for the years 1981 through 1988. If there is no rent sharing and the goods are homogeneous, we should expect to observe $P_{it}^{HK} = P_{it}^{US}$. In other words, in regression (1), the constant should be zero and the coefficient on the US price should be unity; furthermore, none of the other variables should be significant. The assumption that US and Hong Kong apparel are perfect substitutes ensures that the license- inclusive Hong Kong price has to equal the domestic price in the US. This means that the Hong Kong supply price (exclusive of the license price) has to vary one for one with the license price. For example, if the US is a large country, a reduction in the quota level will tend to raise the license price; but this will be wholly absorbed by the Hong Kong suppliers, who will have to reduce their supply price so as to remain competitive. Therefore, a quota reduction will make licenses costlier, but reduce the supply price at the same time so that $PitHK$ remains unchanged overall. Similarly, changes in the license utilization rate will affect the license price but not P_{it}^{HK} since the supply price will adjust to maintain the equality between P_{it}^{HK} and P_{it}^{US}. The concentration of license holdings should not affect P_{it}^{HK} unless there are substantial search costs.

The results of regression (1) are reported in Table 1. Note that α is significantly different from zero at the 1% level, and that Hong Kong prices are lower than US prices in general. This suggests that the license price embodied in P_{it}^{HK} falls short of the gap between the domestic price (P_{it}^{US}) and the world price. Moreover, we are able to conclusively reject the null hypothesis of perfect competition everywhere, i.e. the hypothesis that $\beta = 1$ and $\alpha = \gamma = \delta = \phi = 0$ jointly. The hypothesis that $\beta = 1$ can be rejected at the 1% level. The regression results may be interpreted as follows.

We can think of α as the fixed component of rent sharing and β as the marginal component of rent sharing. A \$1 increase in the US price, therefore, is associated with a \$0.53 increase in the Hong Kong price — this may indicate that \$0.47 of the price differential or rent is retained in the US. [13]

[13] It is possible that other cost factors associated with the quota system may account for part of this margin.

In addition, note that ceteris paribus, increasing license market concentration lowers the Hong Kong price. We would expect that greater concentration increases the bargaining power of the license holders who will, in turn, seek to raise the license price. As the license price is included in the Hong Kong price, we would therefore expect greater concentration in license holdings to be associated with a higher Hong Kong price. However, it is also possible that fragmentary quota holdings make it inconvenient for firms to obtain sufficient export licenses when they have large overseas orders. This increased search cost would then be reflected in a higher Hong Kong price. Our results seem to suggest that the second effect outweighs the first; this is not too surprising since the Hong Kong quota system penalizes license hoarding, thereby weakening the first effect. In any case, we reiterate that in the standard model, the degree of concentration in license holdings should not affect the equality of P_{it}^{US} and P_{it}^{HK}. Yet the observed coefficient on H_{it} is significant at the 1% level, which directly contradicts this prediction.

Although the coefficients on U_{it} and V_{it} are small, they are also significant at the 1% level. A higher quota utilization rate, with everything else held constant, raises the Hong Kong price. This could be because a higher utilization rate makes licenses harder to get. This increases the bargaining strength of the license holders and consequently raises the license price and the Hong Kong price of which it is a component.

A higher quota reduces the Hong Kong price, all else constant. Again, the reason for this may be due to the fact that a larger quota increases license availability and reduces the power of license holders. This in turn reduces the license price and the Hong Kong price. Of course, in the absence of rent sharing, neither of these variables should be significant — P_{it}^{HK} should always adjust to exactly match P_{it}^{US}.

The results of regression (1) therefore seem consistent with the existence of monopsony power in the market for a homogeneous good in the face of imperfections in the license market — there seems to be a gap between the world price and the domestic price which is not completely closed by the license price.

6 Allowing for a Composition Effect

In the previous section, we found a price differential between US-produced apparel and imports from Hong Kong. This seems to suggest that some rent sharing does exist. However, there may be an alternative explanation for this price differential, namely, that the Hong Kong product mix is not the same as that of the US. In other words, the null hypothesis described in the beginning of this section may be valid for the component MFA categories but not for the aggregate apparel groups. For example, the prices of cotton dresses, wool dresses and dresses made of manmade fibre may be the same in both the US and Hong Kong, but if the US produces relatively more wool dresses, which are relatively

more expensive, then the unit price of US dresses on the whole will exceed the unit price of Hong Kong dresses on the whole. We cannot directly compare the composition of the US and Hong Kong aggregate goods since the component categories are not the same. However, there is a way to get around this, as outlined below where we test the importance of this composition effect.

Let j denote the apparel group ($j = 1, \ldots, 10$), and let i denote the MFA categories that make up apparel group j ($i = 1, \ldots, n$.) Then P_j^{US}, US unit price of apparel group j, may be written as:

$$P_j^{US} = \sum_i P_{ij}^{US} \frac{Q_{ij}^{US}}{Q_j^{US}} = \sum_i P_{ij}^{US} w_{ij}^{US} \tag{2}$$

where P_{ij}^{US} is US unit price of the i^{th} MFA category belonging to apparel group j, Q_{ij}^{US} is US output of the i^{th} MFA category of apparel group j, Q_j^{US} is total US output of apparel group j and w_{ij}^{US} is simply the quantity weight of category i in apparel group j, $\sum_i w_{ij}^{US} = 1$. Similarly, Hong Kong unit price of apparel group j may be written as:

$$P_j^{HK} = \sum_i P_{ij}^{HK} \frac{Q_{ij}^{HK}}{Q_j^{HK}} = \sum_i P_{ij}^{HK} w_{ij}^{HK}, \tag{3}$$

where $\sum_i w_{ij}^{HK} = 1$.

Note that we have information only on $P_j^{US}, P_j^{HK}, P_{ij}^{HK}$ and w_{ij}^{HK}. Since the US production data is not broken down into MFA categories, we do not know P_{ij}^{US} and w_{ij}^{US}. Suppose we make the simplifying assumption that:

$$P_{ij}^{US} = \alpha_j + P_{ij}^{HK} \tag{4}$$

Then α_j captures the extent of rent sharing as it denotes the price difference between the US and Hong Kong of apparel group j. [14] Putting (4) in (2) and subtracting (3) gives us:

$$P_j^{US} - P_j^{HK} = \alpha_j + \sum_i \theta_{ij} P_{ij}^{HK} \tag{5}$$

where θ_{ij} denotes the difference between US and Hong Kong weighting of the i^{th} category of apparel group j, and $\sum_i \theta_{ij} = 0$. If there is no rent sharing, α_j equals zero. [15]

Now we want to test whether the price difference between the US and Hong Kong for each apparel group j is due to differences in the composition of the

[14] We make this assumption both for simplicity and in order to keep as many degrees of freedom as possible given our data limitations.

[15] A more general formulation of (4) which allows for fixed and marginal components of rent sharing would have:

$$P_j^{US} = \alpha_j + \beta P_{ij}^{HK}$$

group or due to rent sharing. Therefore we are interested in the significance of the θ_{ij}'s and α_j. Specifically, if our null hypothesis states that there is no compositional difference between US and Hong Kong apparel groups, and no rent sharing, then $\theta_{ij} = 0$ for all $i, i = 1, \ldots, n$ and $\alpha_j = 0$.

Consider, for example, a typical apparel group equation with $n = 3$ categories. Equation (5) is simply:

$$P_j^{US} - P_j^{HK} = \alpha_j + \theta_{1j} P_{1j}^{HK} + \theta_{2j} P_{2j}^{HK} + \theta_{3j} P_{3j}^{HK} + \epsilon_j. \tag{6}$$

We impose the restriction that $\theta_{1j} + \theta_{2j} + \theta_{3j} = 0$ so that equation (6) becomes:

$$P_j^{US} - P_j^{HK} = \alpha_j + \theta_{2j}(P_{2j}^{HK} - P_{1j}^{HK}) + \theta_{3j}(P_{3j}^{HK} - P_{1j}^{HK}) + \epsilon_j. \tag{7}$$

We estimate α_j, θ_{2j} and θ_{3j} by running an equation like (7) for each apparel group $j, j = 1, \ldots, 10$. Table 2 lists the MFA categories, i, used for each apparel group, j. For each equation, we test for the composition effect using an F-test of the hypothesis that $\theta_{ij} = 0$ for all component MFA categories i, and we test for the price effect using a simple t-test of the hypothesis that $\alpha_j = 0$. We also test for both of these jointly using an F-test.

The results of the ten equations are shown in Tables 3 and 4. For all ten apparel groups, we were unable to reject at the 5% level the hypothesis that $\theta_{ij} = 0$ for all i. Thus, there seems to be little support for the argument that the price differential for the apparel groups are due to differences in their relative composition. Admittedly, the power of these tests is very low since we have only eight observations for each equation. The rent sharing term, α_j, is significantly different from zero for four apparel groups: skirts, playsuits, women's coats and underwear.

In the case of dresses, skirts, woven shirts and knit shirts, the US-Hong Kong price differential is mainly white noise, i.e. we cannot reject at the 5% level the hypothesis that $\alpha_j = \theta_{1j} = \theta_{2j} = \theta_{3j} = 0$. For the other apparel groups, however, this hypothesis does not hold.

To summarize, we find no evidence of compositional differences between the US- and Hong Kong-produced apparel groups. Of the six apparel groups for which a significant US-Hong Kong price differential exists, three exhibit a significant rent sharing effect. Only in four categories can we not reject the joint hypothesis of no rent sharing and no composition effect.

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for all apparel groups j. Then (5) becomes:

$$P_j^{US} - P_j^{HK} = \alpha_j + \sum_i \theta_{ij}^* P_{ij}^{HK}.$$

where $\theta_{ij}^* = \beta_j w_{ij}^{US} - w_{ij}^{HK}$. For each of the ten apparel groups, we tested the null hypothesis that $\beta_j = 1$ by means of an F-test on the above model versus the restricted model where $\sum_i \theta_{ij}^* = 0$. We could not reject the null hypothesis for nine of the ten groups. Therefore, the assumption of $\beta_j = 1$ in equation (4) is not too far off the mark.

7 Allowing for Differentiated Products

In Section 5, we found that the license-inclusive price of Hong Kong imports fell short of the US price. This, together with our finding in Section 6 that there was no substantial difference in the composition of the aggregate apparel groups in the US and Hong Kong, provides strong evidence of the existence of rent sharing under the assumption of homogeneous goods.

What if there exist real or perceived differences between US- produced apparel and imports from Hong Kong? If US and Hong Kong goods are not perfect substitutes, then the price of Hong Kong products (including the license price) need not equal the price of US-produced clothing, even in the absence of rent sharing. In other words, if we drop the assumption of homogeneous goods then the price differential observed in the previous sections could simply be an indication of product differentiation instead of (or together with) rent sharing. While we are unable to deal with product differentiation in general because of data limitations, [16] we can control for certain aspects of it, as is done below. Suppose imports from Hong Kong are of a different quality than domestically-produced clothing. Following Rodriguez (1979), we can think of the quality of a product as the amount of "services" obtained from its consumption. These "services" are a homogeneous good with a uniform price, s_{it}. To the extent that two products embody unequal amounts of "services", they will differ in quality and hence, in price. Let q_{it}^{US} denote the amount of "services" in one unit of US-produced clothing i at time t, and q_{it}^{HK} the amount of "services" in one unit of Hong Kong-produced clothing i at time t. Then $P_{it}^{US} = s_{it}q_{it}^{US} + u_{it}$ and $P_{it}^{HK} = s_{it}q_{it}^{HK} + v_{it}$, where u_{it} and v_{it} are random error terms. Therefore,

$$P_{it}^{HK} - P_{it}^{US} = s_{it}(q_{it}^{HK} - q_{it}^{US}) + v_{it} - u_{it},$$

or:

$$P_{it}^{HK} = P_{it}^{US} + s_{it}(q_{it}^{HK} - q_{it}^{US}) + \epsilon_{it},$$

where $\epsilon_{it} = v_{it} - u_{it}$; ϵ_{it} satisfies the usual assumptions for a random error term. Let Z_{it} denote the difference between the quality of Hong Kong clothing and US clothing, i.e. $Z_{it} = s_{it}(q_{it}^{HK} - q_{it}^{US})$.

Recall regression (1) which was of the form:

$$P_{it}^{HK} = \alpha + \beta P_{it}^{US} + \gamma H_{it} + \delta U_{it} + \phi V_{it} + \epsilon_{it}.$$

Since we have no way of measuring s_{it}, q_{it}^{HK} or q_{it}^{US}, we cannot hold quality differences constant by including Z_{it} as an independent variable in Equation (1). However, if we take quality differences to be fixed over time, then we can

[16] Ideally, we would like to be able to estimate a simultaneous equation system based on Armington's (1989) model.

control for them using standard econometric techniques. [17] Let:

$$Z_i = \frac{1}{\pi}\bar{s}_i(\bar{q}i^{HK} - \bar{q}_i^{US}).$$

where π is a constant; $\bar{s}_i$ is the average price of a service from good i over the eight years; $\bar{q}_i^{HK}$ is the average number of services in a Hong Kong-produced good i over the eight years; and $\bar{q}_i^{US}$ is the average number of services in a US-produced good i over the eight years. The fixed effect, Z_i is therefore defined as $\frac{1}{\pi}$ times the average US-Hong Kong quality difference.

The "true" equation, taking into account quality differences, should then be:

$$P_{it}^{HK} = \alpha^* + \beta^* P_{it}^{US} + \gamma^* H_{it} + \delta^* U_{it} + \phi^* V_{it} + \pi Z_i + \epsilon_{it}. \qquad (8)$$

By assuming homogeneity and thereby excluding Z_i, Equation (1) has regression coefficients which suffer from omitted variable bias. The sign of the bias could be positive or negative, depending on whether the movement in Z_i is due to the a change in the average price of a service or a change in the average number of services in a Hong Kong good relative to a US good. For example, if there is an improvement in the average quality of Hong Kong goods coupled with a deterioration in the average quality of US goods, then Z_i and P_{it}^{HK} will rise and P_{it}^{US} will fall — in this case, Z_i is negatively correlated with P_{it}^{US}

[17] In fact, we can decompose Z_{it} into a fixed effect and two other components which vary over time:

$$\begin{aligned} Z_{it} &= \bar{s}_i(\bar{q}_i^{HK} - \bar{q}_i^{US}) + (s_{it}q_{it}^{HK} - \bar{s}_i\bar{q}_i^{HK}) - (s_{it}q_{it}^{US} - \bar{s}_i\bar{q}_i^{US}) \\ &= \pi Z_i + \pi_1 Z_{1it} + \pi_2 Z_{2it}. \end{aligned}$$

π, π_1 and π_2 are constants, $\bar{s}_i$ is the average price of a service from good i over the eight years; $\bar{q}_i^{HK}$ is the average number of services in a Hong Kong-produced good i over the eight years; $\bar{q}_i^{US}$ is the average number of services in a US-produced good i over the eight years. The fixed effect, Z_i is equal to $\frac{1}{\pi}\bar{s}_i(\bar{q}_i^{HK} - \bar{q}_i^{US})$ or $\frac{1}{\pi}$ times the average US-Hong Kong quality difference; $Z_{1it} = \frac{1}{\pi_1}(s_{it}q_{it}^{HK} - \bar{s}_i\bar{q}_i^{HK})$, or $\frac{1}{\pi_1}$ times the deviation of Hong Kong quality (in value terms) from its average value; and $Z_{2it} = -\frac{1}{\pi_2}(s_{it}q_{it}^{US} - \bar{s}_i\bar{q}_i^{US})$, or $-\frac{1}{\pi_2}$ times the deviation of US quality (in value terms) from its average value. The "true" equation, taking into account quality differences, should actually be:

$$P_{it}^{HK} = \alpha^* + \beta^* P_{it}^{US} + \gamma^* H_{it} + \delta^* V_{it} + \phi^* V_{it} + \pi Z_i + \pi_1 Z_{1it} + \pi_2 Z_{2it} + \epsilon_{it}.$$

We have no measure of Z_{1it} or Z_{2it} but their omission is less serious because the resulting bias, if any, in β is likely to be upward. To see this, note that Z_{1it} is non- negatively correlated with both P_{it}^{HK} and P_{it}^{US}. A higher Z_{1it} implies a better Hong Kong quality (in value terms) relative to the average and hence, a higher Hong Kong price; a higher Z_{1it} could reflect a higher price of a service relative to the average, in which case we would observe a higher US price. (Of course, if the higher Z_{1it} reflects a greater number of services embodied in a Hong Kong good relative to its average, then there is no reason to expect a corresponding change in the US price. In this case, leaving out Z_{1it} will not bias our estimate of β since the omitted variable causes a bias only if it is correlated with both the dependent variable and the included variable.) Similarly Z_{2it} is non- positively correlated with both P_{it}^{HK} and P_{it}^{US}. Consequently, the omission of Z_{1it} and Z_{2it}, if it causes any bias at all, will make our estimate of β in Equation (1) too big.

positively correlated with P_{it}^{HK}, and both effects work to bias the estimate of β downward in Equation (1), [18] thus creating an impression of rent sharing. Furthermore, we can expect a negative correlation between Z_i and V_{it} — it has been shown [19] that more restrictive quotas tend to induce imports of a higher quality, since quotas are typically volume, rather than value restrictions. Therefore, the omission of Z_i would cause the estimate of ϕ in regression (1) to be biased downward. There is no clear relation between quality differences and licence concentration or quota utilization, so that we have no prior expectation as to the effect on the coefficients on H_{it} and U_{it} caused by the omission of Z_i.

There are two ways to control for the unmeasurable "fixed effects", Z_i. One way is to make use of our panel data to construct "within" estimators of the regression parameters in equation (8). A simpler way, however, is to introduce nine apparel group-specific intercepts, $D_1, \ldots, D_9$, in the matrix of explanatory variables:

$$P_{it}^{HK} = \alpha_{10} + \alpha_1 D_1 + \ldots + \alpha_9 D_9 + \beta^* P_{it}^{US} + \gamma^* H_{it} + \delta^* U_{it} + \phi^* V_{it} + \epsilon_{it}. \quad (9)$$

Note that the coefficient β^* now stands for the marginal component of rent sharing *net of* the effect of product differentiation. The constant term α_{10} is exactly $(\alpha^* + \pi Z_1 0)$ and the coefficients on the apparel group dummies, α_i, represent $\pi(Z_i - Z_{10})$ for $i = 1, \ldots, 9$.

Table 5 gives the results of regression (9). The estimate of β^* is 0.85, which is higher than the estimated value of 0.53 found in regression (1). [20] However, a test of the null hypothesis that $\beta^* = 1$ and $\gamma^* = \delta^* = \phi^* = 0$ jointly can be rejected at the 1% level, and a simple t-test of whether β^* is equal to one against the alternative hypothesis that β^* is less than one can be rejected at the

[18] This follows directly from the formula for omitted variable bias. Suppose the true model is:

$$\mathbf{y} = \mathbf{X}\beta + \mathbf{u},$$

with $E(\mathbf{u}) = 0$ and $E(\mathbf{u}\mathbf{u}') = \sigma^2\mathbf{I}$, and the misspecified model is:

$$\mathbf{y} = \mathbf{X_1}\beta + \mathbf{u},$$

where $\mathbf{X_1}$ is a subset of $\mathbf{X}$, $\mathbf{X} = [\mathbf{X_1}, \mathbf{X_2}]$. $\mathbf{X_1}$ contains the first r variables of $\mathbf{X}$, omitting the remaining $(k-r)$ variables. Then b, the estimated coefficient vector from the misspecified model, is such that:

$$E(\mathbf{b}) = (\mathbf{X_1'X_1})^{-1}\mathbf{X_1'X}\beta.$$

Thus:

$$E(b_i) = \beta_i + a_{i,r+1}\beta_{r+1} + \ldots + a_{i,k}\beta_k, \quad i = 1, \ldots, r$$

where $a_{i,r+1}, \ldots, a_{i,k}$ are the elements in the i^{th} row of $(\mathbf{X_1'X_1})^{-1}\mathbf{X_1'X_2}$. See Johnston (1985) p.260.

[19] See Rodriguez (1979) and Krishna (1987).

[20] The estimate of 0.85 is probably biased upward due to our omission of Z_{1it} and Z_{2it}. (See footnote 18.) Even so, as mentioned in the text, a t-test of whether $\beta^* = 1$ can be rejected at the 20% level. It would appear, then, that despite our "bending over backwards" to incorporate quality differences in the model, there is still a portion of the US-Hong Kong price differential which may be attributed to rent-sharing.

20% significance level. In other words, a significant price differential between Hong Kong imports and US-produced apparel exists which cannot be explained by the fact that the two products may not be identical. We conclude that rent sharing is the most likely explanation for the difference. [21]

Note also that, as anticipated, the estimate of ϕ^* given in Table 5 exceeds that of ϕ given in Table 1. In fact, the introduction of quality differences changes the direction of the effect of quota size on the Hong Kong price, although ϕ^* is not significantly different from zero.

The intercepts $(\alpha^* + \pi Z_i)$ for $i = 1, \ldots, 10$ are shown in Table 6. These include both the fixed component of rent sharing and the fixed effect of quality differences and there is no way we can distinguish between the two effects. In fact, it is possible that the "fixed effects" we omitted in regression (1) represented not quality differences but differences in the fixed component of rent sharing. The introduction of "fixed effects" therefore does not destroy our earlier results — at worst, the marginal component of rent sharing is less substantial than that obtained from regression (1), but it is significant nonetheless; at best, the apparel groups have different fixed components of rent sharing and our earlier results are strengthened.

8 Conclusions

Our main objective in this paper was to develop ways of testing the hypothesis of perfect competition everywhere in the quota- restrained market for apparel. We examined a broad implication of this hypothesis in the light of US clothing imports from Hong Kong, specifically that if the hypothesis were true and the products homogeneous, then the Hong Kong price inclusive of the license price and adjusted for tariffs and transportation costs, should equal the US price. The two prices may differ if there exists monopsony power in the market for apparel, which may or may not be combined with some kind of market power in the license market. Noting that simple product market power is not sufficient to generate this difference, we were careful to distinguish between "rent appropriation" by product market power and "rent sharing", which arises because of market power on the part of the buyers. Rent appropriation affects the potential license price which is the difference in the US price and the Hong Kong price, adjusted for tariffs and transport costs but exclusive of the license price. Rent sharing determines the distribution of these potential rents between the license owners and the buyers.

We found significant evidence of rent sharing in the data we collected on ten apparel groups. Recognizing that this could be due to compositional differences in US production compared to Hong Kong exports, we developed a way of testing for the existence of such differences. We did not find these differences to be significant on the whole. We also attempted to incorporate some notion

[21] This is subject to the same reservations as discussed in footnote 14.

of product differentiation and found that this did not entirely close the gap between the US and Hong Kong prices.

Our work gives some support for the existence of buying power in the quota-constrained market for apparel imports from Hong Kong together with some market power in the license market. Now Hong Kong is probably the one case most likely to satisfy the assumption of perfect competition. Even here, however, this assumption does not seem to hold. This casts some doubt on the prevailing practice of assuming perfect competition everywhere in empirical work on the MFA. Based on the prices of quota licenses in Hong Kong, current estimates of the quota premium are as high as 25% of total export value. Our results suggest that even these figures may be too small, as some 15-50% of the rent is retained in the US. The implication is that the overall welfare cost imposed by the MFA on exporting countries may be even heavier than initially feared — besides the acknowledged reduction in trade volume, these countries are not receiving the full amount of their quota rent.

It is worth emphasizing that we have not addressed the issue of testing for product market power, which is the focus of much of the theoretical work in the area, but have focused on a new angle that is emphasized in the trade press, namely, the issue of rent sharing. It is possible to test for product market imperfections by essentially looking at their consequence, i.e. the existence of price-cost margins. This can be done using calibration or computable partial equilibrium models as done by Dixit (1988), Krishna, Hogan and Swagel (1989) and Baldwin and Krugman (1988) among others. Alternatively, fully-specified econometric models of the industry can be estimated. However, data requirements for such models often cannot be met as available information is limited and cost estimates are hard to obtain. It is likely that work along the lines of Mody et al. (1990a, 1990b) will help in obtaining the cost data needed.

We chose not to focus on product market imperfections here as there are a large number of suppliers in the apparel market. In the future, we hope to extend our work in three directions. Firstly, we plan to extend the scope of our study to include other developing countries in order to provide further insights and to check the generality of our results. Secondly, we intend to study US apparel trade with non-restricted countries as well to see if price differentials also exist which cannot be explained by quality differences — if such price differentials are observed, then our finding of rent sharing in the MFA could instead simply be an indication of the absence of purchasing power parity. Thirdly, we plan to examine license price paths themselves to test for allegations of price fixing in explicitly dynamic settings. Work on these areas should considerably enhance our understanding of how these markets function and the proper assumptions to make in evaluating the effects of the MFA as well as proposed reforms.

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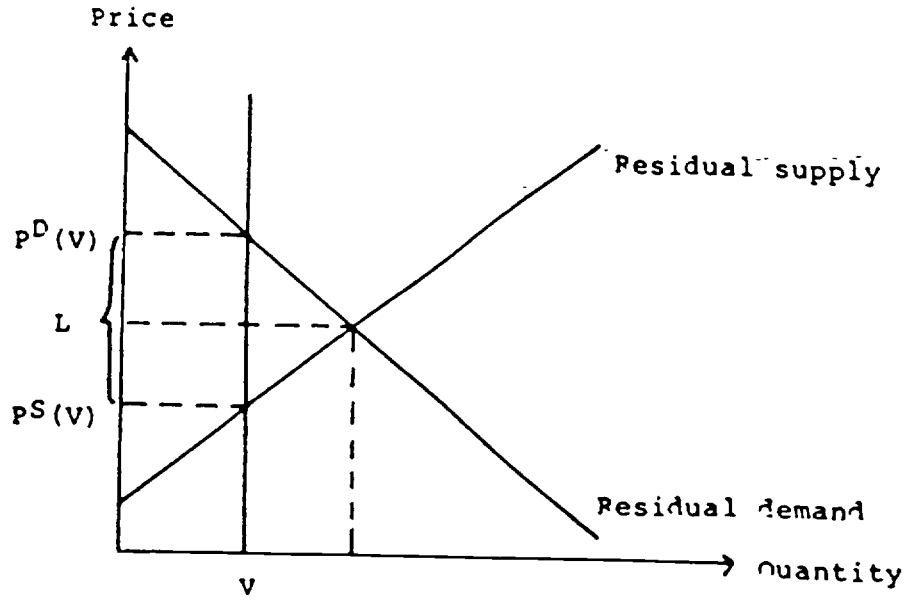


Figure 1

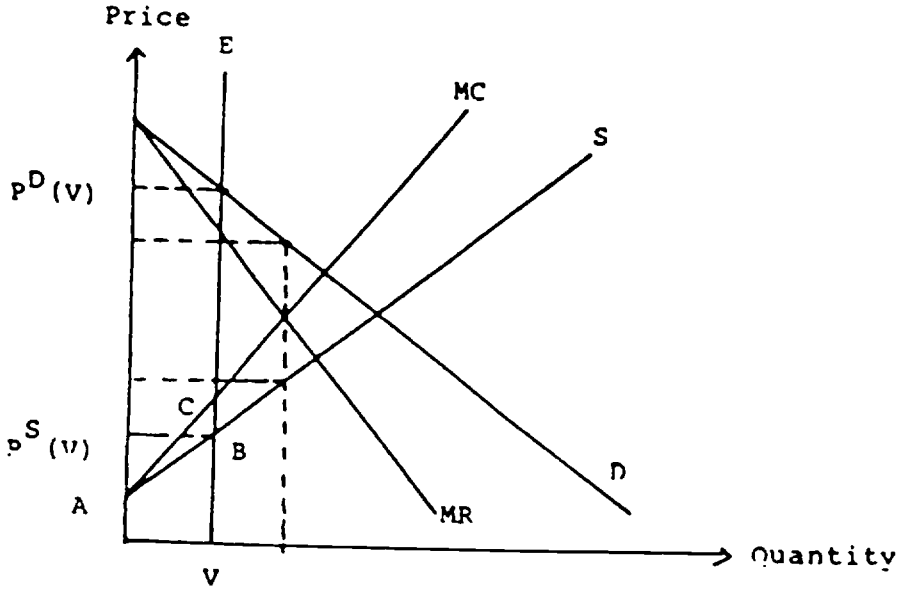


Figure 2

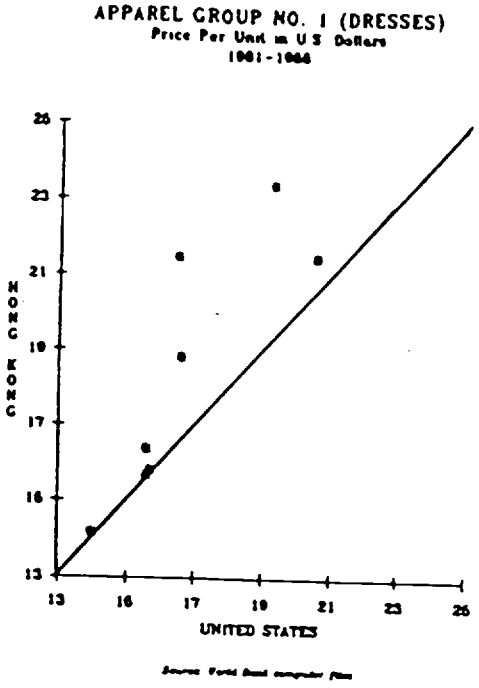
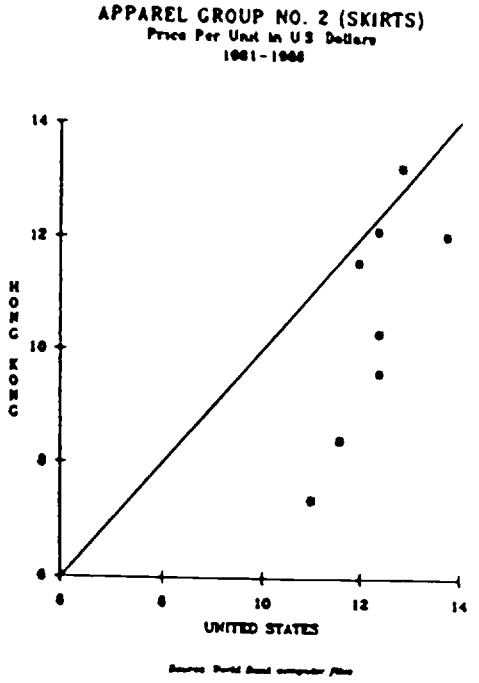


Figure 3(i)



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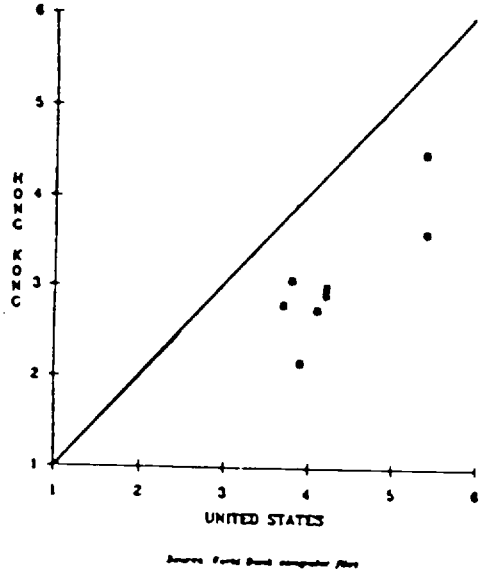

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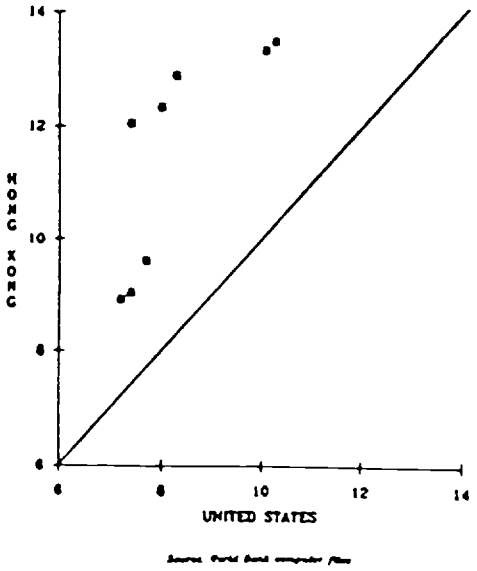
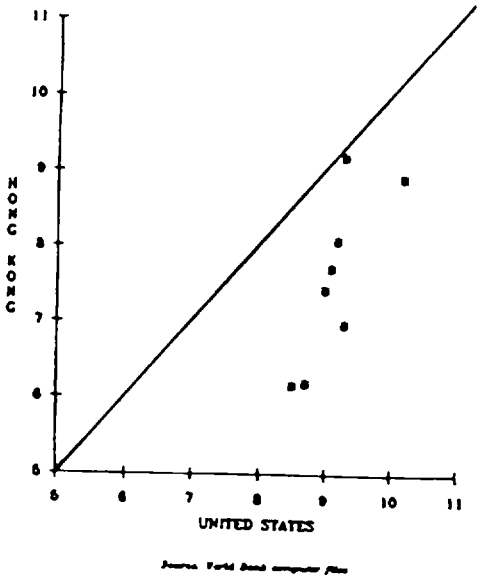


Figure 3(iv)

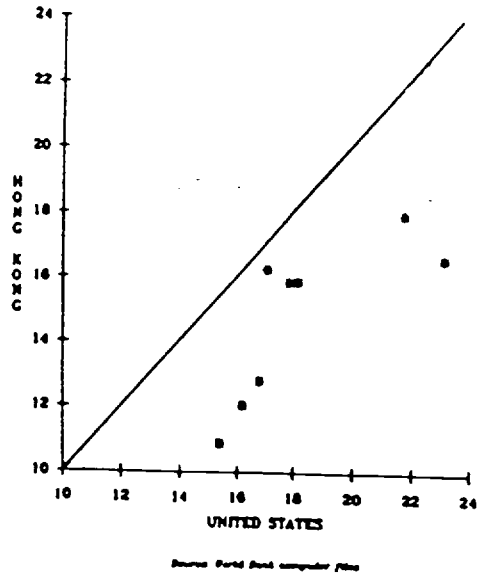
APPAREL GROUP NO. 5 (TROUSERS)
Price Per Unit in U.S. Dollars
1961-1966



Source: World Bank computer files

Figure 3(v)

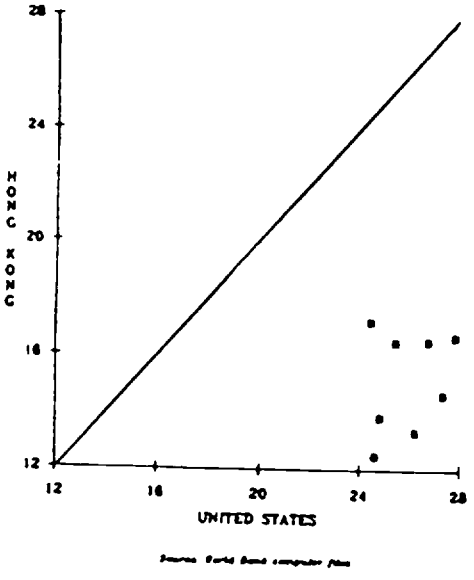
APPAREL GROUP NO. 6 (MEN'S COATS)
Price Per Unit in U.S. Dollars
1961-1966



Source: World Bank computer files

Figure 3(vi)

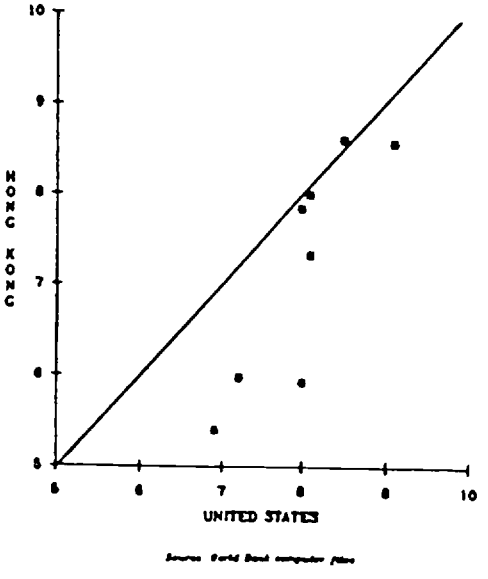
APPAREL GROUP NO. 7 (WOMEN'S COATS)
Price Per Unit in U.S. Dollars
1961-1966



Source: World Bank computer files

Figure 3(vii)

APPAREL GROUP NO. 8 (WOVEN SHIRTS)
Price Per Unit in U.S. Dollars
1961-1966



Source: World Bank computer files

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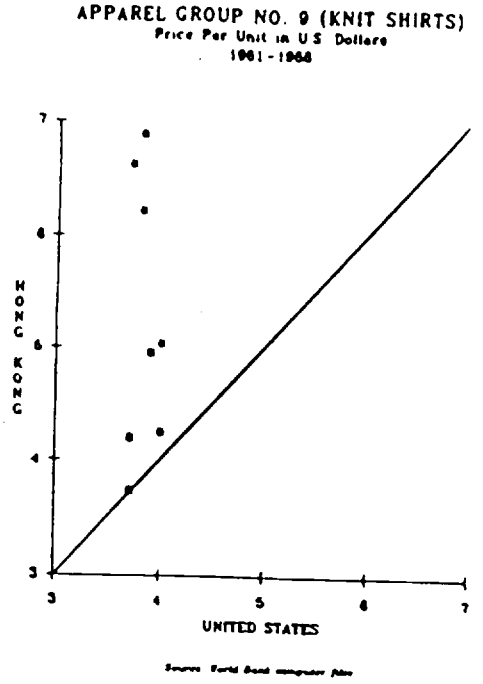

Figure 3(ix)

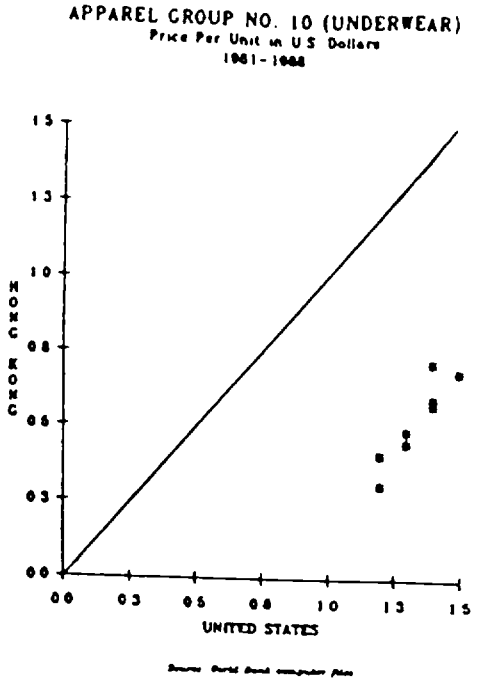

Figure 3(x)

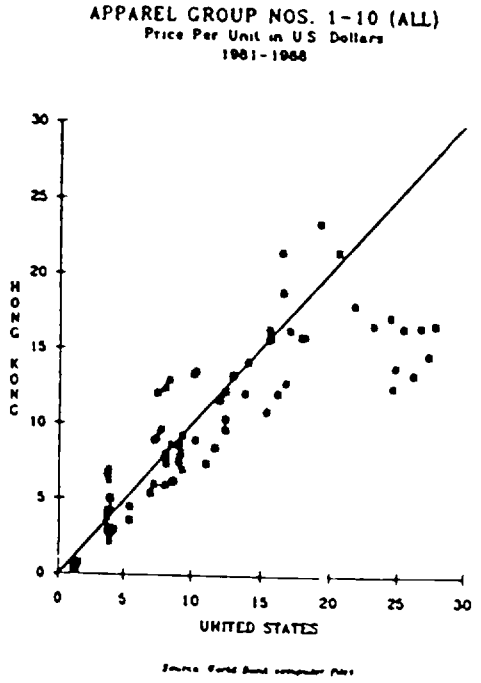

Figure 3(x1)

TABLE 1
RESULTS FOR THE HOMOGENEOUS GOODS MODEL (EQUATION 1)

Dependent variable = P_{it}^{HK}

Independent Variables	Coefficient*	t Statistic
Constant	-7.4140 (2.7347)	-2.7111[a]
P_{it}^{US}	0.5271 (0.0539)	9.7766[a]
H_{it}	0.1255 (0.0276)	4.5439[a]
U_{it}	0.0964 (0.0255)	3.7754[a]
V_{it}	-0.4104 x 10-7 (0.9825 x 10-8)	-4.1771[a]

$R^2 = 0.8089$,
$\bar{R}^2 = 0.7979$
Number of observations = 75

* Standard errors are in brackets beneath the estimates of the parameters. (These standard errors do not differ appreciably from those obtained with the White (1984) correction, therefore we discount the possibility of heteroscedasticity in our sample.)

[a] Significant at the 1% level.

Results of hypothesis-testing:

F-statistic for joint test of $\beta = 1$ and $\alpha = \gamma = \delta = \phi = 0$:
F = 25.9983 — reject the null hypothesis at the 1% level.

t-statistic for test of $\beta = 1$:
t = -8.7699 — reject the null hypothesis at the 1% level.

TABLE 2
THE 10 APPAREL GROUPS AND THEIR
COMPONENT MFA SUB-CATEGORIES

Apparel Group (j)	$i = 1^*$	$i = 2^*$	$i = 3^*$	$i = 4^*$	$i = 5^*$
1. Dresses	336	436	636		
2. Skirts	342	442	642		
3. Playsuits	337	637			
4. Sweaters	345	445/6	645/6		
5. Trousers	347/8	447/8	647	648	
6. Men's Coats	334	434	634		
7. Women's Coats	335	435	635		
8. Woven Shirts	340	341	440	640	641
9. Knit Shirts	338/9	438	638/9		
10.Underwear	352	652			

* See Appendix B for descriptions of the MFA categories.

TABLE 3
REGRESSION RESULTS: THE COMPOSITION EFFECT

Equation	α_j	θ_{2j}	θ_{3j}	θ_{4j}	θ_{5j}
$j = 1$	0.34002	-0.1027	-0.1053		
	(0.0905)	(-0.4350)	(-0.2337)		
$j = 2$	3.6185	-0.2478	0.1851		
	(2.4055[c])	(-1.2968)	(0.4790)		
$j = 3$	1.2623	-0.0660			
	(8.4262[a])	(-0.5030)			
$j = 4$	-0.2386	-0.4971	0.5125		
	(-0.1002)	(-0.7090)	(1.2643)		
$j = 5$	1.5656	0.0115	-0.7184	0.2904	
	(0.9315)	(0.1375)	(-2.7822[b])	(0.7976)	
$j = 6$	2.7328	0.1138	0.1966		
	(1.1172)	(0.7862)	(0.6624)		
$j = 7$	18.1000	-0.3686	0.5052		
	(4.5297[a])	(-1.9060[d])	(1.5189[d])		
$j = 8$	0.7052	-0.7078	-0.1332	0.2711	0.6418
	(0.5990)	(-1.1430)	(-1.5295)	(1.1088)	(1.4053)
$j = 9$	1.1831	-0.3450	0.6603		
	(0.6570)	(-1.2626)	(1.6428[d])		
$j = 10$	0.8183	0.2543			
	(41.3900[a])	(1.7869[d])			

The numbers in parentheses are t-statistics.
[a] Significant at the 1% level.
[b] Significant at the 2.5% level.
[c] Significant at the 5% level.
[d] Significant at the 10% level.

TABLE 4
THE COMPOSITION EFFECT: RESULTS OF F-TESTS

Equation	F-statistics	Interpretation
$j = 1$	F(2,5) = 0.1501	Do not reject $H_0 : \theta_{21} = \theta 31 = 0^b$
	F(3,5) = 1.6282	Do not reject $H_0 : \alpha_1 = \theta_{21} = \theta 31 = 0^b$
$j = 2$	F(2,5) = 0.9281	Do not reject $H_0 : \theta_{22} = \theta_{32} = 0^b$
	F(3,5) = 4.1056	Do not reject $H_0 : \alpha_2 = \theta_{22} = \theta_{32} = 0^b$
$j = 3$	F(1,6) = 0.2530	Do not reject $H_0 : \theta_{23} = 0^b$
	F(2,6) = 36.584	Reject $H_0 : \alpha_3 = \theta_{23} = 0^a$
$j = 4$	F(2,5) = 0.9631	Do not reject $H_0 : \theta_{24} = \theta_{34} = 0^b$
	F(3,5) = 16.485	Reject $H_0 : \alpha_4 = \theta_{24} = \theta_{34} = 0^a$
$j = 5$	F(3,4) = 3.8578	Do not reject $H_0 : \theta_{25} = \ldots = \theta_{45} = 0^b$
	F(4,4) = 20.377	Reject $H_0 : \alpha_5 = \theta_{25} = \ldots = \theta_{45} = 0^a$
$j = 6$	F(2,5) = 0.5861	Do not reject $H_0 : \theta_{26} = \theta_{36} = 0^b$
	F(3,5) = 9.7241	Reject $H_0 : \alpha_6 = \theta_{26} = \theta_{36} = 0^b$
$j = 7$	F(2,5) = 1.8174	Do not reject $H_0 : \theta_{27} = \theta_{37} = 0^b$
	F(3,5) = 101.53	Reject $H_0 : \alpha_7 = \theta_{27} = \theta_{37} = 0^a$
$j = 8$	F(4,3) = 2.9018	Do not reject $H_0 : \theta_{28} = \ldots = \theta_{58} = 0^b$
	F(5,3) = 5.8012	Do not reject $H_0 : \alpha_8 = \theta_{28} = \ldots = \theta_{58} = 0^b$
$j = 9$	F(2,5) = 1.4450	Do not reject $H_0 : \theta_{29} = \theta_{39} = 0^b$
	F(3,5) = 5.0231	Do not reject $H_0 : \alpha_9 = \theta_{29} = \theta_{39} = 0^b$
$j = 10$	F(1,6) = 3.1932	Do not reject $H_0 : \theta_{2,10} = 0^b$
	F(2,6) = 943.15	Reject $H_0 : \alpha_{10} = \theta_{2,10} = 0^a$

[a] At the 1% level.
[b] At the 5% level.

TABLE 5
RESULTS FOR THE FIXED EFFECTS MODEL (EQUATION 9)

Dependent variable = P_{it}^{HK}

Independent Variables	Coefficient*	t Statistic
Constant	-14.3210 (8.2786)	-1.7299[b]
D_1	-4.3106 (3.5604)	1.2107
D_2	5.0287 (4.7184)	1.0658
D_3	4.3467 (3.7622)	1.1554
D_4	5.5429 (1.9846)	2.7930[a]
D_5	1.7295 (2.2062)	0.7839
D_6	2.3468 (3.7679)	0.6229
D_7	-5.0124 (3.9417)	-1.2716
D_8	4.9452 (4.3505)	1.1367
D_9	-2.3575 (4.5728)	-0.5155
P_{it}^{US}	0.8482 (0.1293)	6.5593[a]
H_{it}	0.2167 (0.2163)	1.0023
U_{it}	0.0506 (0.0145)	3.4898[a]
V_{it}	0.1732 x 10-7 (0.2506 x 10-7)	0.6910

$R^2 = 0.9588$,
$\bar{R}^2 = 0.9500$
Number of observations = 75

* Standard errors are in brackets beneath the estimates of the parameters.
[a] Significant at the 1% level.
[b] Significant at the 10% level.

Result of hypothesis-testing:

t-statistic for test of $H_0 : \beta^* = 1$ vs $H_1 : \beta^* < 1$:
t = -1.1742 — reject the null hypothesis at the 20% level.

F-statistic for test of $H_0 : \beta^* = 1, \gamma^* = \delta^* = \phi^* = 0$:
F = 3.9824 — reject the null hypothesis at the 1% level.

TABLE 6
INTERCEPTS CALCULATED FROM TABLE 5

Apparel Group (i)	Intercept ($\alpha^* + \pi Z_i$)
1	-10.0103
2	-9.2923
3	-9.9743
4	-8.7781
5	-12.5914
6	-11.9742
7	-19.3333
8	-9.3758
9	-16.6785
10	-14.3210

A Data Sources and Product Group Definitions

The data utilized in this study cover the time period 1981 to 1988 and pertain to three broad areas: domestically-produced apparel; imported apparel from Hong Kong; and licenses for apparel imports from Hong Kong.

The quantity and value of apparel produced in the US were obtained from *Current Industrial Reports* published by the US Department of Commerce, Bureau of the Census. The statistics in these publication are based on surveys of all known manufacturers and jobbers (except the very small firms excluded from the scope of the survey) and represent total US production of most major garments. [22] We assume that all domestic production is consumed domestically, i.e. domestic production equals sales to the home market. This is not unreasonable since the proportion of domestic apparel production exported overseas is relatively small (less than 10% in general.)

The quantity of apparel imports from Hong Kong as well as quota utilization ratios were obtained from *Expired Performance Reports* issued by the US Department of Commerce, Office of Textiles and Apparel. The value of Hong Kong imports was obtained from a special computer run using US IM-145 Import Trade tapes at the US Department of Commerce, Office of Textiles and Apparel. The value of imports used is in terms of customs value, which is generally defined to be the price actually paid or payable for merchandise when it is sold for exportation to the US, excluding US import duties, freight, insurance, and other charges incurred in bringing the merchandise to the US. [23]

Data on US apparel production is classified according to Standard Industrial Classification (SIC) codes. Imports of restrained textiles and apparel, however, are classified according to the MFA categories of the US, which in turn are groupings of seven- digit Tariff Schedule of the US (TSUSA) categories. Concordance tables are available which link the SIC codes with the TSUSA classification but there is no straightforward mapping between the SIC and MFA classification systems. The MFA categories classify the different types of apparel by fabric type e.g. cotton, wool and manmade fiber. The SIC categories, on the other hand, classify apparel as men's, boys', women's/misses'/juniors' and girls'/children's/infants, with further subdivisions according to fabric type. Quantity figures are sometimes printed for certain fabric-type subdivisions, but value figures are not available. Moreover, the coverage of the individual SIC categories has changed many times over the years considered (1981 – 1988).

[22] In 1988, a number of new establishments were added to the survey. Most of these establishments began operating after the 1982 Census. The Bureau made no attempt to determine when they began operating or to obtain prior years' data. Therefore, the 1988 data may not be strictly comparable to previous years.

[23] The customs import value divided by the import quantity is exactly the f.o.b. Hong Kong price which is referred to in the text, and there is every reason to expect that this price includes the import license price.

Faced with these complications, we had to rearrange the data into new (larger) groups comprising several SIC and MFA categories, such that there was minimal overlap between the categories across groups. We defined ten such groups: (1) dresses, (2) skirts, (3) playsuits, (4) sweaters, (5) trousers, (6) men's coats, (7) women's coats, (8) woven shirts, (9) knit shirts, and (10) underwear.

As a convenient intermediate step to keep the US production data fairly consistent over the eight years, we first assembled the SIC categories of similar items by: men's/boys' outerwear; women's/girls'/infants' outerwear; men's/boys' nightwear and underwear; and women's/girls'/infants' nightwear and underwear. Appendix Table A-1 lists the production groupings [24] and Appendix Table A-2 shows the relation between these groupings, the MFA categories and the ten apparel groups.

The domestic price of each of the ten apparel groups was computed as a quantity-weighted average of the unit values of the production groupings which make up the group. [25]

Similarly, the import price of each apparel group was taken to be a quantity-weighted average of the unit values of the MFA categories which make up the group, and the quota utilization ratio for each apparel group was calculated as a quota-weighted average of the utilization ratios of the component MFA categories. [26]

Our trade data exclude the MFA 800 series (silk blends or non- cotton veg-

[24] The concordance between these production groupings and their component SIC categories is available from the authors.

[25] The reason why we use quantity weights is as follows. Each apparel group j consists of one or more production groupings i, $i = 1,\ldots,n$. Let P_j denote the unit price of apparel group j, P_{ij} the unit price of production grouping i of apparel group j and Q_{ij} the quantity produced of production grouping i of apparel group j. Then:

$$\begin{aligned} P_j &= \frac{(\text{Value of Imports})_j}{(\text{Quantity of Imports})_j} \\ &= \sum_i \frac{P_{ij}Q_{ij}}{\sum_i Q_{ij}} \\ &= \sum_i P_{ij}\frac{Q_{ij}}{\sum_i Q_{ij}}. \end{aligned}$$

[26] Each apparel group j consists of a few MFA categories i. We use quantity weights to compute the import price for an apparel group from the import prices of its component MFA categories for the same reason explained in the previous footnote. Similarly, if we let U_j be the utilization ratio for apparel group j, $\sum_i V_{ij}$ be the total quota on apparel group j, U_{ij} be the utilization ratio for MFA category i of apparel group j and V_{ij} be the quota on MFA category i of apparel group j, then we use quota weights to compute U_j because:

$$\begin{aligned} U_j &= \frac{(\text{Quantity of Imports})_j}{(\text{Total Quota})_j} \\ &= \sum_i \frac{U_{ij}V_{ij}}{\sum_i V_{ij}} \end{aligned}$$

etable fibers), which was first introduced in 1986. This may introduce some inconsistency in the data set since the US production data are classified according to type of apparel rather than material. For example, for Group 1 (dresses), the US price and US sales figures may partly reflect prices and sales of silk dresses but the import prices and quantities will not. However, a quick glance at US production figures for which we have some information on fabric breakdown indicates that this should not pose a serious problem. [27]

Information on tariffs and transport costs by MFA category was taken from the 1986 U.S. IM-145 Import Trade tapes. As 1986 was the only year for which we had reliable data on tape, we assumed little or no change in the ad valorem tariff rates and unit transport costs in the period under study, and applied the 1986 figures to the years 1981 through 1988. [28] The tariff rates and unit transport costs of each of the ten apparel groups were computed as weighted averages of the tariff rates and transport costs of the MFA categories comprising the group, thus insofar as the relative composition of the groups changed over the years, so too did the group tariff rates and transport costs. [29]

Also, note that MFA category 440 was not under quota for any of the eight years we consider. In the earlier years, there were also several other categories that were not under quota. Such categories were not used in computing the apparel group license utilization ratios.

Information on the concentration in license holdings in Hong Kong came from the *1990 Preliminary Allocation Quota Holders' List* issued by the Tex-

$$= \sum_i U_{ij} \frac{V_{ij}}{\sum_i V_{ij}}.$$

[27] Consider, for example, two items most likely to be made of silk: women's dresses and slips. In 1985 and 1986, dresses made of material other than cotton, wool or man-made fibers accounted for only about 4% of the total quantity of women's, misses' and juniors' dresses produced; and 0% of the women's full-length and half- length slips produced in the US were made of material other than cotton, wool or man-made fibers.

[28] In fact, ad valorem tariff rates changed very little between the GATT rounds so this is not an unreasonable assumption.

[29] We used value weights for the ad valorem tariffs and quantity weights for the unit transport costs. Let t_j denote the ad valorem tariff rate on apparel group j, t_{ij} the ad valorem tariff rate on MFA category i of apparel group j, P_{ij} the unit price of MFA category i of apparel group j, and Q_{ij} the quantity of imports of MFA category i of apparel group j. Then:

$$\begin{aligned} t_j &= \frac{(\text{Tariff Revenue})_j}{(\text{Value of Imports})_j} \\ &= \sum_i \frac{t_{ij} P_{ij} Q_{ij}}{\sum_i P_{ij} Q_{ij}} \\ &= \sum_i t_{ij} \frac{P_{ij} Q_{ij}}{\sum_i P_{ij} Q_{ij}}. \end{aligned}$$

tile Controls Registry in Hong Kong. Whereas there are frequent temporary transfers of licenses, permanent transfers occur much less often, [30] and the license allocation in all probability does not alter much over the years. Thus, we applied the 1990 allocation for the years 1981 through 1988 and calculated the concentration index for each group as quantity-weighted averages of the concentration indices of the MFA categories that make up the group. As in the case of the tariff and transport data mentioned above, insofar as the weights change from year to year, so will the concentration index, even if the allocation remains fixed.

Note that quotas are imposed on (and hence licenses are allocated for) the following categories jointly: 333/334/335, with a sub- quota on 333/334 and a sub-quota on 335; and 633/634/635, with a sub-quota on 633/634 and a sub-quota on 635. The licenses for sub-categories 333 and 334 are completely transferable, but there is less flexibility in transferring licenses between these two sub-categories and sub-category 335. The same applies to sub- categories 633, 634 and 635. We had information on the ratio of licenses utilized, and holdings of licenses for 333/4, 633/4, 335 and 635, but we were only interested in categories 334 and 634, which are components of Group 6 (men's coats) and categories 335 and 635, which are components of Group 7 (women's coats). Given the transferability within sub-categories, we took the ratio of licenses utilized for category 334 to be the ratio of licenses utilized for categories 333/4 together, and similarly for category 634. We did the same for concentration indices.

For categories 338/9, separate sub-quotas are imposed on 338/9-T (tank tops); and 338/9-O (other knit tops, excluding tank tops.) In order to calculate the concentration index for the category 338/9 as a whole, we had to weight the indices for the sub- categories by their shares in total shipments. The same applied to categories 347 and 348, i.e., we had to weight the concentration indices by their shares in total shipments in order to get the concentration index for 347/8 as a whole.

[30] The following figures are reported in Sung (1989):

Year	Temporary Transfer*	Permanent Transfer*
1981	20.1	12.4
1982	37.1	17.5
1983	40.2	22.1
1984	33.7	22.8
1985	27.9	10.2
1986	16.0	7.8
1987	21.4	11.3

* As a percentage of restraint limit.

APPENDIX TABLE A-1
US PRODUCTION GROUPINGS AND DESCRIPTIONS

1. M&B casual, non-tailored sport coats*.
2. M&B suits, incl uniforms*.
3. M&B overcoats, top coats, car coats, incl. uniforms.
4. M&B raincoats, incl uniform.
5. M&B tailored suit-type dress and sport coats, incl uniform*.
6. M&B separate vests ex sweater vests*.
7. M&B woven dress & business shirts, incl uniform.
8. M&B woven sports shirts.
9. M&B t-shirts & tank-tops for outerwear.
10. M&B all other knit shirts ex sweatshirts.
11. M&B sweaters, sweater vests, knit cardigans and pullovers.
12. M&B dress & sport trousers, incl uniform.
13. M&B jeans & dungarees.
14. M&B casual slacks.
15. M&B shorts.
16. M&B heavy non-tailored outer jackets ex ski, incl padded vests*.
17. M&B light non-tailored outer jackets.
18. M&B down & feather filled jackets and vests*.
19. M&B sweatshirts.
20. M&B sweatpants.
21. M&B jogging suits.
22. M&B swimwear*.
23. M&B ski jackets & vests.
24. M&B ski pants.
25. M&B ski suits & overalls*.
26. M&B work pants.
27. M&B coveralls, overalls & jumpsuits*.
28. M&B work shirts (not knit).
29. M&B overall & work-type jackets.
30. W/G/I dresses.
31. W/G/I suits & pantsuits.
32. W/G/I overalls, coveralls & jumpsuits.
33. W/G/I woven blouses & shirts.
34. W/G/I t-shirts & tank-tops for outerwear.
35. W/G/I all other knit shirts ex sweatshirts
36. W/G/I sweaters.
37. W/G/I coats & capes, ex down, rain, fur or leather (incl girls' and infants' jackets & snowsuits).

38. W/G/I tailored suit-type jackets.
39. W/G/I non-tailored outer jackets ex ski.
40. W/G/I vests*.
41. W/G down & feather filled jackets*.
42. W/G raincoats.
43. W/G/I sweatshirts.
44. W/G/I sweatpants.
45. W/G/I jogging suits.
46. W/G/I swimsuits*.
47. W/G ski jackets & vests.
48. W/G ski suits*.
49. W/G ski pants.
50. W/G body suits*.
51. W/G/I shorts.
52. W/G/I playsuits, beach tops & rompers.
53. W/G/I skirts.
54. W/G/I pants.
55. M&B pajamas & other nightwear*.
56. M&B robes*.
57. M&B undershirts.
58. M&B thermal underwear*.
59. M&B knit briefs & shorts.
60. M&B woven boxer shorts.
61. W/G/I slips.
62. W/G/I panties.
63. W/G/I union suits, camisoles & thermals (incl infants' panties, slips & undershirts).
64. W/G/I nightgowns*.
65. W/G/I pajamas*.
66. W/G/I other nightwear*.
67. W/G/I robes & housecoats*.
68. W/G/I brassiers, bralettes & bandeux*.
69. W/G/I combinations & one-pieces*.
70. W/G/I garter belts*.

Items marked with an asterisk are not included in our data set.
M&B: Men's and boys
W/G/I: Women's/Girls'/Infants

APPENDIX TABLE A-2
RELATION BETWEEN THE TEN APPAREL GROUPS
AND THE MFA AND US PRODUCTION GROUPINGS

Apparel Group	MFA Categories	US Production Groupings
1. Dresses	336, 436, 636	30
2. Skirts	342[a], 442, 642	53
3. Playsuits	337, 637	52[b]
4. Sweaters	345, 445, 446, 645, 646	11, 36
5. Trousers	347, 348, 447, 448, 647, 648	12, 13, 14, 15, 20, 21*, 24, 26, 44, 45*, 49, 51, 54
6. Men's Coats	334, 434, 634	3, 4, 16, 17, 21*, 23, 29
7. Women's Coats	335[c], 435, 635	37, 38, 39, 42, 45*, 47
8. Woven Shirts	340, 341, 440, 640, 641	7, 8, 28, 33
9. Knit Shirts	338, 339, 438, 638, 639	9, 10, 19, 34, 35, 43
10. Underwear	352[d], 652	57, 59, 60, 61, 62, 63[e]

Items marked with an asterisk are suits (e.g. jogging suits) which comprise both trousers as well as coats. Each group is thus credited with half the quantity and value figures of these items.

[a] Some items in MFA category 342 may also be found in production grouping 31 (women's suits and pantsuits.)

[b] Production grouping 52 may also include some items from MFA category 859.

[c] Some items in MFA category 335 may also be included in production grouping 31 (women's suits and pantsuits.)

[d] Some items in MFA category 352 may also be included in production grouping 67 (women's/girls'/infants' robes and housecoats.)

[e] Production grouping 63 may also include some items from MFA category 459.