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A Primer on the MFA Maze

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The MFA results in inefficient resource allocation across countries, across consumers, and among firms within constrained countries. Evidence indicates that quotas tend to be binding, and many consumers pay more for products as a result.

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This paper — a product of the Trade Policy Division, Country Economics Department — is part of a larger effort in the department to evaluate trade policy measures and recommend methods of trade policy reform. This paper was presented at the Ford Foundation Conference on U.S.-EC Trade Relations (in Brussels) and at the OECD Conference on Trade Policy, Productivity, and Foreign Investment (in Paris). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dawn Ballantyne, room N10-029, extension 37947 (February 1993, 45 pages).

It is generally agreed that the arrangements that have regulated trade in textiles and clothing have slowed the natural shift in comparative advantage from industrial countries to developing countries. But there is quite a bit of disagreement about how restrictive the Multi-Fibre Agreements (MFA) are.

Faini, de Melo, and Takacs address the potential sources of allocative inefficiency occasioned by the MFA and search for evidence that the MFA has indeed led to such inefficiency.

In a theoretical section, they identify five sources of inefficiency relating to allocations across countries, across consumers, and among firms within constrained countries.

In the empirical part of the paper, first they provide evidence of the restrictiveness of the quota arrangements from trends in import shares for aggregate categories of textiles and clothing, before and during the MFA. Then they provide evidence from a detailed examination of quota utilization rates and price differentials among EC importing countries.

Among their findings:

- Relatively high utilization rates across exporters suggest a relatively high degree (and stability) of quota bindingness across exporters.

- Overshipment was highest for the most important (by shipment value) products.

- There is concentration among a few leading exporters (China, Hong Kong, Taiwan, and Thailand) and a few importers (Benelux, Germany, and the United Kingdom).

- The data suggest a positive correlation between the coefficients of variation in prices and quota utilization rates for China, Hong Kong, and Korea. This suggests that prices are related, as one would expect, to the degree of bindingness.

- The data suggest that binding quotas would be associated with higher import prices.

A Primer on the MFA Maze

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I. INTRODUCTION

The complicated -- and purposely opaque -- arrangements that have regulated international trade in textiles and clothing have been the subject of a lively debate and of much literature. It is generally agreed that these arrangements have slowed down the natural shift in trade flows due to comparative advantage from developed to developing countries, and within developing countries from the NICs towards the least developed. It is also agreed that trade in textiles and clothing is the single most important source of developing countries' foreign exchange earnings from manufactures as well as an important source of employment. (Textiles and clothing trade accounted for 6 percent of world merchandise trade in 1986 with developed country exports of $71 billion and $43 billion of developing countries exports). Beyond these rather general statements, most work on the economic effects of the MFA has concentrated on the effects on developed importing countries, for example, Morkre (1984) and Cline (1990), so there is relatively little evidence on the economic effects of the MFA on developing countries. Notable exceptions are Trela and Whalley (1990a) and the papers in Hamilton (1990).

In fact, there is quite a lot of disagreement as to the degree and trends in restrictiveness of the MFA. Summarizing recent evidence, Hamilton and Martin (1990, p. 4) state "Clearly, the evidence presented in this volume suggests that the MFA quotas are binding in many product categories...". Likewise, Erzan, Goto and Holmes (1990) provide evidence of rising quota utilization rates in the 1980s, particularly in the EEC and argue that the gains to the marginal suppliers from restrictions on established exporters are not large. On the other hand, Cline (1990), argues that considerable adjustment through downsizing has occurred in Western Europe and Japan and in the U.S. textile sector. He concludes that liberalization would only entail substantial adjustment through downsizing of the U.S. apparel sector.

The purpose of this paper is to give a fairly systematic discussion of the potential sources of allocative inefficiency occasioned by the MFA and to look for evidence that the MFA has indeed led to such inefficiency. We cannot expect to settle the controversy but hope to bring some perspective on the debate by our eclectic approach.

The remainder of the paper is organized as follows. In section II, we identify the various sources of inefficiency that arise from the MFA. We identify five sources of inefficiency due to: (1) reallocations of production from constrained exporting countries to domestic suppliers and among constrained exporting countries; (2) reallocations of production from constrained exporting countries to unconstrained countries; (3) inefficient allocation of production among firms in constrained exporting countries; (4) reallocations among consumers located in different constrained importing countries; and (5) inefficient allocation between consumers in constrained and consumers in unconstrained importing countries. Next we look for evidence. In section III we rely on trends in import shares into the EC and US. We examine both trends in market shares for aggregate categories of textiles and clothing (T&C) before and during the MFA. The trends suggest that through the successive rounds of MFA, the growth in the developing country share in the US and EC markets was arrested. This suggestive finding motivates the more detailed microeconomic examination of quota utilization rates and price differentials in section IV. Using recent disaggregated data on quota utilization rates and unit values for EEC imports under the MFA, we look for evidence of price differentials and, hence, inefficiencies. Conclusions follow in section V.

We are aware that by looking only for evidence of static losses and inefficiencies, we are only looking at one part of the economic impact of the MFA. In a more general dynamic context, one would recognize that, historically, textiles and apparel have played an important role in the industrialization of today's developed countries and, more recently, in the industrialization of the successful East Asian NICs.

II. SOURCES OF ECONOMIC INEFFICIENCY AND TRANSFERS IN THE MFA: A THEORETICAL ANALYSIS

The bilateral quotas negotiated under the umbrella of the MFA arbitrarily divide up markets and prevent the normal operation of a market system from efficiently allocating resources among different activities and locations and efficiently distributing goods among consumers in different countries.

To maximize the output from available resources, production of a good must be allocated among producers so that the marginal cost of production is equated across producers. If marginal costs are not equated across producers, production would not be efficient because shifting production from the higher-cost to lower-cost producer would decrease total production costs. A market system will also distribute the goods produced among consumers efficiently. Efficient distribution of goods ensures that products go to the individuals who place the highest valuation on them, as evidenced by their willingness to pay to obtain them. Efficient allocation among consumers will occur in a market system if all consumers pay the same price for each good.

For overall efficiency in production and consumption, the marginal social cost of production for producers must equal the price paid for the product by consumers. In a market system, in the absence of market power or externalities, this condition will hold when all consumers pay and all producers receive the same price for a particular good. As shown below, the MFA's quota system undermines the market system's ability to achieve these efficiency conditions. The MFA restraints also result in potentially large transfers between groups within countries and between countries.

The supply constraints resulting from the MFA create artificial scarcities of the products, increase prices in the constrained markets, and generate windfall profits or rents. These windfall profits are divided among importers, exporters, producers, or the government, depending upon the way the restraints are administered and the degree of market power in the relevant markets. In the

following discussion, we use a partial equilibrium framework to identify the various sources of inefficiencies and transfers inherent in the maze of bilateral quotas that make up the MFA. We start with a discussion of the sources of inefficient allocation across producers, then turn to a discussion of the sources of inefficient allocation across consumers.

i. Inefficient allocation across producers

The quota restrictions reallocate production away from lower-cost suppliers toward higher-cost suppliers. These reallocations take a number of forms: reallocations from constrained exporting countries to domestic suppliers in the protected import markets; reallocations among constrained exporting countries; reallocations from constrained exporting countries toward unconstrained countries; and even reallocation among individual firms within a constrained exporting country. All of these reallocations are potential sources of inefficiencies in production that cause welfare losses from the quota system.

a. Reallocations From Constrained Exporters to Domestic Suppliers and Among Constrained Exporters

Consider first reallocations of production from constrained exporting countries to domestic suppliers and reallocations among constrained exporting countries. Suppose that an importing country (country 1) imports a product from two different exporting countries (countries 2 and 3). For simplicity assume that the products produced by all three countries are identical and that the exporting countries export only to the one importing country. Country 1 also has a domestic industry that produces the product. Under free trade, the efficiency condition noted above would hold in the free market equilibrium, as illustrated in Figure 1. D_1 and S_1 are the demand and supply curves, respectively, for the product within country 1. Import demand would be the difference between

quantity demanded and quantity supplied, shown by D_M. S_2^X and S_3^X are the export supply curves of countries 2 and 3, respectively. In the absence of any export restrictions on the part of either of these countries, the total supply to the importing country 1 would be S_{2+3}. The market equilibrium would be determined at P*, where supply to the country equals import demand. That market price would determine the quantity supplied to this market by producers in all three countries. If markets in all three countries are competitive, all producers will be maximizing profits by expanding output to the point at which price equals marginal cost, so marginal cost would be equated across both exporters and the industry in the importing country, satisfying the condition of efficiency in production.

In contrast, suppose country 1 negotiates export quotas on this product with the exporting countries. Country 2 agrees to ship no more than Q_2 and country 3 agrees to ship no more than Q_3. In that case total export supply becomes vertical at Q_2+Q_3, and the market equilibrium price would be P^Q. At that price, the domestic industry in 1 would expand output to S_Q. The marginal cost of production in the importing country would increase to MC_1. In contrast, as shipments in country 2 and 3 are reduced, output declines and marginal cost of production falls to MC_2 and MC_3, respectively.

In this quota-ridden equilibrium, $MC_1 \neq MC_2 \neq MC_3$ and the efficiency condition for allocation of output among suppliers is violated. The inefficiency arises because the quota restraints shift production from lower-cost producers in countries 2 and 3 to higher-cost producers in country 1. The difference between the cost of production of the extra amount (S_Q-S_1) in country 1 and the cost of production in 2 and 3 when production is efficiently allocated between them can be identified by projecting downward from point B the mirror image of the supply curve S_{2+3} starting from point A. As country 1's production displaces 2's and 3's, the deviation between the marginal costs increases. The total extra production costs equal to area C_p are incurred as output expands in the importing country and falls in the exporting countries. Additional losses in the importing country of C_c would

be incurred due to consumption distortions and of T because the system of quota administration under the MFA results in transfers to the exporters in the form of rents.

Moreover, with the arbitrarily determined export quota system, production is not allocated efficiently between the exporting countries. The marginal cost of production is higher in country 3 than 2, which implies that costs could be decreased by increasing production in 2 and decreasing production in 3. The size of the loss from misallocation between the two exporting countries can be identified by asking by how much costs would decrease as units of production shift from country 3 to country 2. As 3 produces one less unit, costs decline by the marginal cost in 3, and costs increase by the marginal cost in 2. The sum total of the cost differentials can be shown by sketching in the mirror image of S_2 below S3 in the left-hand panel. The vertical distance between S_3 and the mirror image of S_2 shows the costs saved by reallocating each unit of production from 3 to 2 until the marginal costs are equated. The entire area C_A, shows the total gain in terms of lowered production costs that would be achieved by efficiently allocating output between 2 and 3.[1] It represents the costs of the arbitrary allocation of output among exporting countries inherent in the MFA system.

The supply constraints also cause an artificial scarcity of the restrained good in the importing country which drives up the price and creates windfall gains. Figure 1 illustrates why this occurs. The restricted good will sell in the importing country for P^Q. Suppliers in countries 2 and 3 would have been willing to supply the restricted quantity at a price equal to MC_2 and MC_3, respectively. The divergence between the price at which exporters would be willing to supply their quota allocations and the sales price of the good in the importing country implies windfall gains (termed quota rents). These gains will be divided among exporters, importers, or governments, depending upon how the quotas are administered and the relative market power of importers and exporters.[2]

b. Reallocations from Constrained Exporting Countries toward Unconstrained Exporting Countries

The discriminatory nature of the MFA system, in which some countries exporting to a particular market are constrained but others remain unconstrained also leads to inefficiencies in production. Production will tend to be reallocated away from constrained exporting countries toward unconstrained exporters.[3] This phenomenon is illustrated in Figure 2. Assume that there are two exporting countries, 1 and 2, exporting identical products to an importing country. D is the import demand curve, and S_1 and S_2 the export supply curves of the competitive industries in 1 and 2. In the absence of any quota arrangements, the market equilibrium price P* would be determined by the interaction of total supply ($S_1 + S_2$) with import demand. The quantities exported by 1 and 2 would be X_1 and X_2, respectively. Each exporting country is operating along its supply curve at P*, so the marginal cost of production would be equal in the industries of both exporting countries.

Suppose, however, that the importing country were to negotiate an export quota arrangement with exporting country 2 that limits its shipments to Q_2. The supply curve of country 2 would become vertical at the export quota ceiling, the total supply to the importing country would shift to $S_1+S_2^Q$, and the market equilibrium price would increase to P_Q. Given this higher equilibrium price, exports from unconstrained exporter 1 would increase to X_1^Q, replacing in part the decline in exports from constrained country 2. This reallocation creates inefficiencies, however, because the location of production has shifted from the lower-cost to the higher-cost supplier. As before, the extent of this inefficiency can be measured by asking what would be the cost savings if the extra output produced by 1 were produced by 2 instead. Starting from the quota-distorted equilibrium, if one less unit were produced by 1 the reduction in cost would be MC_1. If one more unit were produced by 2, costs would increase by MC_2. The net decrease in costs for that one unit would be MC_1 less MC_2, and so on as units of production shifted from 1 to 2. The production cost savings from allowing country 2 to produce all of the extra units produced by 1 would be the shaded area C_p in Figure 2. This area is

derived by projecting the mirror image of country 2's supply curve (which reflects its lower marginal cost) from point A (country 1's quota-distorted production level) and noting the difference between the two countries' marginal cost of production as country 1's production is replaced by country 2's. The rectangular area T is a transfer to country 1's exporters and C_c is the loss due to the consumption distortion.

c. Inefficient Allocation among Firms in Constrained Exporting Countries

Yet another source of inefficient allocation in production associated with the MFA arrangements is the potential for inefficient allocation of output among exporting firms within a single constrained exporting country. This possibility arises because the exporting countries have to adopt some procedure to limit exports, which virtually always takes the form of an export licensing system. The methods of administering these systems vary across countries, but most systems allocate licenses based on criteria other than which firms can produce the product at lowest cost at that particular point in time. Most importantly, they often do not allow transfer among firms.[4] Constraints on the transferability of licenses among firms is another source of inefficiency in the MFA.

To illustrate the problem, suppose that two firms in a constrained exporting country are producing identical goods. The supply curves of these two firms are shown as S_A and S_B in Figure 3. If the quota limit for the constrained exporting country is Q, the efficient allocation of this output between the two firms would be where the marginal cost of production is equated across firms. Given that for competitive firms each firm's supply curve is its marginal cost curve, the efficient allocation of production between the two firms would be at output levels X_A and X_B.

Suppose that quotas are originally allocated at these levels, but firm B is able, say through new investment, to improve its productivity and lower production costs so that its supply curve shifts downward to S_B'. If the quota constraint for the country remains at Q, then the efficient allocation of

exports between the firms would be X_A' and X_B'. But if quotas are allocated by historical performance, both firms would receive the same quotas as before. Firm A would produce X_A-X_A' "too much" and firm B would produce X_B'-X_B "too little". The cost of this misallocation can be identified by asking how much costs would decrease if production were reallocated to the most efficient levels. If firm A were to decrease its output by one unit costs would decrease by MC_A, and if firm B were to increase its output by one unit costs would increase by the height of S_B' at point A. The cost savings would be equal to the difference between these. As additional units of output were shifted from A to B the gain from each unit shifted would be the difference between the marginal cost of production in the two firms. As in the previous case of the arbitrary allocation among exporting countries, the total gain from reallocating to the most efficient allocation can be depicted by projecting the mirror image of the segment AB along S_B' from X_A' under S_A, as shown by the dotted line. Area C_p represents the total cost saving from reallocating X_A-X_A' ($=X_B$'-X_B) units of production from A to B.

ii. Inefficient allocation among importing countries

The bilateral quota arrangements arbitrarily divide and separate markets, which allows consumer prices for the same good to differ between markets. This segmentation will lead to an inefficient allocation of goods between consumers. The inefficient allocation among consumers takes two forms: reallocations among consumers located in different constrained importing countries, and reallocations from consumers in constrained importing countries toward consumers in importing countries that have not negotiated or imposed any restrictions.

a. Reallocations among consumers in constrained importing countries

To illustrate the source of this inefficiency, suppose that two importing countries are importing an identical product from an exporting county, where the good can be purchased at price P*. The import demand curves for these two countries are D_1 and D_2, respectively, in Figure 4. Suppose that the importing countries negotiate export restraints with the exporting country that limit exports to 1 to Q_1 and exports to 2 to Q_2. The supply curves to the importing countries would become vertical at the quota limits, as shown by S_1^Q and S_2^Q, respectively. The equilibrium price in country 1 would be P_1^Q, and in country 2 P_2^Q.

The divergence in the price of the restricted good in the two markets reveals a potential gain from shifting supply from the low-price to the high-price market. If the markets were not segmented, as for example if only one export quota with the same total exports applied to them both, then the equilibrium would be determined at point A, where total demand and supply intersect, and the common price in both markets would be P_C.[5]

Starting from the segmented-market equilibrium, if one more unit were allocated to country 2, the height of D_2 at E shows the willingness of the marginal consumer to pay for the good, or in other words, the value of that unit to a consumer in country 2. If one less unit were shipped to country 1, the height of D_1 at point D shows the value of that unit to the marginal consumer in country 1. The difference between the values of the goods to the marginal consumers in both countries across the total amount that would be shifted if there were a single market can be identified by projecting the mirror image of the segment DF of D_1 upward from point B, as shown by the dashed line BC. The vertical distance between D_2 and the dashed line shows the net gain from reallocating each unit from country 1 to country 2, as would automatically take place in the absence of separate quotas. Thus the shaded area C_s can be interpreted as the cost of the arbitrary segmentation of import markets inherent in the MFA system.

b. Reallocation from constrained to unconstrained importers

A quota on exports to one importing country when the exporters are also exporting to other countries will tend to divert exports toward the unconstrained importing countries and cause a divergence in price between constrained and unconstrained importers.[6] Figure 5 shows import demand curves for two importing countries 1 and 2, and the export supply curve of the exporting country. In the absence of any restraints, the market equilibrium would be determined by the intersection of supply with total demand, D_T, which is the horizontal sum of D_1 and D_2. Price would be P*, country 1 would import M_1 and country 2, M_2. If importing country 2 negotiates an export restraint with the exporting country with a ceiling at Q_2, the supply to country 2 would become vertical at this ceiling and price within country 2 would rise to P_2. The restraint on shipments to country 2 will affect supply to country 1. Once exports to 2 are constrained, the supply curve facing country 1 would be the amount supplied along the supply curve S less the amount shipped to country 2 (Q_2). This residual supply curve is shown by S_1^R. The market equilibrium price in country 1 would fall to P_1.

The difference in price in the two markets indicates an inefficient distribution of the product across consumers. A net welfare gain could be achieved by shifting sales from country 1 to country 2. On the margin, if the total amount exported to the two countries remained the same as under the restraint but one more unit were sold in country 2, the value of that unit to a consumer is shown by the height of the demand curve, or, in this case, P_2. If one less unit were sold in country 1, the value of the that last unit sold to a consumer would be P_1. There would be a net gain equal to (P_2-P_1) if one unit were reallocated from 1 to 2. The total gain from shifting the extra units consumed in 1 ($=M_1^Q$-M_1) as a result of the constraint back to country 2 would be the shaded area C_3. This area is derived in the same manner as C_3 in Figure 4, by projecting the mirror image of D_1 under D_2 and

assessing the difference in the heights of the two demand curves. Gains equal to areas labeled C_P also would arise if total production and exports increased back to the free-trade level.

Figure 5 also serves to illustrate some of the transfers caused by the MFA. When the restraint drives up price in country 2, exporters earn rents of R_2 on sales to 2. Compared with the free-trade equilibrium, exporters lose area R_1 plus the lower triangle labeled C_P on sales to 1 where the price has fallen. Consumers in 2 suffer a loss of consumer surplus equal to area abcd, while consumers in 1 gain defg from the drop in price.

III. Global Trends in Textile and Clothing Trade

i. Milestones in Restrictions

Just as the textile industry played a key role in the industrialization of today's developed countries in the 19th century, it was an engine of industrialization -- along with other light manufactures such as footwear and leather products -- for Japan between the two world wars,[7] then for the successful East Asian NICs since the early sixties. Until then, the main source of competition for developed-country textile and apparel producers were cotton textiles from Japan. Then during the sixties, several developing countries emerged as important exporters. This is what one would expect from the factor endowment theory of international trade since at that time communications improved and new technology spread rapidly while transport costs fell. Trade in clothing increased dramatically and synthetic fibres captured a growing share of the world fibre market. With the introduction of labor-saving technology in spinning and weaving, differences in comparative costs between developed and developing countries narrowed in textiles. The main challenge was no longer cotton textile exports from Japan: it became clothing and exports from developing countries.

The stepping stones to the MFA were the Short-Term and Long-Term Arrangements Regarding Trade in Textiles which regulated trade starting in late 1961 until pressures to "legitimize" these departures from GATT rules (disregard of the non-discrimination rule and the prohibition on the use of quantitative restrictions) led to the negotiation of MFA I which entered into force in January 1974. With MFA I, these "special rules" were extended to wool and man-made textiles and clothing, in addition to cotton products. A tightening of rules and restrictions occurred with MFA II (1978), MFA III (1982) and MFA IV (1986). Each time coverage increased with more countries and more products At the same time, complex rules to introduce some flexibility (e.g. swing provisions introduced under MFA I) but not too much (e.g. the "anti-surge" provision requested by the EC during the negotiations of MFA III) were adopted in the successive renewals of the MFA. Rules have become so complicated with so many exceptions and have been modified so many times that it is difficult to know where we stand. In the following we look for evidence of broad trends.

ii. Trends in Textile and Clothing Trade

Our first look for sources of inefficiency is an inspection of import trends in the EC and US for textiles and clothing. Figure 6 presents data on the LDC share of US and EC imports in three product categories: (1) fibres; (2) yarns and fabrics; and (3) clothing for the years 1964 through 1990. We treat the EC symmetrically with the US, by subtracting intra-EC imports from total EC imports.

It is useful to examine the trends by considering separately restrictions on textile inputs (fibres, yarns and fabrics) and on final goods (clothing) since restraints shifted from textiles towards clothing and, as is known from effective protection theory, protection of industries supplying inputs is effectively a tax on the corresponding final good industry. Also, as a first approximation, it is useful to think of textiles and clothing as a mature industry so that, technology should presumably be the

same in the US and EC. If, in addition, one also assumes "similar" factor costs in the EC and US, then differences in import shares (neglecting differences in product mix due to differences in income and tastes) would be largely attributable to differences in protection.

On the input side, figure 6 shows a clear shift away from imports of fibres from the LDC on the part of both the EC and US suggesting that the measures caused some allocative inefficiency. In the EC case, diversion was towards intra-EC trade as the share of other developed country imports (the difference between DC to EEC and EEC to EEC) remained relatively constant at 40 percent throughout the period. On the other hand, imports of yarns and fabrics from developing countries for the EC remained fairly constant with little impact from the restrictions, at least up until MFA IV at which point, the import share of developing countries starts to fall. In the case of the US, however, figure 6 strongly suggests that MFA I (and its successors) effectively arrested the rising developing country share of imports of yarns and fabrics.

Turning to clothing, several interesting patterns emerge. The trends in the LDC shares of US and EC clothing imports is roughly similar. LDC shares were growing in both markets until the mid-1970s, when the growth was arrested or diminished. It took successive MFA rounds for both the EC and the US to slow the growing share of developing countries. For the EC, the LDC import share started from a higher base in 1964, and leveled off at a somewhat lower level. The increase in the LDC share of US clothing imports was much more marked than in the EC. In both the US and the EC, LDC import shares in clothing have stabilized in the last decade.

Broadly speaking, the trends in figure 6 suggest that the successive negotiations under the MFA had some restraining effect on the shift in comparative advantage towards developing countries. Import shares of developing countries stabilized in clothing and stabilized or declined in textiles. Given some restoration in comparative advantage for developed countries in textiles through the

development of labor-saving technology, the restraining effect of the MFA is likely to have been strongest for clothing.

The evidence on market shares indicates that the growth in the developing-country share of US and EC import markets for textiles and clothing (T&C) that had been occurring before 1974 was slowed or stopped by successive MFA. This suggests that the MFA has caused a reallocation of production from developing countries toward developed-country producers as described in section II, with the attendant production inefficiencies.

We also inspected import trends (for the same breakdown as in table 6) for Australia and New Zealand, two countries that did not participate in the MFA, but instead applied global QRs.[8] The pattern of LDC import shares in fibres, yarns and textiles, and clothing, shown in figure 7, are broadly similar to those for the US and EC. The similarity in the evolution of LDC shares of imports in these categories weakens any conclusion that the evolution in the US and the EC was due to the more discriminatory nature of the MFA, because similar patterns emerge for Australia and New Zealand, both of which had systems that ostensibly were nondiscriminatory.

The second production inefficiency identified in section II arose from the reallocation of production from constrained to unconstrained suppliers. Here, we provide some illustrative evidence about such shifts using the example of Italy. Italy has, within the OECD countries, a comparative advantage in the production of T&C and therefore will be most likely to benefit from a discriminatory trade policy which restricts only imports coming from developing countries. Within the EC, Italy can be thought of as a representative domestic producer. With respect to the US, Italy can be thought of as a representative unconstrained exporter. The predictions of reallocations of production from constrained suppliers toward domestic suppliers and unconstrained exporters are largely borne out by existing evidence. Data on trade flows show that Italy's share in T&C imports of OECD countries suffered a steady erosion during the sixties. In the EC, for instance, Italy's export share fell from

21.3 percent in 1963 to 17.2 percent in 1973 for clothing and from 11.1 percent of 10.1 percent for textiles. Similarly, in the US, Italian exporters of textiles lost some ground with their market share falling by almost one percentage point over the period. The decline was halted and even reversed after 1973 when MFA I was put in place. The figures are revealing. From 1973 to 1986 textile exports from Italy increased from 6.3 percent of total US imports of textiles to 8.6 percent. For the EC, over the same period, the Italian share of textile imports increased from 10.1 percent to 13.3 percent. For clothing, Italian exports gained almost 2 percentage points of the EC import markets and reached 18.8 percent in 1986. The trend continued well into the 1980s. Despite shifting comparative advantage, Italian exporters held their position in G-7 total imports of T&C (see table 1).

Admittedly, these figures are only suggestive and do not allow us to conclude that the strong performance of Italian exports can be predicated on continuing protection in OECD countries against LDCs imports. They suggest however that this hypothesis cannot be lightly dismissed. In particular, the fact that the recovery of Italian T&C exports virtually coincided with the implementation of the MFA restrictions is quite striking. Further evidence on the distortionary effects of MFA protection comes from an analysis of investment flows. For Italy, the T&C share of gross fixed investment which was equal to 9 percent in 1967 fell to 5.3 percent in 1971. It then steadily recovered to reach almost 8 percent in 1976 and stayed unchanged until the end of the decade. On the contrary, in most other European countries, the investment trend was unambiguously negative. This evolution of investment in T&C suggests that the MFA attracted a significant amount of resources into the Italian T&C sector and, together with the trends in market shares in G-7, suggests that the MFA caused a reallocation of production from constrained to unconstrained suppliers.

IV. Evidence on Inefficiencies from the MFA in the EC[9]

We now turn to the question of inefficient allocation among consumers. To do so we focus on possible inefficiencies from quota allocations among EC countries. The system of restrictions applied by EC countries under the umbrella of the MFA provides one of the most revealing examples of the potential inefficiencies associated with trade protection against T&C imports. The EC commission negotiates the MFA restrictions with exporting countries, and sets separate quotas for each EC importing country. To prevent transhipments of restricted items across European markets, EC countries can appeal to article 115 of the Rome Treaty. This intricate array of restrictions is designed to segment the import markets for imported T&C across Europe.

To examine the evidence on inefficient allocation of imported textile and apparel products within the EC we use a data set developed from EC MFA quota levels published in the Official Journal of the EC and trade data from the EC Bureau of Statistics. The data includes shipments, unit values, and bilateral quota utilization rates for 10 EC countries, 27 exporting countries and 92 product categories.[10] For the purposes of this paper, we concentrate, however, on the eleven most important MFA product categories (in terms of shipments) and, unless otherwise indicated, on the three most important exporters of each product.

We start with an examination of the distribution of import quotas across EC countries for 1987. (The distribution shows very little variation from year-to-year). As with the other data on utilization rates and unit values to be discussed later on, the quota distributions in table 2 show great variation across importing countries. For example, France gets 20 percent of the T-shirt quota allocation, but only 7 percent of the M&B shirt allocation. Also, even if one leaves aside the newcomers (Greece, Portugal and Spain) which have relatively small allocations, there is much variation in the average allocation across countries. Taking each country's share in EC GNP as a proxy for a "normal" quota

allocation, one sees that Germany has an allocation that is 12.4 percentage points above its GNP share, while France and Italy have allocation shares below their GNP shares (by 9.4 and 6.5 percentage points respectively). The shares in table 2 have a larger standard deviation for clothing than for textiles (yarn and fabrics), reflecting perhaps greater differences in demand conditions across countries for clothing. Unfortunately, from these data one cannot infer to what extent these allocations represent the demands for protection on the part of domestic import-competing producers. However, the relatively large variation in quota distributions across products within a country, and across countries, suggest that this may well be the case.

Consider next in table 3 the average unit values and utilization rates for these eleven products over the period 1985-89. At first glance, these unweighted average figures suggest relatively high utilization rates since only two product categories have average utilization rates below 70 percent across exporters. For most products there is a relatively close correlation between average utilization rates among exporters and importers.[11] The data also suggest that overshipment is greatest for the most important (in the sense of value shares in total shipments) product categories. Also the percentage of quotas with utilization rates above 80 percent -- a rough cut-off for full quota utilization -- rose from 42 percent in 1985 to 54 percent by 1987 and then stabilized at 48 percent in 1988 and 1989.[12] Prima facie, the data would suggest that EC quotas were "quite" binding and that the sources of inefficiency identified in section 2 could be important.

The "bindingness" of the quotas in particular product categories also appears to be relatively stable over time. Figure 8 plots for each year the percent of all "fully utilized" quotas (greater than 80% utilization) attributable to each one of the 11 product categories. If the "bindingness" of quotas were evenly distributed across products, each product should account for approximately 9% of all of the binding quotas. Figure 8 reveals differences across products in the frequency with which quotas are fully utilized. Jerseys (category 5) and men and boys shirts (category 8) account for the most

fully utilized quotas, while women dresses (category 26) accounts for the smallest proportion of fully utilized quotas. The plot shows a great stability over time. Products which account for a large proportion of the binding quotas in a particular year also make up a large proportion of the binding quotas in successive years.

Figure 9 presents evidence on the utilization of quota across exporters. To see whether the binding quotas occur disproportionately among larger and more established exporters, or among new emerging suppliers, we split the group of 27 exporters into two categories. In one category, Brazil, China, Hong Kong, India, Korea, Malaysia, Taiwan, Thailand and Yugoslavia are treated individually. All 18 remaining countries are lumped together in an "other" category. Under this breakdown, an even distribution of binding quotas across exporters would imply that the countries identified individually should each account for 3.7 percent of the occurrences of "binding" quotas, while those in the "other" category should globally account for 66.6 percent of the occurrences. Figure 9 shows that Korea, China, Taiwan, Hong Kong and Thailand account for disproportionately large shares of the binding quotas. The pattern of the distribution of the fully utilized quotas is also stable over time.

Figure 10 shows that high quota utilization rates are also consistently concentrated in the same group of importing countries within the EC: Benelux, Germany and the United Kingdom. Portugal, Greece and Spain, who recently joined the EC, only account for between 2 and 4 percent of the quotas that are fully utilized.

The analysis in section II indicated that inefficiencies due to misallocation of products among consumers arise from price divergences in the separate import markets due to the separate quota restrictions on each market. There is little agreement, however, in the empirical literature as to the extent of market segmentation and the significance of price differentials in textiles and apparel across EC importing countries. The importance of this issue lies in the fact that the completion of the

internal market means that national markets will no longer will be segmented, and underutilized quota for importing jerseys from Hong Kong in one EC member country could be used to import more into another member country where the Hong Kong jersey quota had been binding.

The Cecchini report (1988) argues that there is no evidence of substantial barriers in T&C trade among EC countries. This leads the authors of the report to predict that the completion of the unified market will not have much of an impact in terms of trade creation for this sector. Further evidence (and a theoretical rationale) in support of this conclusion, comes from Hamilton (1991). He argues that because the EC countries produce domestically very close substitutes for the restricted imports, and trade in domestically produced products is not restricted, effective market segmentation, and therefore price differentials across countries, will not occur. Indeed, free trade in EC- produced commodities will harmonize prices across EC markets. As supporting evidence, Hamilton shows that over the period 1982-89, estimated import-tariff equivalents to Hongkong T&C quotas did not differ significantly across the main EC markets, suggesting that, in the absence of intra-EC barriers, import prices within the EC were already largely equalized. Under these conditions, then, the costs of the MFA would only depend on the aggregate (EC) level of the quota and not on its distribution among the different domestic markets.

There are several reasons, however, to treat these previous conclusions with some caution. First, while Hamilton's (1991) data show that the average over the period 1980-89 of import-tariff-equivalents of Hong Kong VERs were not substantially different across EC markets, the data show greater variation within individual years.[13] Second, the importing country markets examined by Hamilton included West Germany, France, the UK, Denmark, and Italy. A glance at Figure 10 reveals that these are 4 of the 5 import markets with the greatest percentage of fully utilized quotas. Including the countries with lower quota utilization rates may increase the dispersion of tariff equivalents. Third, the existence of EC substitutes may not be sufficient to equalize prices across EC

markets provided that there are still substantial intra-EC barriers to trade. While the effects of these barriers are distinct from the ones of article 115, it could nonetheless be argued that they would be much harder to enforce if, in the absence of article 115, developing countries T&C imports were free to circulate within the EC. And fourth, the conclusion that article 115 is not an effective tool to segment the European market of T&C seems inconsistent with the fact that article-115-based requests to prevent free circulation of goods within the EC are made mostly in connection with trade in T&C (Sapir, 1990).

It is possible to bring more direct evidence to bear on this issue. One interesting piece of evidence comes from an analysis of trade prices from both developed and developing countries exports to the main EC markets. Faini and Heimler (1990) show that, even after controlling for compositional differences,[14] significant price disparities across importing markets can be observed. More crucially, for clothing exports, the variability of prices is much larger for developing than for developed countries exports (Table 4). This would appear to suggest that national MFA restraints are effective in segmenting the different EC markets. Either because of product differentiation or because of intra-EC barriers to trade in close import substitutes, intra-EC trade is not sufficient to equalize the price of foreign imports, accounting therefore for the wide recourse to article 115. This conjecture is further supported by the fact that utilization rates of MFA quotas show a wide dispersion across EC import markets, suggesting a potential for reallocation from unconstrained toward constrained markets [Faini, de Melo and Takacs (1992)]. Some further evidence in this respect comes from an analysis of the quota utilization rates for Korea, China and Hongkong (Table 5). Again, the table indicates that existing quotas are apparently binding in some markets and significantly underutilized in others. What is perhaps more interesting is the fact that the coefficients of variation for prices and utilization rates are significantly and positively correlated. The regression coefficient is equal to .51 for clothing and to .26 for textiles and in both cases is highly significant (with t-statistics of 13.3 and 3.9

respectively). This result seems to indicate that differences in prices are related to the degree of "bindingness" of trade restraints, where the latter is measured by the utilization rate. Notice that, if we control for (exporting) country factors through a fixed effect specification, we still find a significant correlation between the variability of prices and of utilization rates for clothing (with a coefficient of .46 and a t-statistic of 5.4), but the relationship ceases to be significant for textiles. This finding seems to uphold the view that trade restrictions are much less binding for textiles than for clothing, a conjecture which finds further support in the much lower dispersion of textile prices across EC markets (Table 4).

It would be also interesting to know whether the level, rather than the variability, of prices and utilization rates are significantly correlated. We could then infer for instance whether prices will be higher in relatively more controlled markets. Short of a fully-specified model of trade flows and restrictions, we look at the simple correlation between these two variables for exports from China, Hongkong and Korea to the main EC markets (Germany, Italy, France and the U.K.). Again, prices are measured by quality corrected unit value indices. Graphical examination suggests, and statistical analysis confirms, the existence of a non-linear relationship (Table 6). For low values of the utilization rate, prices and utilization rates are negatively correlated, suggesting perhaps that we are moving along the demand curve. The turning point occurs at a utilization rate slightly above 100 percent. This can be taken as an indication that, above this critical level, the quotas become binding and a tightening of the quota itself will be associated with a higher import price. Once again, it seems clear that import prices within the EC depend on the trade policy stance with equalizing tendencies, at best, quite weak.

V. Conclusions

This paper has attempted to identify the various distortions, sources of inefficiency, and transfers among groups that are created by the bilateral export quotas negotiated under the framework of the MFA. The MFA causes inefficient allocation of production activities between exporters in restrained countries and producers in the protected import markets, between various constrained exporters, and between constrained and unconstrained exporters. The restraints also cause inefficient allocation of the constrained product between consumers in different protected importing country markets, and between consumers in constrained and unconstrained importing countries. In addition to these inefficiencies, potentially large transfers occur from importing countries to exporting countries, and from constrained to unconstrained importing countries, and toward unconstrained exporters.

Evidence from data on market shares of developing and developed country exporters of fibers, textiles and apparel, indicate that the MFA succeeded in arresting the growth in the LDC share of textile and apparel imports into the EC and the US. Evidence on Italian market shares in the EC and US textile and clothing import markets indicates that there was also the expected shift from constrained exporters to domestic producers and from constrained exporters to unconstrained exporters.

Investigation of quota utilization rates, and unit values across product categories and countries for the EC MFA restrictions indicates that there appears to be market segmentation within Europe in textile and clothing products. EC quotas tend to be binding and the "bindingness" of the quotas appears to be relatively stable over time across products, importing countries, and exporting countries. Significant price disparities across importing markets can be observed. Coefficients of variation for prices and utilization rates are significantly and positively correlated, indicating that differences in prices are related to the "bindingness" of trade restraints. These findings point to the

existence of market segmentation and price differentials, which imply inefficiencies in allocation across consumers.

ENDNOTES

1. In deriving C_A note that inefficient allocation occurs when country 3 supplies beyond g which is the marginal cost of the last unit supplied by 2 under the constraint.

2. Suppose, for example, that importing is conducted by a large number of competitive importers and quota control is exercised in exporting countries by distributing licenses to exporters. In that case the market between exporters and importers will clear at P^Q and for each unit exported rents equal to the difference between the price at which exporters would be willing to supply the product and P^Q would accrue to the exporters. Total rents to exporters in 2 would be area abfe and in 3, abdc. In an empirical study of the distribution of MFA quota rents between Hong Kong exporters and U. S. importers, Erzan, Krishna, and Tan (1991) find rents to be divided approximately equally, which indicates that importers in the US probably exert some monopsony power.

3. This is one of the sources of the nonequivalence of export restraints and import quotas. See Takacs (1978).

4. Hong Kong allocates export licenses on the basis of past performance, but allows a market for transfer among exporters (Hamilton, 1986b). The main criterion used by Korea is a firm's export volume in the previous year, but some quota is allocated on the basis of the previous year's average export price and/or volume of exports to unrestricted countries (Bark and de Melo, 1988). In the ASEAN countries (Indonesia, Malaysia, the Philippines, Singapore, Thailand) free trading of export licenses is not allowed. In these countries also the allocations are based primarily on past export performance. Firms that do not fill at least a stated percentage of the quota received will face reduced quota allocations in future periods (Hamilton, 1986a).

5. The abolishment of article 112 under the Treaty of Rome which is to take place January 1, 1993 will eliminate this kind of market segmentation within the EC. See Faini, de Melo and Takacs (1992).

6. This spillover effect is a major reason for what Hamilton (1989) calls the "domino" effect which has been observed under bilaterally negotiated trade restraints.

7. It is interesting that VERs in textiles have a long history: as early as 1936 Japan agreed to restrain its exports of textiles to the United States.

8. Australia initially participated in the MFA, but switched to global tariff-quotas in 1975.

9. The evidence in this section draws on data assembled in previous work in Faini and Heimler (1990) and Faini, de Melo and Takacs (1992).

10. The data set which was constructed from data on EC MFA quota levels published in the official Journal of the EC and trade data from the EC Bureau of Statistics is further presented in Faini, de Melo and Takacs (1992).

11. The only two exceptions are woven coats and women dresses. Utilization rates are twice as high

for exporters than for importers. (The average utilization rates can differ between importers and exporters because the calculations on the export side are based only on the three largest exporters).

12. Except for 1985, there is also a negative (but statistically insignificant) negative correlation between the quota share attributed to an importer and its quota utilization rate.

13. The tariff equivalents across major EC import markets within a given year differed by from 2 to 13 percentage points. The percentage difference (highest-lowest)/highest ranged from 13 to 66 percent.

14. In the empirical trade literature, studies of price differentials typically rely on unit value indices and suffer therefore from the severe problems of comparability that beset, at an aggregate level, such measures.

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Table 1

Italy's market share in G-7 imports of T&C

Year	Textiles	Clothing
1982	12.0	12.2
1983	12.5	11.8
1984	12.1	11.0
1985	12.1	11.4
1986	12.2	12.3
1987	11.7	11.4
1988	12.0	10.3
1989	12.0	9.5
1990	12.5	10.3

Source: Instituto per il Commercio Estero, 1991.

Table 2: Quota Distributions Across EC Importing Countries (1987)
(share of total EC quota)

Category	BNL	D	DK	E	F	GR	I	IRL	P	UK	St. deviation
1. Cotton yarn	13.8	31.5	2.2	2.2	10.1	1.1	26.7	3.2	5.9	3.3	10.87
2. Woven cotton fabrics	9.7	20.7	4.1	0.8	11.9	1.1	15.2	2.0	0.1	34.4	11.06
3. Woven synthetic fabric	14.2	24.8	3.9	0.7	11.3	1.3	20.6	1.2	0.1	21.9	9.83
4. T-shirts	10.4	32.0	3.1	0.5	20.2	0.1	8.0	0.4	0.0	25.3	11.80
5. Jerseys	14.8	34.6	2.5	0.3	9.8	0.1	6.2	0.5	0.2	31.0	13.00
6. M&B trousers	11.5	43.2	3.5	0.7	9.4	0.3	6.8	0.3	0.1	24.2	13.88
7. Women blouses	11.3	43.4	2.5	0.5	10.4	0.2	5.4	0.3	0.1	25.9	14.28
8. M&B shirts	12.6	45.2	3.2	0.6	7.3	0.1	7.4	0.4	0.1	23.1	14.36
15. W&G woven coats	9.8	53.6	2.9	0.9	8.9	0.0	5.8	0.4	0.0	17.7	17.52
21. Parkas, anoraks	10.2	44.6	3.8	1.5	10.4	0.3	6.9	0.3	0.1	21.9	13.92
26. Women dresses	11.4	41.3	2.8	1.3	13.1	0.2	7.9	0.3	0.1	21.6	13.11
Average allocation (Standard deviation)	11.8 (1.80)	37.7 (9.82)	3.1 (0.63)	0.9 (0.57)	11.2 (3.37)	0.4 (0.47)	10.6 (7.07)	0.9 (0.94)	0.6 (1.85)	22.8 (7.92)	
Share of EC GNP	8.4	25.3	2.2	6.7	20.6	1.2	17.1	0.6	0.8	17.2	

Table 3: MFA Shipments and Utilization Rates in the EC: 1985-89[a]

Categories	Average utilization rate among exporters (1)	Average utilization rate among importers (2)	Share of value of shipments in total[b] (3)	Average unit value (4)
1. Cotton yarn	70.33	101.56	3.38	3.24
2. Woven cotton fabrics	75.64	88.35	10.91	3.95
3. Woven synthetic fabrics	64.49	96.15	4.22	4.67
4. T-shirts	82.04	89.68	8.51	14.21
5. Jerseys	119.66	113.13	15.48	19.78
6. M&B Trousers	109.02	66.75	15.44	14.32
7. Women Blouses	84.50	79.82	8.79	26.69
8. M&B Shirts	108.40	89.88	13.31	18.74
15. Women woven coats	49.23	19.95	4.10	27.65
21. Parkas, Anoraks	169.24	135.13	13.23	20.29
26. Women dresses	87.25	45.85	2.62	23.93

a. Unweighted averages over time.
b. Percentage share.

Table 4

Average coefficient of variation for import prices on the major EC markets: 1982-87

Exporting country	Textiles	Clothing
France	26.7	13.0
Germany	25.1	20.1
United Kingdom	24.1	12.7
China	16.6	82.0
Korea	7.7	43.8
Hongkong	10.8	67.7
EFTA	18.3	13.3
USA, Canada	25.2	21.8
Japan	35.9	21.2
Yugoslavia, Turkey	33.2	45.6
Latin America	29.0	25.2
Southeast Asia	13.9	24.9
Middle East	27.1	35.5
South Asia	34.1	25.1

Table 5

Quota utilization rates for major T&C exporters

a) Clothing

	China		Hongkong		Korea	
	1985	1989	1985	1989	1985	1989
Germany	89.9	116.8	72.8	92.14	108.3	61.35
France	79.0	67.66	66.61	87.37	99.29	72.72
Italy	66.81	38.93	38.12	46.28	49.22	31.13
United Kingdom	84.15	105.6	80.62	117.7	84.19	81.02

b) Textiles

	China		Hongkong		Korea	
	1985	1989	1985	1989	1985	1989
Germany	91.36	60.75	15.98	18.25	85.10	70.96
France	88.94	71.40	7.82	26.65	99.68	77.74
Italy	92.03	67.48	33.88	25.41	91.54	73.86
United Kingdom	144.3	75.35	70.77	70.56	91.16	76.17

Table 6

The relationship between unit values and utilization rates
(fixed effects model)

		UR	$(UR)^b$
a)	**textiles**		
	China	-.058 (1.89)	.0002 (1.65)
	Hongkong	-.029 (2.66)	.001 (1.50)
	Korea	.02 (.09)	-.001 (.07)
b)	**clothing**		
	China	-.005 (2.14)	.0002 (1.60)
	Hongkong	-.016 (2.98)	.0001 (1.82)
	Korea	-.02 (2.50)	.0001 (2.12)

Legend:

UV: (quality corrected) unit values
UR: quota utilization rate

t-statistics in parentheses.

Appendix 1

Ten Most Important MFA Categories-EC

1	Cotton yarn
2	Woven fabrics of cotton
3	Woven fabrics of synthetic fibers
4	Shirts, t-shirts, lightweight, knitted or crocheted
5	Jerseys, pullovers, slip-overs, waistcoats, cardigans, knitted or crocheted
6	M&B woven breeches, W&G woven trousers, of W/C/MMF
7	W&G blouses, shirts, and shirt-blouses, of W/C/MMF
8	M&B shirts, other than knitted or crocheted, of W/C/MMF
15	W&G woven overcoats, raincoats and other coats of C/MMF
21	Parkas, anoraks
26	W&G dresses, of W/C/MMF

FIGURE 1

INEFFICIENCIES FROM REALLOCATIONS FROM CONSTRAINED EXPORTING COUNTRIES TO DOMESTIC SUPPLIERS AND FROM REALLOCATIONS AMONG CONSTRAINED EXPORTING COUNTRIES

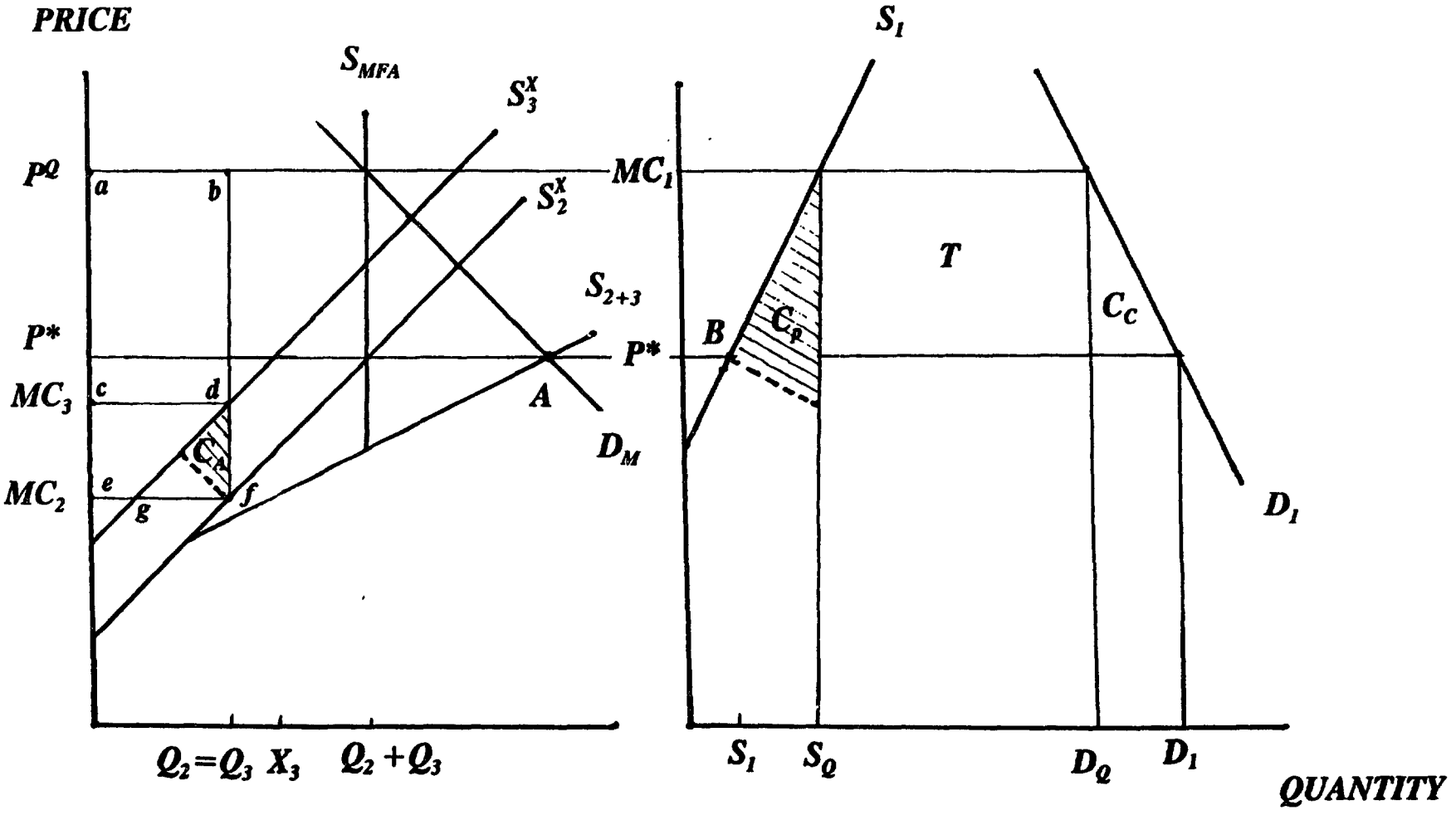


FIGURE 2

INEFFICIENCIES FROM REALLOCATIONS FROM CONSTRAINED EXPORTING COUNTRIES TO UNCONSTRAINED

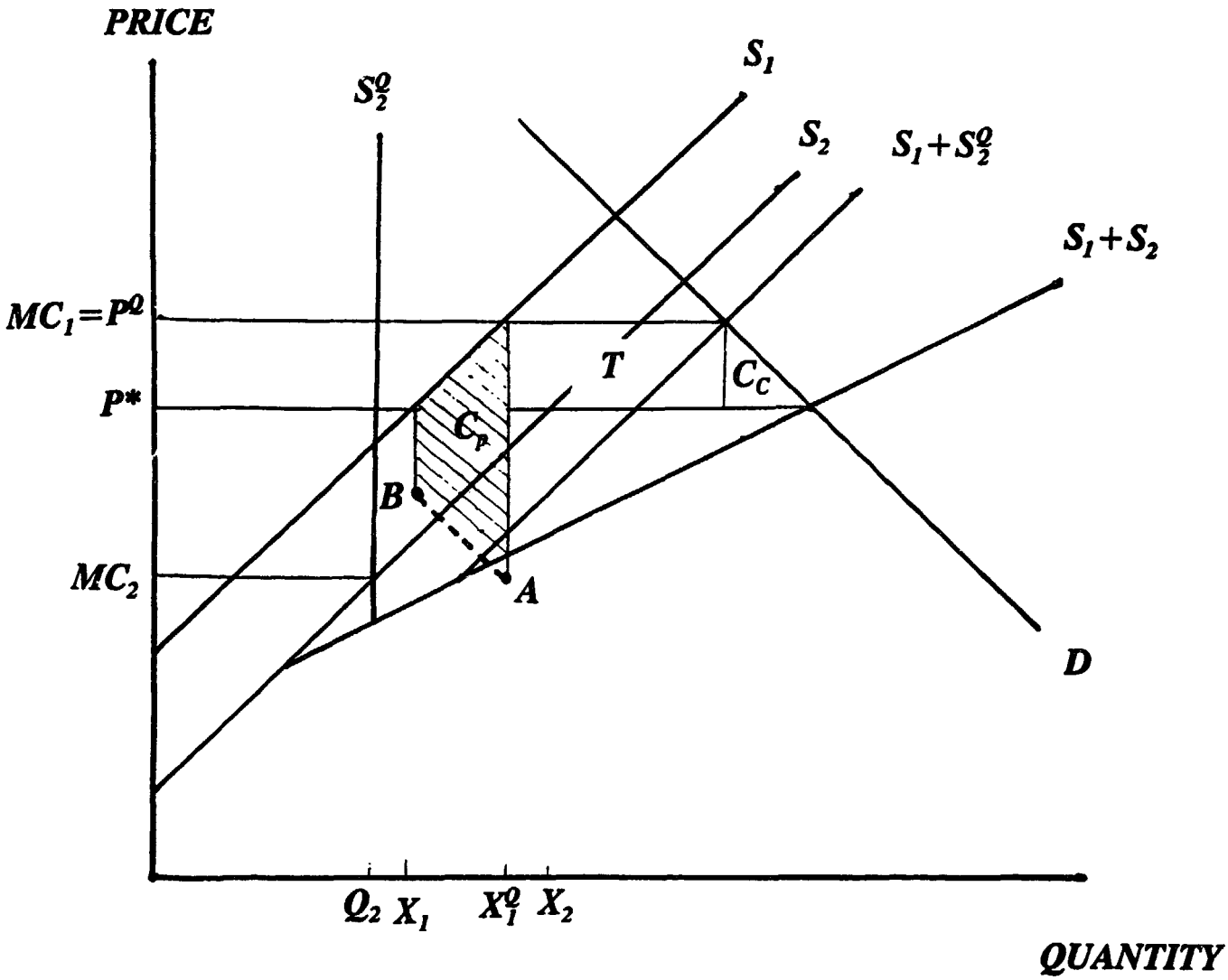


FIGURE 3

INEFFICIENT ALLOCATION AMONG FIRMS IN CONSTRAINED EXPORTING COUNTRIES

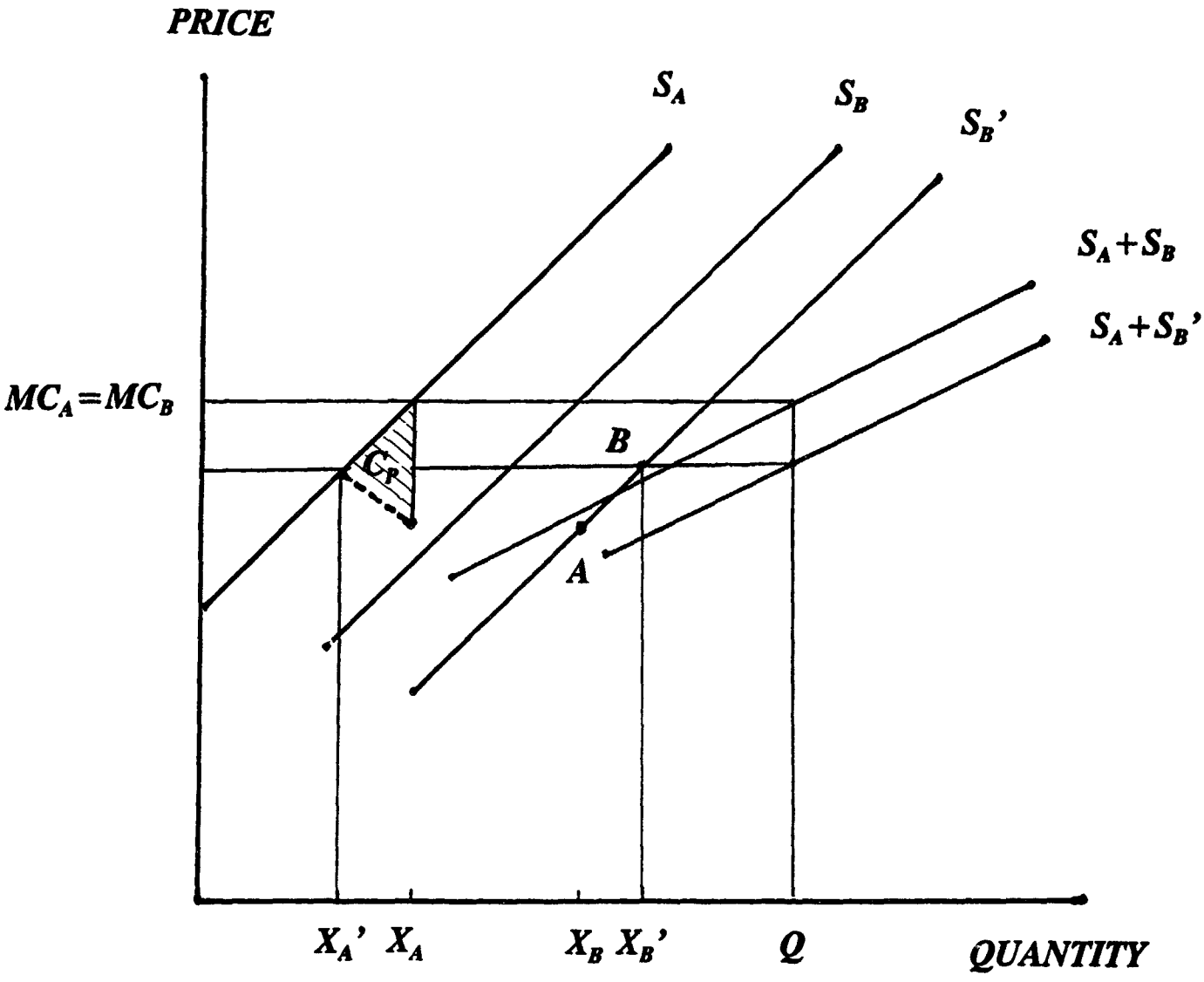


FIGURE 4

INEFFICIENCES FROM REALLOCATIONS AMONG IMPORTING COUNTRIES

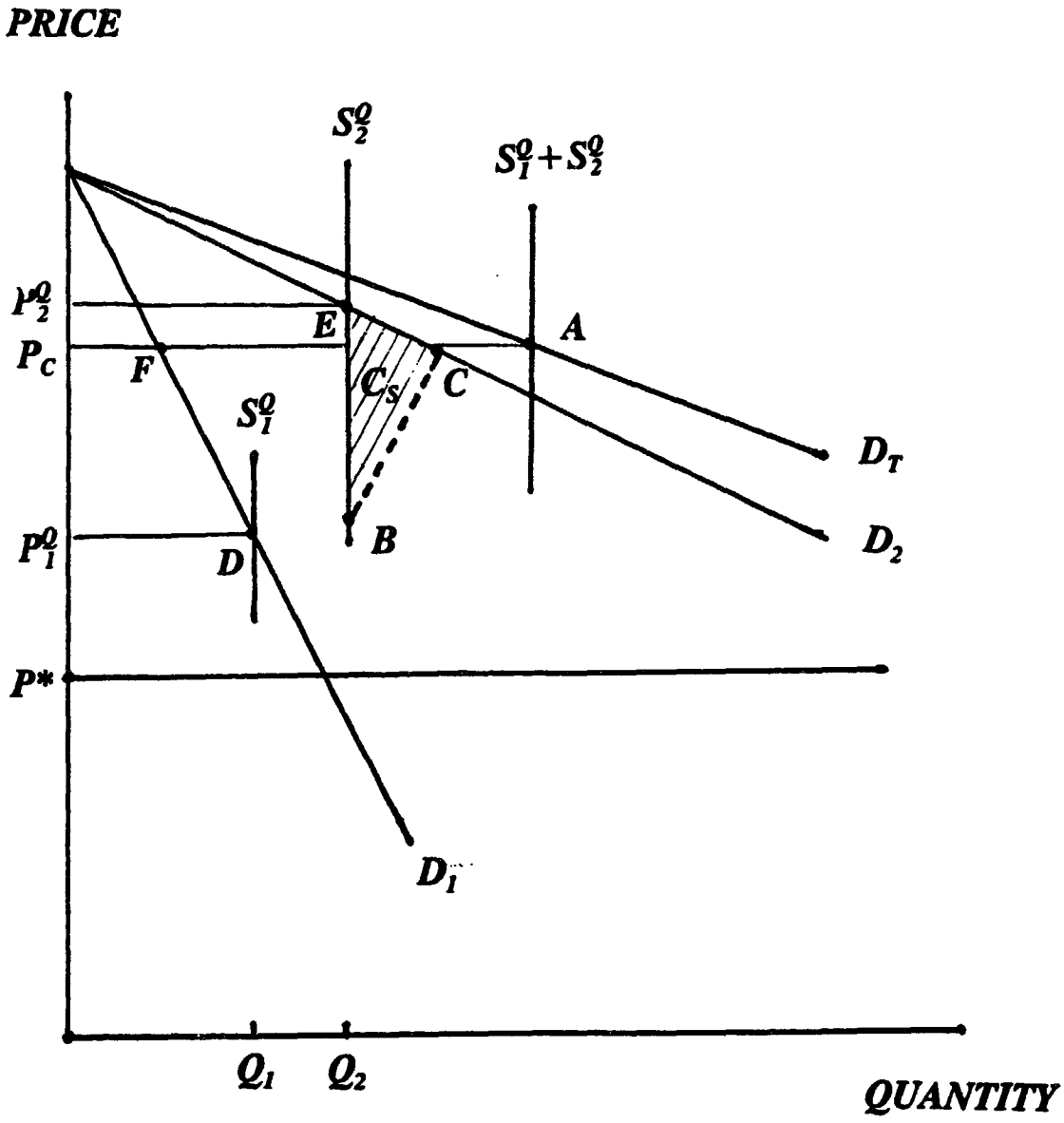


FIGURE 5

INEFFICIENT ALLOCATION AMONG CONSUMERS IN CONSTRAINED AND UNCONSTRAINED IMPORTING COUNTRIES

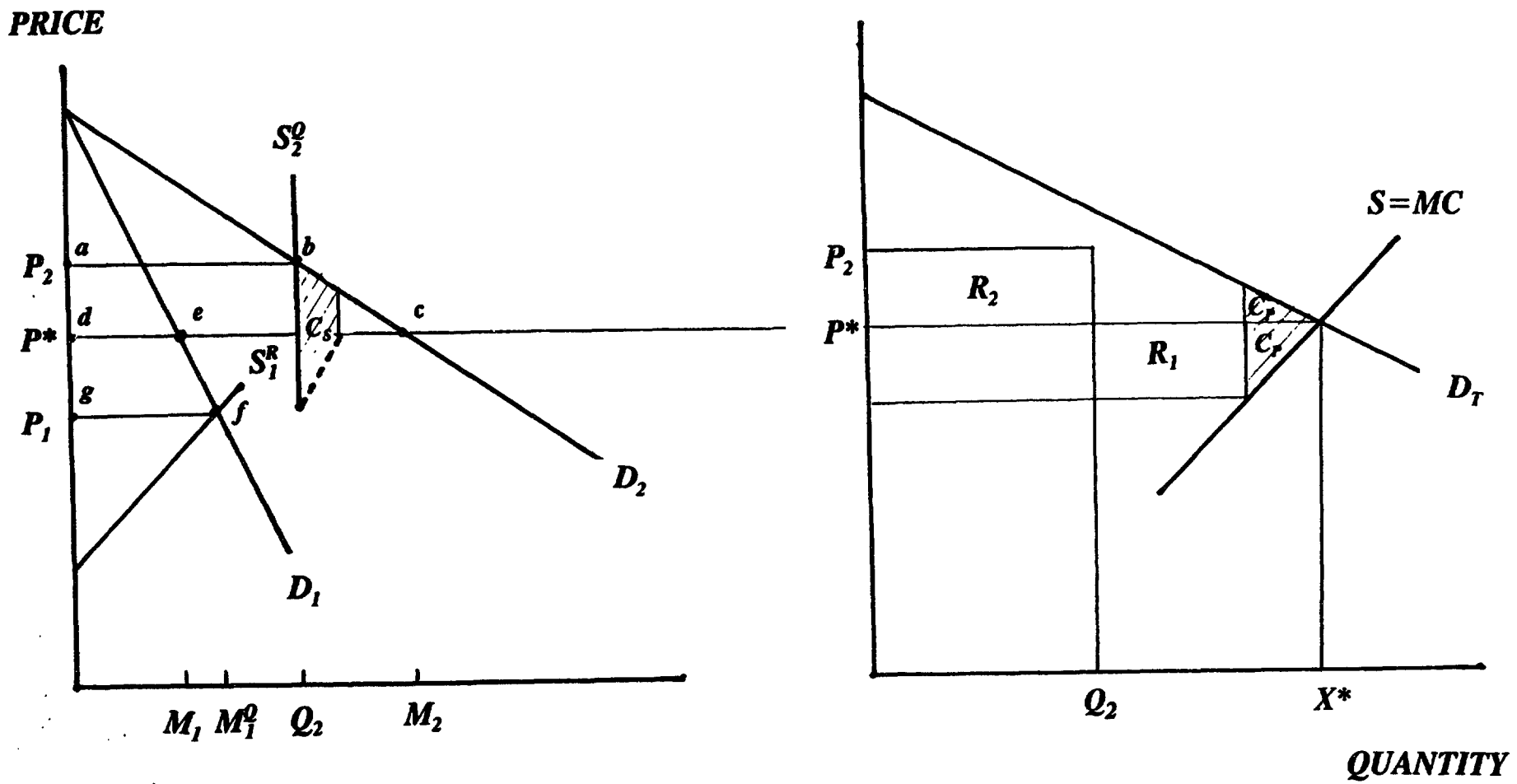
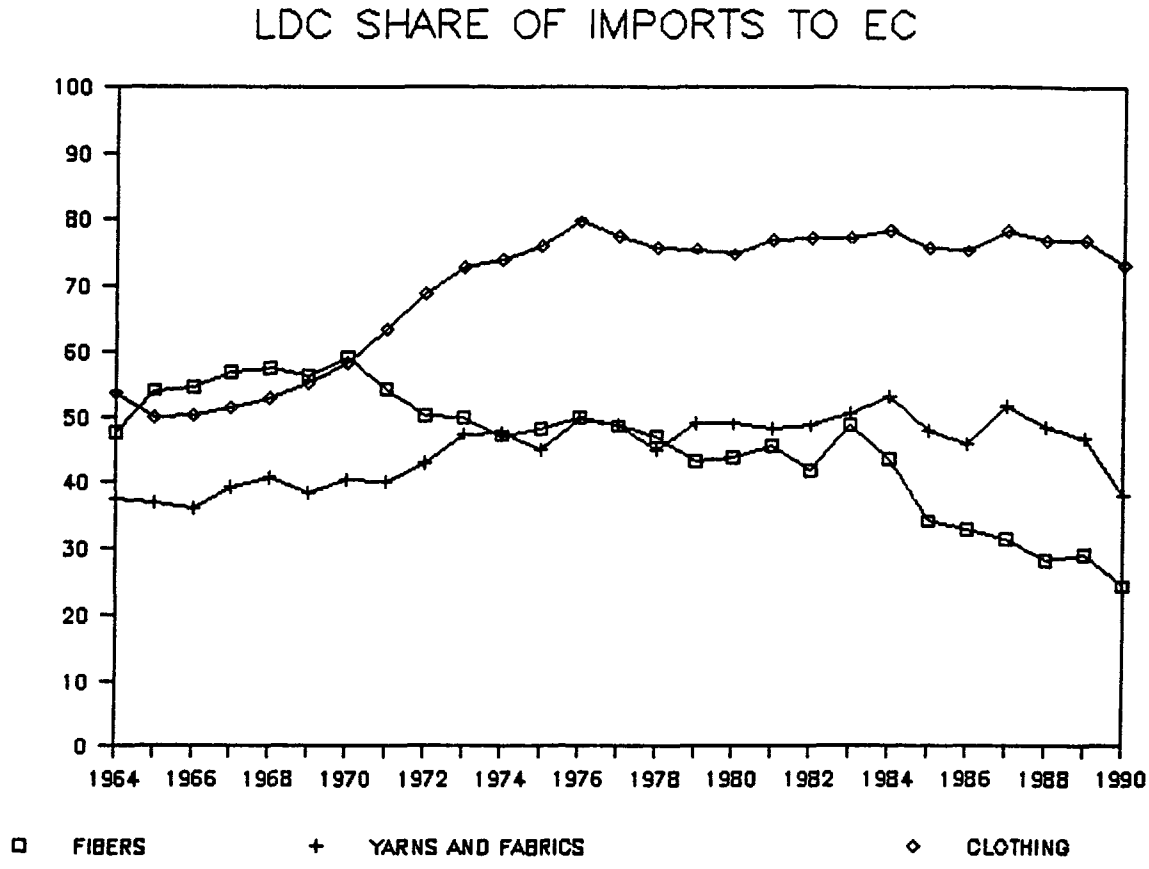


FIGURE 6


LDC SHARE OF IMPORTS TO EC
100
90
80
70
60
50
40
30
20
10
0
1964 1966 1968 1970 1972 1974 1976 1978 1980 1982 1984 1986 1988 1990
FIBERS
YARNS AND FABRICS
CLOTHING

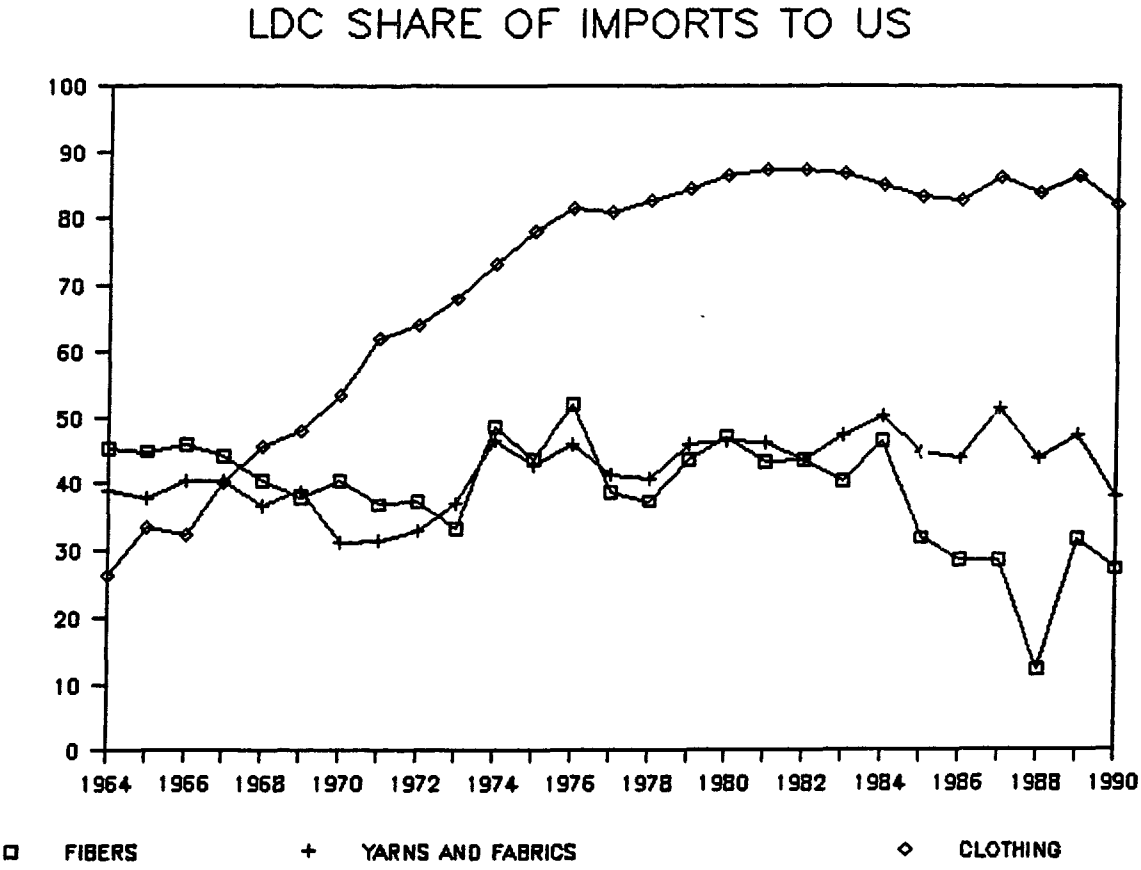
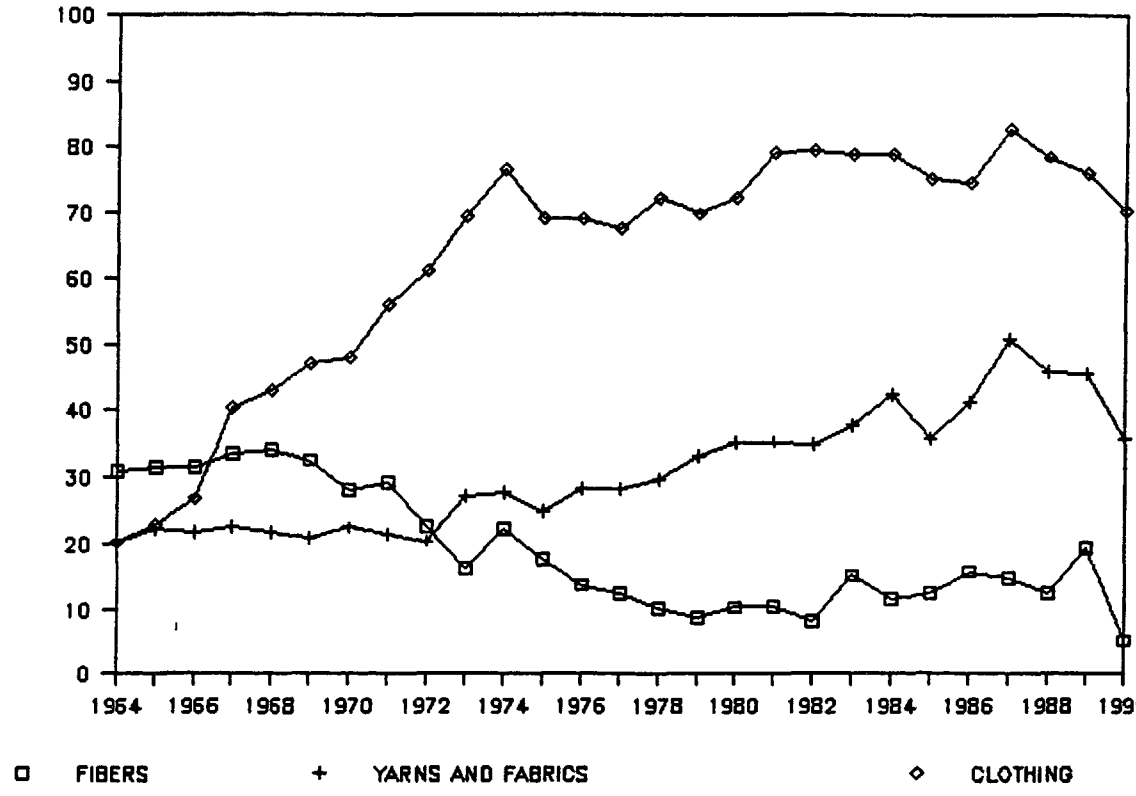
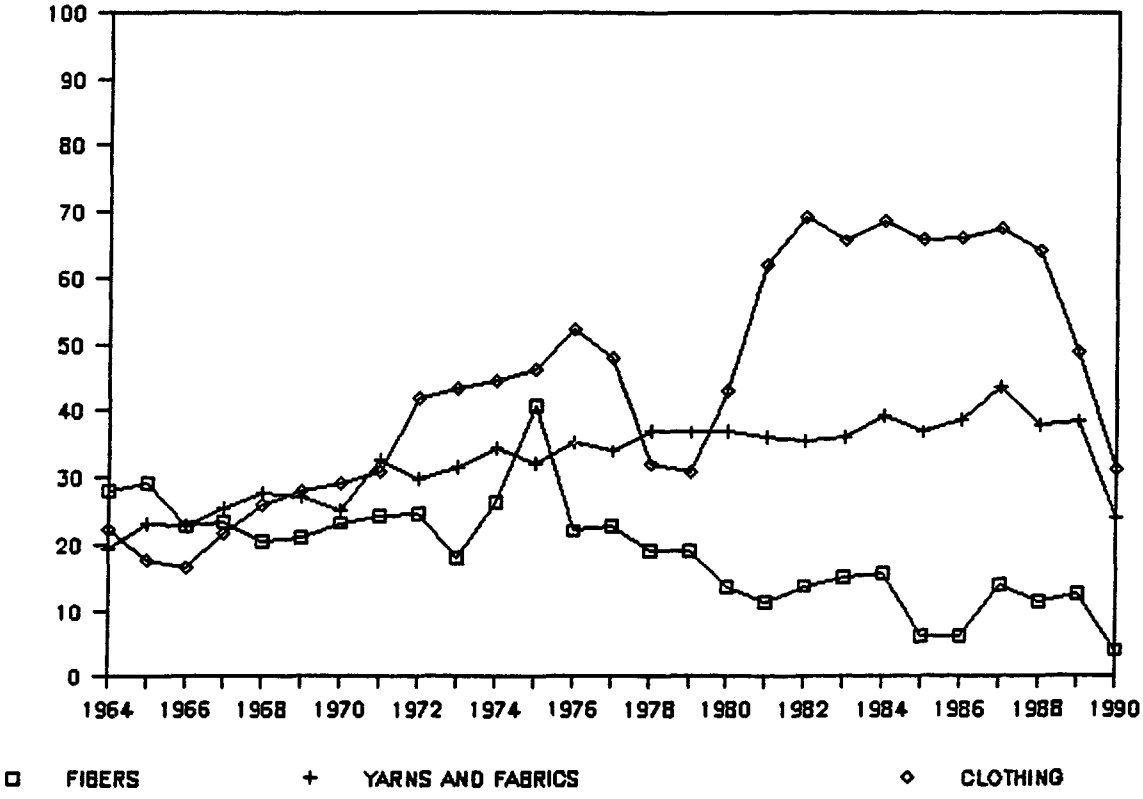

LDC SHARE OF IMPORTS TO US
100
90
80
70
60
50
40
30
20
10
0
1964 1966 1968 1970 1972 1974 1976 1978 1980 1982 1984 1986 1988 1990
FIBERS
YARNS AND FABRICS
CLOTHING

FIGURE 7

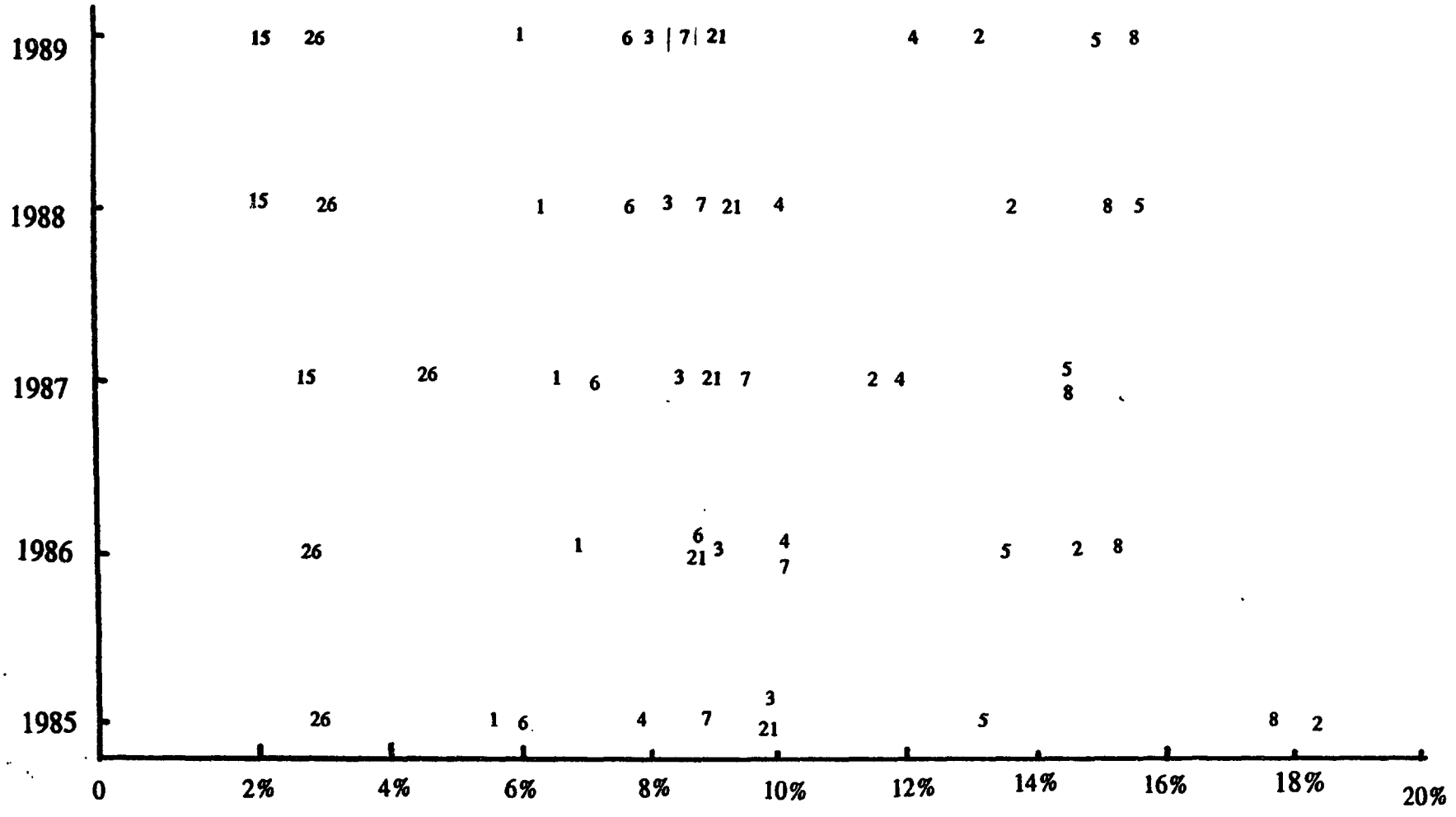
LDC SHARE OF IMPORTS TO AUSTRALIA



LDC SHARE OF IMPORTS TO NEW ZEALAND



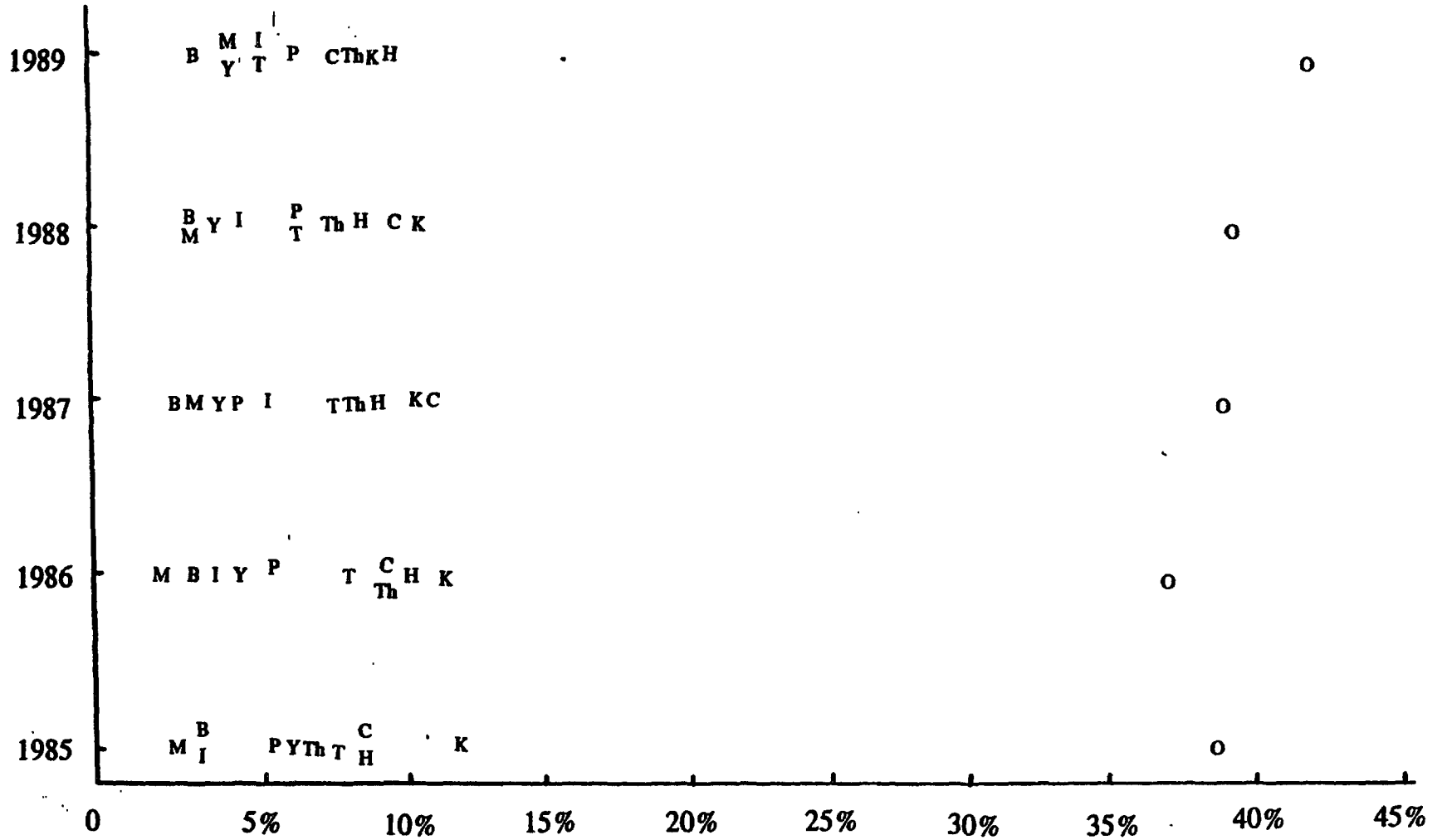
DISTRIBUTION OF FULLY UTILIZED QUOTAS (>80%) BY PRODUCT CATEGORIES



Percentage of total fully-utilized quotas

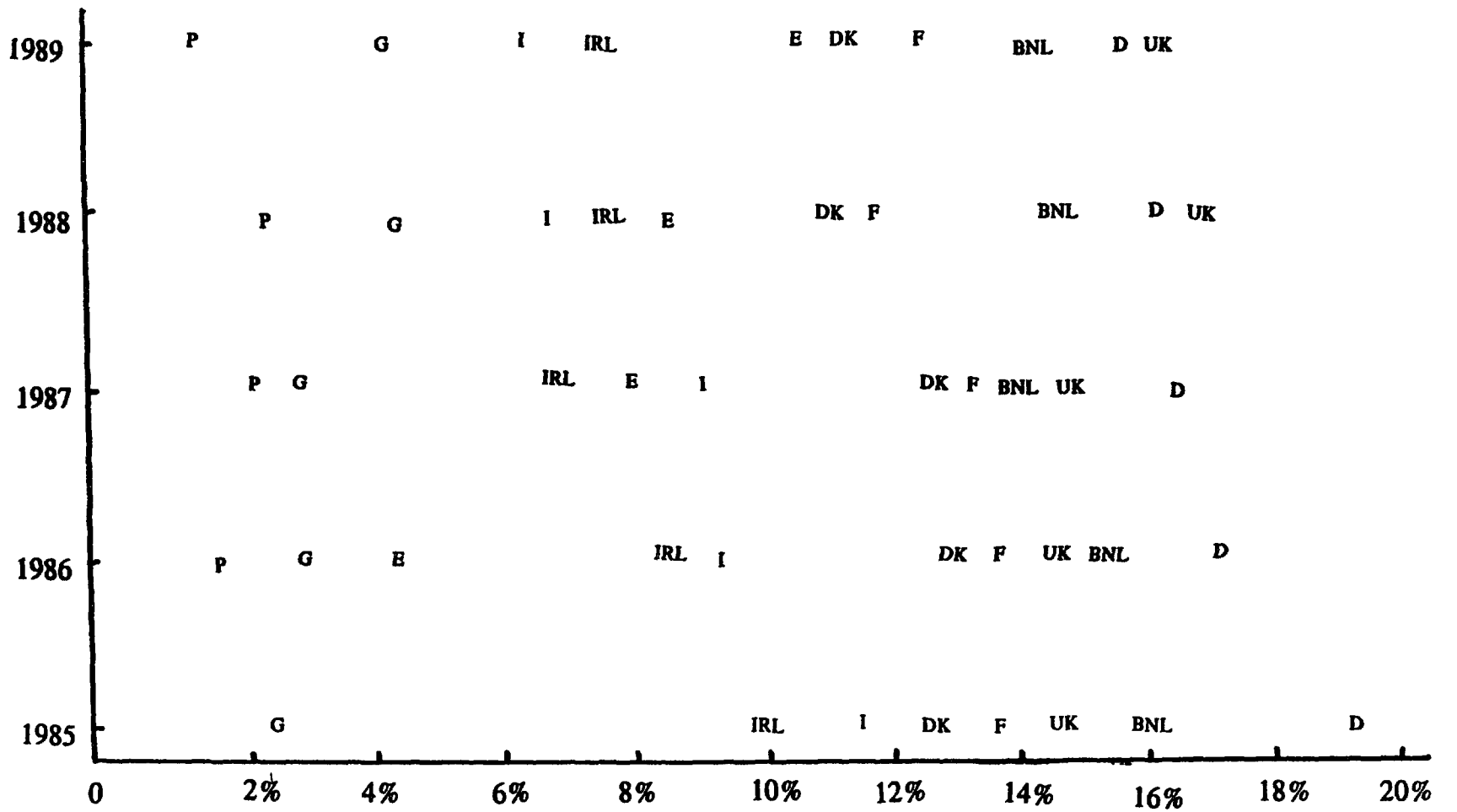
Legend: Numbers refer to product categories listed in Appendix 1

FIGURE 9
DISTRIBUTION OF FULLY UTILIZED QUOTAS (>80%)
BY EXPORTING COUNTRIES



Legend: B=Brazil C=China I=India H=Hong Kong K=Korea
M=Malaysia O=Other P=Pakistan T=Taiwan Th=Thailand
Y=Yugoslavia

FIGURE 10
DISTRIBUTION OF FULLY UTILIZED QUOTAS (>80%)
BY IMPORTING COUNTRIES



LEGEND: BNL=Benelux D=Germany DK=Denmark E=Spain F=France
G=Greece I=Italy IRL=Ireland P=Portugal

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