

THE ALLOCATION OF TEXTILE AND APPAREL EXPORT QUOTAS
AMONG COMPANIES

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Among Companies

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Under the Multifiber Arrangements, importing countries consult with exporting countries on the terms of export restraint arrangements and, if agreement is not reached on those terms, the importing country may impose quantitative restraints unilaterally, under GATT rules. Those consultations usually yield bilateral agreements which specify a quota limit on the quantities of commodity categories that each country might export to a relevant importing country in each time period.

Once a country's export quota is fixed, quotas must be distributed either to exporting companies or to importing companies, depending on the form of administration of the restraint system. If a country is limited in the quantities of textiles and apparel that it may export to the major consuming countries, it must, either explicitly or implicitly, design a policy for the allocation of export rights among its textile and apparel producing and exporting firms. The allocation might be done by some non-price rule for rationing export rights among those who aspire to have them or a market might be contrived in which the right to export is rationed by price or the system might combine these rationing methods in some way. There might also be a set of rules, constructed by the public authorities that govern the behavior of those who hold export rights.

This paper will, in Part II, discuss the principles of optimal allocation of quotas among exporting firms, where the exporting country is

empowered to allocate and the expected effects of different allocational arrangements, and in Part III, it will discuss the rules for allocation of quota among firms that actually prevail, with particular reference to Hong Kong practice, and the expected consequences of those rules and practices. An Appendix uses graphic forms of exposition to exhibit the expected effects of export quota constraints in the international trade in textiles and apparel, the expected effects of export quota allocation systems, and the principles of optimization in resource use. These are discussed in narrative form in the main text of the paper.

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I. Introduction

Textiles -- the spinning of yarn, weaving of fabric, and finishing -- and the manufacture of apparel are old industries that are widely diffused in the world economy.

Textiles was an early runner in the factory organization of production. Factory production of apparel came somewhat later as ready-to-wear clothing replaced production at home and in a cottage industry of seamstresses.

In Europe and North America, the industries became important, measured by the fractional values of textile and apparel output in the gross national product and in all manufactures and by the numbers employed by the textile and apparel industries as fractions of the active population.

A large stock of industry-specific human and physical capital was accumulated and passed through the generations. It was common for producers in each country to seek protection for those assets by securing arrangements that would give them preferential access to domestic markets. This was usually done through the levy of customs duties upon competitive imported goods.

In the twentieth century the values of those capital assets came to be put at greater peril by the penetration of the European and North American markets by lower-cost producers in low-income countries. This threat was met by the arrangement of quantitative restrictions on the importation into the

European and North American countries of defined textile and apparel commodity categories. The quantitative restrictions usually complemented a system of customs duties.

"Voluntary" export constraint agreements with several Asian countries in the late 1950s were followed in 1961 by a Short-Term Arrangement Regarding International Trade in Cotton Textiles, in 1962 by a first Long-Term Arrangement, which was succeeded by others, and then, in 1973, the Multifiber Arrangement, all of which were covered under the umbrella of the euphemism that they were intended to "avoid market disruption".

Under the Multifiber Arrangements, importing countries consult with exporting countries on the terms of export restraint arrangements and, if agreement is not reached on those terms, the importing country may impose quantitative restraints unilaterally, under GATT rules.

Those consultations usually yield bilateral agreements which specify a quota limit on the quantities of commodity categories that each country might export to a relevant importing country in each time period.^{1/}

Once a country's export quota is fixed, quotas must be distributed either to exporting companies or to importing companies, depending on the form of administration of the restraint system.

If a country is limited in the quantities of textiles and apparel that it may export to the major consuming countries, it must, either

^{1/} See Vincent Cable and Betsy Baker, World Textile Trade and Production Trends, Economist Intelligence Unit, Special Report No. 152, Chapter 3, "Regulation of international trade in textiles"; Donald B. Keesing and Martin Wolf, Textile Quotas against Developing Countries, London, Trade Policy Research Centre, Thames Essay No. 23; General Agreement on Tariffs and Trade, Textiles and Clothing in the World Economy, Geneva, GATT, January 1984.

explicitly or implicitly, design a policy for the allocation of export rights among its textile and apparel producing and exporting firms.

The allocation might be done by some non-price rule for rationing export rights among those who aspire to have them or a market might be contrived in which the right to export is rationed by price or the system might combine these rationing methods in some way.

There might also be a set of rules, constructed by the public authorities that govern the behavior of those who hold export rights.

When inappropriate principles instruct the construction of policy for the allocation of textile and apparel export quota rights and govern the uses to which those rights might be put, inefficiencies will be introduced into the production and export of those commodities, an inappropriate set of firms will be engaged in the industry, and the exporting country will not minimize the real resources it employs in the production of the quantity of textiles and apparel that importing countries are willing to take from them. In such a case, modification of the policy in the allocation of quota and in the prescription of the conditions for the use of quota will promote the achievement of a higher level of output in the economy of the exporting country. Arrangements that have been made by the governments of countries that confront textile and apparel export constraints for the allocation and use of export quota rights appear to be characterized, in varying degrees, by departures from the rule of efficiency.

This paper will, in Part II, discuss the principles of optimal allocation of quotas among exporting firms, where the exporting country is empowered to allocate and the expected effects of different allocational arrangements, and in Part III, it will discuss the rules for allocation of

quota among firms that actually prevail, with particular reference to Hong Kong practice, and the expected consequences of those rules and practices. An Appendix uses graphic forms of exposition to exhibit the expected effects of export quota constraints in the international trade in textiles and apparel, the expected effects of export quota allocation systems, and the principles of optimization in resource use. These are discussed in narrative form in the main text of the paper.

II. Optimal and Sub-Optimal Export Quota Allocation

If there were no restraints on international trade in some classification of textile and apparel commodities (say, cotton sweaters), the supply and demand schedules for that commodity would determine its price and the suppliers would be those producers in the world economy for which the market price covered costs, including a normal return on investment.

If quantitative constraints on trade are introduced, so that low-cost suppliers are partially foreclosed from transacting in export markets, the world supply schedule moves downward, the market price is higher, and the set of suppliers is transformed; a smaller fraction of the world's supply is provided by low-cost firms in low-cost countries, and a higher fraction is supplied by high-cost firms in high-cost countries.

In a competitive world market for textiles and apparel in which there are no international trading constraints, absent externalities, there is no divergence of private and social costs nor of private and social revenues. Assuming also, competition and an absence of externalities in input markets, more efficient firms will bid resources away from the less efficient firms, and private decisions on quantities to be produced and on the proportions in which resources are combined would cause resources to be put to their most highly valued social uses.

A country that faces a binding constraint on the quantities of commodity categories that it may export to the main consuming countries must ration the right to export among firms that aspire to export. The quantities that may be exported will be smaller than those defined by the intersection of a "normal" supply schedule, upward-sloping to the right on conventional two-

dimensional graphs, and the perfectly elastic demand schedules facing the country at the prices defined by world supply and demand schedules.

The exporting country would be well-served if those commodities were produced by more efficient firms, using the smallest possible quantity of real resources, if there is non-homogeneity among the firms that compose its industry.

Whether the purpose of efficiency in production will be achieved will be affected by the method that is used in the initial allocation of export quota rights among firms, the method of reallocation of quota rights among firms in subsequent periods, and the conditions that must be fulfilled by quota holders in order to retain quota rights for subsequent periods.

Initial allocation of quota requires the employment of a rationing rule. Units of quota might be sold to bidding firms or they might be given to firms on some physical rationing criterion. If sold, the quota would be price-rationed; if given, it would be non-price-rationed. Quota holders might be permitted to sell quota rights to other firms, or they might be required or given incentives to surrender to the public authorities quota that they will not use, for reallocation by those authorities. Quota holders might be required to produce themselves the commodities that they export, or they might be permitted to sub-contract to other firms the production of commodities that the quota holder exports. Quota holders might be required, or given incentives, to fulfill their quota, or they might be permitted to export smaller quantities without penalty. Quota holders might or might not be regulated with respect to the quality or value of the commodities they export in order to be considered to have fulfilled their quota allocations. The choices that are made among the alternatives in this set in the design of public policy for

the administration of quota allocation will affect the efficiency with which the textile and apparel industries operate.

Policy can consist of diverse combinations of these components of choice. Quota might be initially allocated by some physical rationing method, transfers of quota to other firms in a commercial quota market might not be permitted, fulfillment of quota might be required as a condition for retaining quota rights in a subsequent period, or subcontracting production to other firms might be regulated.

Alternatively, the policy might consist of some other combination of these components. Initial allocation might be physically-rationed, commercial quota transfers might be permitted, fulfillment of quota might be required, subcontracting might be permitted, and commodity quality might not be regulated.

Still other combinational forms are, of course, possible. It will be seen that some elements of public policy on the allocation of export quota and on the use of quota rights will, and other elements will not, affect economic efficiency. It will also be seen that the efficiency effects -- favorable or adverse -- of some policy components can be vitiated by other components of policy.

In a competitive world market for textiles and apparel, companies would face an infinitely elastic demand for their products at the price established by world supply and demand schedules, and they would push production to the point where final unit production cost was equal to the price of the commodity. Average production cost would equal the commodity price. There would be no economic profit (that is to say, no rent), and the return on investment would be the same as the return on investment in alternative lines.

The rise in price that is generated by the introduction of qualitative restrictions on exports brings rents into existence. The rent is a price for the right to export. If government sells export quota, it will capture the rents. The demand for quota rights will depend upon the price of exported goods and upon the costs of production and marketing. In the market for the initial allocation of export quota, the price will be determined by the intersection of the demand schedule for export quota and the supply schedule, which will be infinitely inelastic. That price will be the discounted present value of the net extra earnings stream that will be generated by the barriers to entry into the export market. The magnitude of the extra earnings stream, and therefore, of the price for export rights, will be affected by the properties of the constraints, imposed by the system of regulatory rules, that affect the uses to which export rights can be put. Quota rights will sell at a higher price if the rules permit them to be either used or sold, than if they can be only used but not sold; they will have a higher price if production for export under quota is permitted to be done either by quota holders or subcontractors, than if production is required to be done only by quota holders; and they will have a higher price if quota holders are not penalized for failure to export to the limit of the quota rights they hold, than if they are penalized for non-fulfillment of their quota. Since production costs will vary among firms, some, but not all, will find it worthwhile to buy quota at the market equilibrium price; more efficient firms will outbid less efficient firms in that market.

Companies that buy export rights will produce the same quantity as they would have in the case of unconstrained trade. The whole cost of production for such companies will be the real resource cost and the cost of

acquiring export rights. By applying the maximizing principle of producing the quantity that will cause costs and revenue to be equal at the margin and taking account of both components of cost, companies will find that the quantities it pays them to produce will be unchanged, even if, with trading constraints, commodity prices are higher. The part of the higher price that is attributable to entry barriers -- the rent -- will have been siphoned off by government in the sale of export quota rights.

Since cost conditions among firms change over time, it would be appropriate, in the interest of efficiency, for policy to permit buyers of initial allocations of quota to re-sell quota rights to other firms, either permanently or for temporary periods, or at least permit them to sub-contract production for the fulfillment of their quota to other firms. If these practices are not permitted, the price at which quota sells in the market for their initial allocation will be reduced, government revenues from the sale will be lower, and firms that in time become relatively less efficient will be producing the relevant commodities.

If government allocates quota initially on some physical rationing criterion, so that quota is given to initial quota holders at a zero price, it would serve efficiency in the economy if quota-receiving firms were permitted to sell quota rights in secondary commercial quota markets. In this way, quota will be put in the possession of firms that are the most efficient producers. In this case, the rents will be captured by the initial holders.

If government rationed quota initially by some non-price rationing method and did not permit a secondary commercial market for the transfer of export rights to other firms, but rather required that unused quota be returned to the government for re-allocation, less efficient quota holders

will have incentives to engage in production activities that principles of efficiency would require them to shut down. Rents would be smaller than they would be if quota were held by more efficient firms, and the rents will be captured by quota holders. The adverse efficiency effects of such an arrangement would be diminished if quota holding firms were permitted to subcontract production to other firms. If, however, quota is physically rationed, secondary sale of quota rights is not permitted, and firms are required to produce themselves the commodities for which they have been given quota, an inappropriate set of firms is likely to be engaged in producing the exported commodity and the country will be employing an excess of resources in the production of textiles and apparel.

Inefficiencies will also be introduced if quota holders are required by policy to fulfill their quota as a condition for the retention of quota rights. Demand for some categories of textiles and apparel is volatile since it is responsive to changes in taste. Commodity prices may, therefore, fall to a point where, for a time, it does not pay to produce any of some commodity category or where it pays to diminish output of that category. Demand prices might be expected to recover at some time in the future. In these circumstances, efficiency would require variation in output over time. Private firms, applying maximizing rules, would reduce output when commodity prices are sufficiently low to warrant it, and increase output in later periods, when prices had risen. There is no divergence here between private and social interests. A rule of policy requiring quota fulfillment as a condition for retaining export rights in the future produces an incentive for maintaining larger output when smaller output would better serve the country's economic interest. In this case, the community's resources are put to wrong uses.

Quota-holding firms are induced to suffer losses and to misuse resources because, under the policy prescription, only in this way can they preserve future streams of rent receipts for themselves.

Rents are produced by barriers to entry into the relevant trade. Only those with a licensed right to export may enter the export trade; the entry of others is foreclosed. Those with export licenses may export only up to the quantitative limit imposed upon them; the entry of incremental quantities beyond those limits is foreclosed.

When the barrier to entry appears on the export side of markets in international trade, the rents are earned in the exporting country. It is in that country that there are constraints on entry; in the absence of barriers to entry in the import markets of importing countries, importers there will have only the competitive market payment for their services.

If quantitative restrictions in international trade were administered differently, so that the barriers to entry appeared on the importing side of the market (as if there were a restricted quantity of import quota rights distributed among importers), and there was unconstrained competition in exporting countries for the consummation of export transactions, importers would earn rents and exporters would be paid only the competitive market price for their services.

That rents come into existence when exports are quantitatively restrained can be shown in another way.

Exported commodities are produced by combining two inputs -- exportable commodities and export rights. Export rights are produced at a zero cost; no real resources are used in their production. The price of export rights in an unconstrained market will be, therefore, zero. When there are

export constraints, however, there is a fixed supply of export rights and a demand for them that is derived from the conditions of demand and costs in the market for the relevant commodity. The price of export rights will be determined by the intersection of export right demand and supply schedules. Since the supply of export rights is fixed, the whole of the price for them, if the price is a positive number, will be rent.

In competition, without international trade constraints, firms with higher costs that cannot earn a normal return on investment at the market price of the relevant commodity will be price-rationed out of the market. Marginal firms will have zero economic profit; intra-marginal firms may earn economic profit, derived from rents produced by, for example, superior managerial talent, if those talents are specialized to a firm and are not appropriable by other firms. Higher cost firms will not survive. The market will compel them to release the resources they command to alternative, more valuable social uses. These firms cannot survive from rents earned from the possession of export rights since those rights are a free good, available to all in any quantity, and they produce no rents.

Whether low-cost firms can appropriate the resources commanded by high-cost firms in quantitatively-constrained international markets depends upon whether the system for the allocation of export rights permits those rights to be price-rationed.

Suppose those rights are initially allocated on some non-price rationing criterion and their transfer in price transactions is not permitted. Firms that receive export rights will survive, if their average costs are less than the commodity price at the outputs at which they have been assigned export rights. The resources that are commanded by those firms cannot be bid

away from them by lower-cost firms, because the allocational system does not permit the priced transfer of export rights. In the short run, only those firms with export rights the average variable costs of which are higher than the product price at the assigned export quantity and at any smaller quantity, will exit from the industry. Their export rights are then presumably recovered by some allocating agency of the public sector for re-assignment, again according to some non-price rationing rule. Non-price rationing systems for the allocation of export rights will not tend to achieve the production of the relevant commodity by the most able firms.

Alternatively, an allocational system might use non-price rationing criteria for the initial distribution of export rights and their priced transfer among firms might then be permitted. Non-price rationing is, in this arrangement, transformed to a price-rationing system. Such a system will tend to cause production for export to be done by the cheapest cost and most efficient firms which will bid resources from higher-cost firms by purchasing their export rights. In such a system, the scarcity rents generated by limit constraints on exports will be captured by those to whom the rights were initially assigned, but the economy will be advantaged because the limited exportable output will be produced at the smallest cost of the community's real resources.

The demand for export rights, since it depends upon the demand for the relevant commodity in export markets and upon the costs of producing the commodity, will be affected by changes in either of those variables. Frequent and large changes in taste and fashion are a common property of the apparel trade; both commodity demand and production costs are affected by those changes. The demand for export rights is, therefore, estimationally construc-

ted in conditions of great uncertainty. There are likely to be errors in ex ante estimates of the values of export rights and of the rents implied by those values. Error, when it occurs, is expected to be not systematically biased; i.e., errors are expected to be randomly distributed between over- and under-estimation of the "true" value of export rights as it is revealed ex post in commodity export markets. Governments, if they sell export rights to initial purchasers, and firms, if they sell to other firms export rights that they have been given or that they have bought, may capture less or more than the whole scarcity rents that export quota constraint systems generate. The possibility of the occurrence of estimational error can be seen when it is observed that the price of export rights is the capital value of a stream of incremental economic profits, occurring over a sequence of future time periods, that are produced by the differences in commodity price in regimes in which all may enter export markets and those in which only licensed exporters may enter, and they may enter only to the limit imposed by export quota rights they own.

From the standpoint of public revenues, the sale of export rights by government to bidding firms is like the levy of an export tax. In principle, export taxes could be levied at a level that would reduce the volume of exports exactly to the quantity that would be explicitly specified in an export quota licensing arrangement.

In the export tax case, revenues would accrue to government, as they would, if export rights were sold by government. If export licenses are given to firms at no cost to them on some criterion of the rationing rule, the revenues accrue to the favored firms. An export tax of a magnitude that would cause the quantity of exports to be exactly equal to that of an explicit

aggregate country export quota might be preferred, on an efficiency test, because, in the export tax case, firms would be competitive in the export market. Low-cost exporters would succeed over high-cost exporters.

On the other hand, it is extraordinarily difficult, in conditions of constant change in markets, to discern the rate of an export tax that is appropriate to a given quantitative constraint on exports. This is especially true in the market for textiles and apparel which are unusually volatile and which decompose into distinct, but related, markets for different commodity categories. The achievement of a given quantity of exports for some time period would, in these changing market circumstances, require a kind of experimental process in the repeated modification of export tax rates. The probability is not high that a set of tax rates, over some period of time, could successfully be found to produce a given quantity of commodity exports over that period.

The use of historical export performance in some base period as the criterion for the allocation of quotas produces inefficiency, where quota rights may not be transferred at a price and holders of export quota rights are required themselves to produce the exported commodities and are not permitted to "subcontract" production to other producing firms. This is so because the inter-firm structure of participation in export markets tends to be frozen and made inflexible by such a policy and that structure cannot take account of changes in the structure of inter-firm production costs as time and conditions alter.

In addition, the physical allocation of export rights makes it possible for favoritism and corruption to enter as a variable affecting quota allocation.

It should be noted that harm might be done to the country, if export rights for a commodity or a set of commodities were given to a private monopoly and the private monopolist was permitted to sell export rights to other firms. If the aggregate of the country's quota were larger than that defined by the quantity at which the marginal revenue from the sale of export rights to firms were zero, a private monopoly would stop short of selling the whole permissible quantity; the private monopolist would maximize its total revenue and its profit by selling a quantity of export rights such that the last unit sold produced a zero increment of revenue. Production of the commodity would then be sub-optimally too small and resources foregone from that use would be employed in producing some combination of other commodities for export and commodities for domestic consumption where they will be less productive. A private monopoly in export rights will generate a deadweight loss for the community.

Firms engaged in the export trade in unconstrained competitive markets earn no rents; the costs of all inputs are recaptured in the revenue received from the sale of commodities, but there are no economic profits. Similarly, firms engaged in quota-constrained export markets also earn no rents, if they must buy their export rights in competitive export rights markets, assuming, of course, that the market establishes the correctly discounted value of the incremental net earnings stream that is generated by the export constraints. The unit cost of export rights, when summed to the unit cost of production of the exportable goods, will be just covered by the price at which the goods sell. Since there are no rents, there is no rent-seeking.

If, however, export rights are given at a zero price to favored firms, there are rents earned by them and, therefore, rent-seeking activity can be predicted. This might consist of waiting in queues, if the rationing rule is first-come, first-served. It might consist of uneconomic large output in some antecedent period, if it were anticipated that quota restraints were to be imposed, and if it were known or believed, in advance, that a rationing rule will be based on the criterion of "historic export performance". In cases such as these, real resources will have been employed in the pursuit of rents; those resources would be lost to their alternative uses for society. If, on the other hand, export licenses were procured by private payments made to public officeholders with power to make quota allotments, quota-acquiring firms would earn no rents -- unless officeholders, for some reason, extracted less than the full value of export license rights. If rights were "purchased" in this way, transfer payments will have been made, but real resources will not have been consumed in the process, except those employed in negotiating and consummating transactions; only small quantities of resources are likely to be consumed in such ventures.

If a non-price rationing rule determines the allocation of export rights among firms, that rule is preferred, in the set of all such rules, other things being equal, that does not generate the consumption of real resources in the production of rents. Among the members of the set that do generate the pursuit of rents, that rule is preferred that is most efficient in rent production; that is to say, the employment of a small quantity of real resources in rent-seeking is to be preferred to the employment of a large quantity of them in this activity for a given quantity of rent. A socially-optimizing public policy will consider these effects in the design of a rule for the allocation of export rights.

When a country is confronted by a quota constraint in the export of a particular commodity, it optimizes, in efficiency terms, if the production of that commodity occurs in firms that employ the smallest quantity of resources in commodity production. This is equivalent to saying that the country optimizes when it maximizes the sum of rents and producer-surplus. It wants the difference between world commodity price and production costs to be the largest possible number.

The distribution of rents among claimants is not related to optimizing policy. It does not matter whether the rents are captured by government, as if government sold its initial holding of the aggregate country export quota, or whether rents are captured by favored firms to which quota rights are allocated at a zero price initially or in subsequent re-allocations of unused rights. What is important is that commodity production be done by the most efficient producers.

The achievement of such an outcome requires the organization of a system that permits flexibility in claims upon resources so that low-cost producers are systematically successful in the competitive claim to resources and higher-cost producers systematically fail in re-quiring their claims. Since production conditions change from time to time, the rank order of low- and high-cost producers will also change. Flexibility in the distribution of output among firms is, therefore, essential for efficient production.

Efficiency will tend to be achieved if export rights are sold initially to highest bidders and successful claimants are then permitted to resell their export rights to others; it will also tend to be achieved if export rights are initially given to some firms and they are permitted to resell their rights to others; and it will tend to be achieved if export

rights are either sold or given to some firms which are then permitted to buy all or part of the commodities they are to export from other producing firms.

The achievement of efficiency in production will tend to be frustrated, if export rights are given to some firms and those firms are then not permitted to contract for the production of the relevant commodity by other firms of the country, but are required to produce their own output to meet their own export orders. To some extent the distortion and inefficiency induced by a rule like this can be moderated by the acquisition of more efficient firms by less efficient firms that hold export rights, but the acquisition of whole firms tends to be frustrated by large transaction costs; those costs will often foreclose the moderating influence of acquisitions upon inefficiency.

Where firms holding export rights can transfer them by sale to other firms, whether it uses the rights or sells will depend upon the relative magnitudes of the capital value of the quota rents the holding firms will capture by using those rights, itself, and the market price of quota rights. If the firm holding export rights is a high-cost firm, low-cost firms will bid for those rights at a price that will make it more profitable for the holder to sell than to use his export rights. It will, of course, serve the interests of the country of which these firms are a part that the transfer of export rights take place.

A country subject to quantitative constraints upon its exports, if it is proportionately very important in the world supply of the commodity whose export is limited or, if it is one member of a large set of countries whose exports of the commodity is limited, will be advantaged by the restrictive system in one sense and it will be disadvantaged by the system in another

sense. It will earn rents in the form of transfer payments from consumers in the importing countries to those in the exporting country that the quota allocational system arranges. There will be, on the other hand, a deadweight loss because the industry producing the commodity the export of which is constrained will be "too small" and other industries will be, therefore, "too large". That is to say, some quantum of resources that can be more productively employed, in the country, in the production of the relevant commodity will be employed, instead, less productively, in the production of other commodities. The export constraint system will have introduced distortion in resource use that will diminish the physical output of commodities and services. The magnitude of the deadweight loss is measured by the familiar triangle the legs of which are defined by the intersection of marginal cost (supply) and demand schedules and the vertical drawn at the quantity point on the quantity axis of the conventional two-dimensional price-quantity graph.

It will optimize for the exporting country, if transfer receipts of rent from importing countries can be enlarged and if the deadweight loss can be diminished. The magnitudes of the change in these variables -- transfer receipts and deadweight losses -- that occur as a result of altered output and altered exports depend upon cost and demand conditions. Whether, therefore, it pays to avoid the limits imposed by quota constraints by strategic adjustment behavior and, indeed, whether it pays a country for an export constraining system to be formed, depends upon the relative magnitudes of the quantities, rent receipts and deadweight losses and upon the magnitudes of changes in those quantities as avoidance strategies are applied.^{2/}

^{2/} We ignore here the distribution of rents and deadweight losses among nationals of the country.

If cost schedules are such that it pays to engage in behavior to avoid the constraint, one form is to increase the "quantity" of export beyond the quota limits by improving the quality of the commodity that is exported. This is possible because commodities are not defined in detail. An embroidered cotton sweater can be perceived to be quantitatively more, rather than merely qualitatively different, from an unembroidered cotton sweater. If export quota controls do not distinguish between the two in counting, a country can effectively exceed its export quota and avoid the quota constraint by producing more complex and elaborate commodities. It might want to pursue this strategy, if the export constraint is expressed in physical terms (so many gross, or dozens or bales of the commodity). It needs to be emphasized that, whether this is an appropriate strategy or not depends upon both cost and demand conditions. More complex commodities will carry higher prices than less complex commodities and they will also be more costly to produce.

One can think of a commodity category - say, cotton sweaters - as the commodity per se and some quantity of elaboration that is attached to it. Elaboration consists of some combination of material quality, design intensity, and processing. There are export constraints on the commodity but not on commodity elaboration. Elaboration, however, attaches to the exported commodity. Therefore, only those holding rights to export the commodity may export the elaboration. Entry into the market for the export of elaboration is not free for new entrants. Those with per se commodity export rights may, however, export as much commodity elaboration as they find to be productive. There are no externalities causing private and social optima to diverge. They will employ resources in the manufacture of elaboration to the point where the marginal cost and revenue of elaborating are equal. Alternatively, the

optimal quantity of elaborating can be defined as that for which the marginal products of per se commodities and of elaboration are proportional to their prices; in this formulation per se commodities and elaboration are perceived as factors of production that are combined to produce the output - elaborated commodities. The fulfillment of these maximizing conditions leads, of course, to the same quantity of elaboration. A socially-appropriate quantity of resources will be then devoted to the production of elaboration.

Whether those with commodity export rights themselves produce the elaboration of the commodity or sub-contract it to others depends upon whether public policy permits sub-contracting to be done and upon relative production costs of elaboration among firms; the cheapest cost production of elaboration will be sought out, if the rules permit it to be done.

If the export limits are expressed not in physical, but, rather, in value terms (so many kroner or Hong Kong dollars of cotton sweaters), avoidance of export limits might occur not by the production of more complex commodities but by reducing production costs. This implies the production of long runs of standardized and simple commodities. Such a strategy will also tend to enlarge rent receipts, if it is truly cost-reducing.

It pays for a country to have its aggregate export quota for a commodity, or so much of it as it is optimal to fill, produced at minimum resource cost. Production for export by individual firms should fulfill this condition and public policy for the allocation and use of export quotas should be consistent with the achievement of that purpose.

This requires that, if firms are homogenous in the conditions and costs of production and if marginal costs rise with rising output, the same

export quota be held by all firms; the marginal cost of production at the optimizing output will be the same for all firms.

If firms are non-homogenous in production costs, so that the marginal cost schedules of some are lower than for others at all outputs, the allocation and use of quotas must be arranged so that different-sized quotas will be held by different firms and quotas and their use must be inversely proportional to marginal cost.

III. Quota Allocational Practice and its Consequences

A country's confrontation with an export quota constraint implies the construction of policy for the rationing of export rights among aspirants; the policy may be explicitly designed or it may be implicit in the practice of government.

The most common practice of countries with trade constraints in textiles and apparel is to allocate export rights to firms in proportion to export performance in some base period; to insist that firms holding quota rights use them, themselves, rather than sub-contracting production to other firms; to proscribe inter-firm transfers of quota rights by requiring that unused rights be turned back to government for reallocation to other firms; and to require that export rights be fully used by holding firms, by imposing implicit taxes, usually in the form of loss of quota in next-forthcoming periods, upon firms that fail to use their rights fully.

The allocation on the basis of past performance is sometimes relaxed to take account of mitigating circumstances and, since the allocation of rights determines the distribution of rents, this difference between nominal and actual practice stimulates rent-seeking activity through the organization of political pressure tactics. The competition for rents sometimes takes the form of confrontations between blocs of holders of export rights over the proportional distribution of rights among blocs. In Sri Lanka, for example, the proportional allocations to foreign investors in the Industrial Processing Zone (free trade zone) and to the firms owned by nationals outside the free trade zone is a source of controversy; in Hong Kong, there is controversy over the fractional allocations to export traders and producers, to firms that

do, and do not, themselves use the quotas they hold, and to firms that do, and do not, fully use their quota rights. Resources are employed, in those controversies, in rent-seeking, in the aggregation and organization of blocs, and in the preparation and delivery of pleas to the allocating authorities and in the organization of defenses by blocs whose interests are advanced by the preservation of the status quo.

Apart from resource-using rent-seeking activities that are calculated to affect the structure of the allocation, the initial allocation of transferable export rights is unimportant in an economic efficiency sense. That allocation will determine the distribution of rents but it will not per se affect the efficiency of resource use for the production of textiles and apparel for export.

If, however, the allocation of rights is coupled with constraining conditions that must be fulfilled - for example, that rights holders must do their own producing and that rights must be fully used - the allocation of rights takes on efficiency effects. Since the conditionality of allocated rights is commonly observed, the allocation and reallocation of rights to export becomes centrally important, rather than trivial, for the achievement of resource-use efficiency. If initial allocation were not linked to conditions respecting their use, and allocated rights could be freely transferred and used only to the limits that are efficiently appropriate or if they could be used to cover output sub-contracted to other firms, the initial allocation would define only those who captured rents.

Where conditions with respect to the use of quota rights are attached to the award of quotas, the maximization of the community's output requires that the quotas be delivered to the more efficient firms in quantities that

are proportional to their relative efficiencies. This is a condition that is extraordinarily difficult to fulfill. There is variance among firms in their productive efficiency and the rank-order of firms, on efficiency tests, changes over time. It is virtually impossible to discern that rank-order at any time by employing non-market criteria as it is to foresee changes in the composition of the order from one to another period. Consequently, it is difficult to administer a physical, non-price rationing rule that would assure that quota rights are optimally allocated among firms.

The use of institutions and instruments of the market for the distribution of quota rights among aspirant firms would, on the other hand, permit efficient firms to bid export licenses away from inefficient firms.

All textile and apparel quota-allocating countries have employed the criterion of past export performance as the standard for initially allocating export rights among firms. Other physical rationing criteria are available; allocations might, for example, be based on firm size or location -- so that either larger or smaller firms or firms located in depressed areas would be favored. It is not clear why export performance became, in all countries, the preferred standard of allocational choice. It is sometimes said that the rationing of quota licenses on the basis of export performance in a prior period is consistent with the service of the principle of efficiency in the allocation of quotas because export performance is taken as an index of efficiency. Export performance in a defined period is not a proper measure of the relative efficiency of firms but, even if it were, changes will occur, among periods, in the structure of efficiency among firms, so that a physical rationing rule that gets quota in the hands of the "right" firms in one period may have them in the wrong hands in subsequent periods. The defense for using

prior export performance as a basis of quota allocation sometimes takes a different form: that firms should be "rewarded" for their export performance by being given quota rights that will thenceforth generate rents for them; but production for export and export, itself, does not do greater service to the community than production for domestic consumption and ethical neutrality does not suggest higher rewards are more appropriate for exporters than for those whose products are domestically consumed.

If initial allocations of quota are determined by applying a physical, non-price rationing principle, the community's interest in efficient resource use can still be served, if firms receiving quota are permitted to transact reallocational exchanges in a quota market or, alternatively, if those receiving quota are permitted to contract with other firms to produce the whole or part of the commodities for which export licenses are held. The rules of most trade-constrained countries in textiles and apparel do not permit either of these practices. An objection offered in Sri Lanka to permitting a transfer market in quota rights is that the "quota belongs to the country and private firms may not be permitted to profit from its sale"; therefore, the unused quota must be taken back by government for reallocation to other firms. Such an argument does not take proper account of the consequences for the capture of rent in the use of quota that is allocated by government to private firms at a zero price. If the firm that was initially allocated quota rights uses them, it, a private firm, captures the rent that is created when the trading system is constrained. If unused quota is returned to the government's allocating authority and is then reallocated, it is given to another private firm. That firm, if it uses the quota, then captures the rent. In any case, whether quota is transferred in a quota

market, from one to another private firm, or whether, instead, quota is returned to government for reallocation to another private firm, it is a private firm that takes the rent; the rent generates earnings for private persons in either case.

Most countries that are subject to quantitative constraints on exports of textiles and apparel to Europe and North America do not permit the purchase and sale of export rights in quota markets; they require, instead that unutilized quota be returned to government for reallocation. The defense for this arrangement usually takes the same form as the Sri Lankan defense: that quota rights are the property of "the country" and they are not, therefore, available to private firms to be sold in commercial quota markets. The same countries, however, also allocate quota to private firms at zero prices. This permits the quota-receiving firms to capture rents by producing and exporting commodities at prices higher than those that would prevail if there were no trading constraints. It is not clear why the governments of those countries give away quota rights, rather than selling them in, for example, an auction market. If they were sold, the rents would be captured by government rather than by the favored firms receiving export rights. The auction sale of quota would be consistent with the defense that is offered for the refusal to permit a commercial quota transfer market. If quota "belongs to" the country, it would seem appropriate that government, rather than private firms, capture the rents they generate.

The requirement that unused quota be returned for reallocation gives less efficient quota holders an incentive to use quota that might be more productively used by others. If inefficient holders use their quotas, they receive some part of the rent; if they return quota to government, they lose

that part to other firms to which the quotas are reallocated. Rigidity and inflexibility are introduced into the process of production.

In conditions of market variability over time, even efficient firms, faced with the loss of quota in a next time period, if they do not fulfill quota in a current period by exporting close to the quantities for which quota has been assigned to them, will fill quota by engaging in inefficient forms of resource use. Although it may not be profitable for them to export the whole of their quota currently, their expectation is that it will be privately profitable and advantageous to do so in ensuing time periods. It is important for them, therefore, to retain their quota allocations into ensuing periods, but they will be permitted to have those quota assignments only if they export to their full quota limits currently. They will meet those limits, sometimes, by producing small, simple, unimportant pieces as, for example, by producing and exporting doll clothing.

Where fulfilling quotas is done by such trivial commodity output, some governments have attempted to prevent this by specifying minimum piece-price standards or minimum value added standards. These rules have been evaded by fictitious paper or by hiring cost accountants to elaborate sophisticated and exaggerated cost accounts so that there is nominal compliance with the standards. Minimum price and value added standards are said to be virtually unenforceable.

Since firms holding quota rights can profit by sub-contracting production to other, more efficient firms, they have an incentive to do so. It is not known whether firms are monitored with sufficient intensity to assure that own-use rules are not evaded. The community would gain, in the sense that resources would be more productively employed, if enforcers of the own-use rule were not aggressive in compelling compliance.

The systems of Korea and Hong Kong tend to forestall some of those inefficiencies.

The Korean system of quota allocation permits some accommodation to changing production cost circumstances of different firms. Fundamentally, however, the system is founded upon physical rationing principles. Eighty to ninety percent of the available country-wide quotas are allocated on the basis of export performance; the residuum is in an "open" quota that is allocated on the basis of a combination of export performance in the previous year, a preference for firms exporting higher-quality and higher-priced goods, and export performance to non-quota countries.

In Korea, a very large fraction of all quota holdings is in the hands of the large trading companies. The largest quota holder of shirts to the United States holds about one-half of the total restraint limit; there are about ninety quota holders for shirts. For export of sweaters to the United States, the largest quota holder has about 40 percent of the total quota restraint limit; there are about one hundred quota holders for the shipment of sweaters to the United States.

The trading companies, themselves, have producing subsidiaries that manufacture part of the output that is exported under the quotas held by the relevant trading firm. But those firms are also permitted to have manufacturing done by other firms and much of what the trading companies export is, indeed produced by independent firms with which the trading companies have contracted for commodity manufacture. About one-fifth of trading company exports of apparel are produced by firms that they own and the residuum is produced by other firms with which they contract. This arrangement permits the trading companies who are quota holders, in principle, to search out

efficient firms to manufacture the commodities that the trading companies will export. The efficiency effects of the Korean arrangement might be somewhat reduced by standard customary practice in Korean economic behavior. The trading companies are said to form long-term associations with a fixed set of manufacturing firms. Subcontractors for a given trading firm are a stable, continuous, and firm set as a matter of "ethics". The trading companies give technical assistance to the manufacturing firms with which they are associated but they sever relationships, once established, only with great reluctance. Indeed, in times of slack demand, when production must be reduced by the trading companies, the reduction is said to be made in the output of the trading companies' own plants, rather than in those of the contracted manufacturers. Given these customary practices, the eradication of inefficiency might come to be more costly, the entry of new firms might be made more difficult, and firms that have come to be relatively less efficient might tend to survive. On the other hand, it is of course possible that output is systematically diminished in periods of slack demand in the trading companies' own plants, because it is those plants that are only marginally efficient. In addition, adjustments in the prices paid by the trading companies to their contracted producers in slack demand periods might make it profitable for the trading companies to procure commodities from those firms in slack periods, rather than producing those commodities in the trading companies own plants.

The purchase and sale of quota rights among firms in Korea is not permitted, but companies may exchange quota in one category for quota in another. The rate of exchange (the number of shirt quota rights that will exchange for a unit of sweater quota rights) depends upon market circumstances. Export rights to different destinations may also be exchanged; for

example, export rights to the United States may be exchanged, among firms, for export rights to Europe.

Hong Kong practice is unique in the textile and apparel trade-constrained world. The industry is highly fragmented. There are some twelve thousand textile and apparel producers and exporters. Three hundred and fifty thousand workers -- over 40 percent of all manufacturing workers -- are employed in the industry.^{3/} Export quotas are initially allocated on the criterion of export performance. Thereafter, quota is bought and sold in an active quota market. There are said to be, in that market, about two dozen "brokers" who are specialized to the trade and hundreds more -- some estimate the total number at about one thousand -- who engage in the brokerage trade occasionally. Brokers consolidate information and diminish transactions and information costs. Usually they do not merely match buyers and sellers but, rather, they buy and sell quota on their own accounts, capturing differences in buying and selling prices. By regulation, they have a limit of seven days for holding between purchase and sale. Brokers sometimes "take a position" in quotas -- they buy on their own account without yet having a confirmed purchaser for their acquired holding. Brokers are important, inter alia because sellers do not want to diffuse widely the information that they have quota for which they cannot find satisfactory export orders and, therefore, that they have quota to sell; this is considered an offense to pride and "loss of face". Brokers are engaged in arbitrage operations in which they assume the risks of the trade. The quota market serves as an institutional instrument for moving export rights from less- to more-productive firms.

^{3/} Hong Kong, Industry Department, Hong Kong's Textile and Clothing Industries, duplicated, May 1984.

Quota rights in Hong Kong may be permanently transferred. They can be expected to be transacted at a price equal to the capital value of the earnings stream the rights are estimated to produce over time. Or quota rights may be temporarily transferred at an expected price equal to the discounted value of the earnings generated by the rights in the period for which the transfer is made.

A non-trivial fraction of quota rights in Hong Kong are, in fact, transferred among firms. The number of permanent transfers of rights to export to the United States market were 3,700 in 1978 and 4,300 in 1982; these permanent transfers accounted for 3.5 percent of the square yardage restraint limit in 1978 and 17.5 percent of that limit in 1982. Quota rights for export to the European Common Market that were permanent transfers were 3.8 percent of the total restraint limit in 1978 and 6.8 percent of that limit in 1982. ^{4/} In 1981 and 1982, temporary transfers of export rights to the United States were, respectively, 30.4 percent and 37.1 percent of the restraint limit; in the same years, temporary transfers of export rights to the EEC were, respectively, 18.4 percent and 18.6 percent of the restraint limits. ^{5/}

Temporary transfers as a percentage of the restraint limits varied among the European countries and they also varied among commodity categories. For example, 59 percent of the restraint limit for blouses, not knit, of man-made fibers, were temporarily transferred in 1982, while only 9 percent

^{4/} Hong Kong, Textiles Advisory Board, Textiles Export Control System: The 1983 Review, Hong Kong, Government Printer, 1983, p. 47 and Appendix IV.

^{5/} Hong Kong, Trade Department, Memorandum for the Textiles Advisory Board, duplicated, 2 May 1983 and 16 May 1983.

of the restraint limit for cotton gloves were temporarily transferred in that year. Eighteen percent of the quota rights restraint limit for woven industrial and occupational clothing, aprons, and smock-overalls to the Federal Republic of Germany were permanently transferred in 1982, while for many other categories no permanent transfers of rights to export to Germany at all were made in that year. By comparison, eleven percent of quota rights for export of woven industrial and occupational clothing, aprons, and smock-overalls to the United Kingdom were permanently transferred in 1982, one percent of export quota rights to France in that commodity category, and there were no permanent transfers of quota rights for woven workclothing in that year for exports to Italy, the Benelux countries, Ireland and Denmark.^{6/}

The prices at which export quota is transacted varies over time and among commodity categories. In 1980, the average price per piece for the temporary transfer of quota for cotton knit shirts and blouses was 9.3 percent of the import price of that commodity, while the quota price per piece for wool sweaters was 46.3 percent of the commodity import price.^{7/}

^{6/} Ibid.

^{7/} Morris E. Morkre, Import Quotas on Textiles: The Welfare Effects of United States Restrictions on HongKong, An Economic Policy Analysis, U.S. Federal Trade Commission, Bureau of Economics Staff Report, August 1984; David G. Tarr and Morris E. Morkre, Aggregate Costs to the United States of Tariffs and Quotas on Imports: General Tariff Cuts and Removal of Quotas on Automobiles, Steel, Sugar, and Textiles, U.S., Federal Trade Commission, Bureau of Economics Staff Report, December 1984, Chapter 5, Textiles.

The Hong Kong system contains a number of behavioral constraints.^{8/}

1. Every consignment of commodities in the restraint system must be covered by a quota held by a firm that is either the exporter or the manufacturer of the commodities in the consignment;
2. Companies that use less than 95 percent of their quota in any period are assigned smaller quotas in the subsequent period;
3. Companies that use 95 percent of their quota in any period and have not transferred out quota during that period are rewarded with higher quotas in the subsequent period;
4. Companies that temporarily transfer out 50 percent or more of their quota holdings for two successive years are identified as persistent temporary transferors and the quotas assigned to them in the third year is reduced;
5. Companies that cannot fully utilize their quotas may surrender quota rights to government. If they do, quotas allocated to them in the subsequent period will be reduced because they had underutilized their quota in the current period; the magnitude of the quota reduction in the following period is less than it would have been if there had been underutilization and quota had not been surrendered, and the magnitude of the reduction is larger the later in the textile year that surrender of quota occurs. Thus, quota-holders are given incentives to surrender quota they will not use and to do so early in the textile year, rather than later.

^{8/} Hong Kong, Trade Department, The Textiles Export Control System, 1984, Hong Kong, Government Printer, 1984.

The defenses for these behavioral constraints are (1) that it "ensure(s) that Hong Kong as a whole benefits from maximum utilization of total available quota" and (2) that it ensures that "people (do not) profit from selling quotas as distinct from selling textiles".^{9/}

Government accumulates a pool of "free quotas" from unallocated quotas, quotas taken back from persistent transferors, surrendered quotas, quotas forfeited for non-compliance with the systems conditions, and from other sources.

Allocations are made from the free quota pool to firms that must support their applications with evidence that they have firm orders for the merchandise for which quota rights is desired. Free quota allocations are available to both firms that are currently incumbents in the industry and to new entrants.

In general, quotas are allocated for each twelve-month textile year on the principle that companies must earn them by demonstrating production and export performance in previous periods. Since the allocation of quotas determines the distribution of rents produced by the possession of quota, the principle exhibits the preferential regard for production and exporting activities over quota-holding and quota-trading activities. These activities are referred to as "speculation" and those who engage in quota-trading are called "quota farmers". A quota-holder who is not also a manufacturer or exporter receives no "credit" in the allocation of quota in subsequent periods, if his quota has been used to cover export consignments produced or

^{9/} Hong Kong, Department of Commerce and Industry, Release: Revised Quota System Announced, duplicated, 16 September 1976.

exported by other firms; it is the manufacturer and exporter of those consignments who receive those credits for subsequent period quota allocations.

This is partly a reflection of the notion that manufacture and exporting are useful, productive activities that served the community but that holding quota rights that are used by others is unproductive and not useful and, therefore, it is the manufacturer and exporter that are deserving to receive the rents. By analogy, if one owned an industrial machine that was put out to rent to be used by others in the production of a commodity to be exported, the owning and renting of the machine would be perceived to be an unproductive activity that does not serve the community interest. It is not seen by those who designed the system that a (non-manufacturing, non-exporting) quota right (machine) owner performs the service of assuming risk and that this is a useful service in a community in which the intensity of aversion to risk is not uniform among its members.

The speculative trading in quota rights by those who neither manufacture nor export is sometimes looked askance at by the manufacturing and exporting community because it is thought the speculators add an increment to the demand side of the quota rights market that raises the prices that must be paid for those rights by those who aspire to use them. What is ignored in this observation is that speculators also appear on the selling side of that market and their appearance there will cause the prices of quota to be lower. Unless speculators are systematically different from users in constructing market estimates of future events, the existence of speculation can be expected to have no effect upon price trends; if speculators are estimationally systematically different from users, prices will be affected, but whether

they are higher or lower than they otherwise would be will depend upon the directional properties of the differences in estimates.

The "own-use" and "full-use" constraints that have been written into the allocational system can be expected to have inefficiency effects. Since a quota-holder who persistently transfers quota out to other firms is taxed by having smaller quota rights assigned subsequently, the holder has an incentive to use his quota himself, rather than selling their use to others. The gains from its use by others may exceed the gains from its use by the holder (that is to say, others may be able to put the rights to more efficient use than can the holder), and the price at which a transfer might be effected might serve the advantage of both, but the holder will use the rights himself, to avoid the tax of a diminished quota in a next period.

The tax on less-than-full-use of quotas can be expected to have the effect, at the margin, of inducing firms to produce for export, even if demand has fallen and the commodity price is less than average variable cost at any output; similarly, it can be expected that some firms will be induced by the full-use rule to produce more than optimizing quantities, when demand has fallen, when the commodity price is higher than average variable cost but less than average total cost (see Fig. 7). The enforcement of the full-use rule sometimes finds its market expression in Hong Kong in a negative price for quota. In that case, a quota-holder who finds that the market has turned and that it does not pay to produce and export some quantity of the commodity covered by his quota will pay another firm to accept a temporary transfer of quota and to export up to its limit.

The explicit market for quota rights and the implicit market for those rights, embedded in the manufacture and export of commodities, taken

together, can be expected to put quota rights to their most valuable uses; quota-bonus subsidies and quota-reduction taxes distort the structure of incentives and generate wasteful economic activity.

The allocation of quota from the free quota pool on the basis of evidence of confirmed orders in hand is said to cause resource-using rent-seeking activity to go on, in the assembly of large quantities of orders.

From the standpoint of achieving efficiency in resource use, Hong Kong's arrangement for the allocation of export quota rights is much superior to those of other countries which employ non-price rationing strategies almost exclusively. To the extent, however, that Hong Kong resorts to physical rationing methods to modify what is, generally, a price-rationing system, it introduces distortions and inappropriate incentives that cause the system to be less efficient than it otherwise might be.

In other countries, the quota allocational arrangements are much less well designed to achieve efficiency of resource use in the production of the textiles and apparel the export of which is constrained.

In Sri Lanka, quota allocation is made by the Ministry of Textile Industries. That Ministry employs the criterion of historic export performance in making allocations. Allocations on that criterion has resulted in a 50 percent allocation of the country's quota to apparel manufacturing firms in the Industrial Processing Zone and an equivalent quota to firms outside the zone, at least for exports to the European market.^{10/}

^{10/} See: "Katanayake Industrial Processing Zone", Peoples Bank of Ceylon, Economic Review, vol. 8, no. 3, June 1982, and "Ready Made Garments Development Beyond Control", Peoples Bank of Ceylon, Economic Review, vol. 6, no. 5, August 1980.

Quota transfers among firms is not permitted. If transfers occur, it is only by the relinquishment of quota to the Ministry which then reassigns to other firms. The system is tightly controlled by public agencies. Some effective transfers occur when a quota holder with export orders in excess of his capacity, but within his quota subcontracts production to other firms. It is said that outside the IPZ quota transferring occurs for money payments that are clandestine and covered by fictitious export documents. Government takes the position that export rights "belong to the government" and are not the property of firms holding quota rights. This position does not perceive that the aggregate of individual decisions in markets might serve the public interest nor is it responsive to the question: what is the method that will best arrange an efficient allocation of quota among firms?

Quota allocations are for a year and reallocation occurs each year, with modifications generated by non-performance revealed by monitoring during the year.

Allocations are, for the sake of equity, made to a large number of firms and, not infrequently they are, for some firms, not large enough to be viably performed.

The system of allocation and reallocation on the criterion of export performance, without transfers, tends to inhibit change, specialization, and appropriate changes in scale.

The inefficiency effects of the historic performance criterion for allocating quota, which inhibits entry of new firms into the export market, are somewhat mitigated when firms holding quota are sold to new owners. The value of the rents generated by the quotas are capitalized in the price at which the sale of the company will be transacted; since rents will be higher

for efficient buying firms than for inefficient selling firms, a price can be found that will advantage both parties and quota might sometimes be transacted in this way. The cost becomes enlarged, however, when quota can be purchased only by purchasing firms that already hold export quota rights and some efficient transactions will be foreclosed by rules structured in that form.

Other countries follow much the same patterns of quota allocations, with modifications, from time to time, that reduce the inflexibilities and mal-allocative effects produced by non-price rationing systems.

In Malaysia, Thailand, the Philippines, Singapore, and Indonesia quotas are, in general, allocated on the basis of export performance free of charge; transfers are not permitted; unutilized quota must be surrendered to the government for reallocation; if unutilized quota is not surrendered, penalties will be assigned in the form of a diminished allocation in the ensuing period; sometimes quotas among different commodity categories may be exchanged among firms and sometimes such exchanges are not permitted; subcontracting of parts of the manufacturing process is sometimes permitted and sometimes not; sometimes only manufacturing firms may hold quotas and sometimes exporting companies are also permitted to do so; sometimes a small fraction of a country's quota is held back for allocation to new entrants and sometimes not.

The allocational system is not completely enforced, partly because clandestine operations occur that are infractions of the formal rules and partly because the rules, themselves, are ambiguous in their meaning. Where non-compliance does occur, it often has the effect of introducing elements of efficiency that would be foreclosed by full compliance with the formal rules.

It seems to be generally true, however, that, since most countries allocate export quota rights by applying non-price rationing rules and impose physical behavioral constraints on the uses to which quota rights can be put, the systems they employ to allocate export rights among firms do not tend towards efficiency in textile and apparel production; markets for export rights would be better instruments for the achievement of a social optimum.

Appendix: The Geometry of Export Quotas and Their Allocation

A country with an export constraint has P_2 (Fig. 2) as the price at which it sells its output in the world market. The constraint transforms its supply schedule from SS to SRS' . Such a country is best-off, in conditions of constraint, if the quantity it is permitted to export is wholly produced by firms that lie on the SR portion of its SS supply schedule and none of it is produced by firms on that schedule above point R .

In Figure 3, an individual firm, in competition, without international trading constraints, would take price P_1 as given. The demand schedule confronting it would be infinitely price elastic at that price. In the long run, without trading constraints, that demand schedule would be tangent to its average cost curve and the profit-maximizing quantity it would produce, Q_1 , would generate for it no economic profits. If the rise in price to P_2 , had occurred as a result, for example, of a rise in the price of substitute goods, and if there were free entry into commodity production and export markets, the firm would, in the short run, produce a profit-maximizing quantity, Q_2 .

If it were trading constraints that raised the market price to P_2 , the firm would aspire to produce that quantity, Q_2 , and it would do so, if its export quota permitted it to go that far in exported output and if the rules did not permit it to sell its export rights to other firms.

If the trading constraint imposed explicitly upon the given firm is Q_3 , the supply schedule of the firm coincides with the marginal cost curve for only a segment of its length. The firm's supply schedule is the marginal cost

Fig. 1

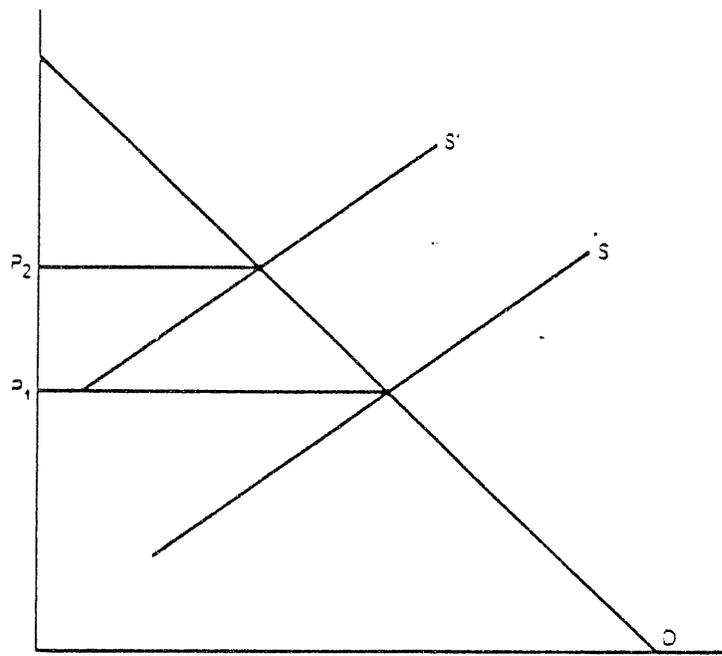


Figure 1

Fig. 2

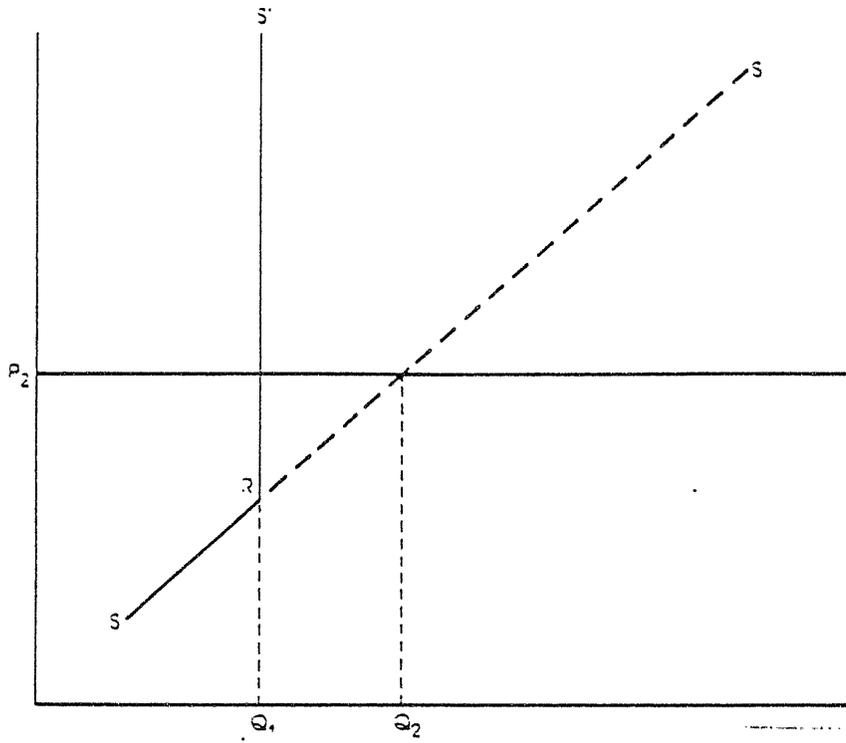


Figure 2

Fig. 3

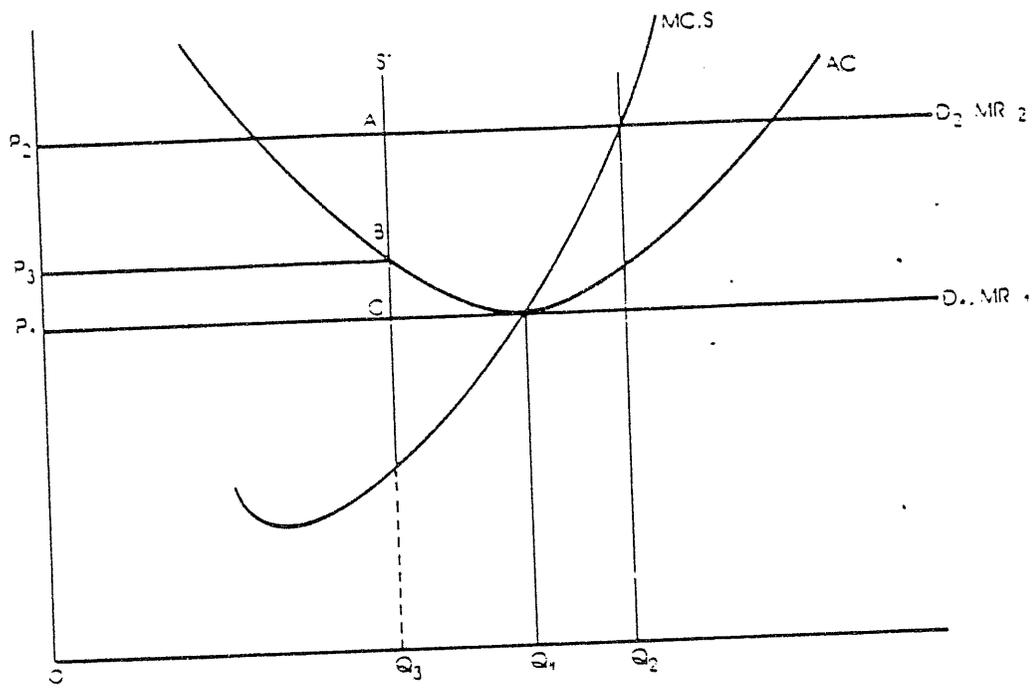


Figure 3

curve segment up to Q_3 and there it is transformed to infinite price inelasticity. At Q_3 output, it captures economic rent, per unit of output, equal to the difference between P_2 and its average cost of production at output Q_3 (P_3P_2 in Fig. 3).

The total rent of the firm would be the product of the rent per unit and OQ_3 ; that is to say, it would be measured by the size of the rectangle formed by the sides showing rent per unit and OQ_3 .

If a firm were able to increase its permissible output for export by purchasing increments of export quota rights from other firms, it would raise its output for export to the point where the sum of the marginal cost of production and the unit cost of export quota is equal to marginal revenue, derived from the world price (P_2) for the relevant commodity. The profit-maximizing output (Fig. 3) would be Q_1 , with Q_3Q_1 export quota being purchased from others. When the firm produces Q_1 of output, its whole marginal cost of production is P_2 ; that money cost consists of its marginal real resource cost (P_1 , read off its marginal cost schedule) and, in addition, the money payment it has made to other firms for the acquisition of the Q_1 st unit of export quota rights.

If it had been given the quota OQ_3 at no cost to it, the firm will, when it acquires Q_3Q_1 quota rights from other firms, enlarge the rent per unit of output, for OQ_3 of output from P_3P_2 to P_1P_2 because it will have diminished its average cost of production when it increased its output. Although the rent generated by the production of Q_3Q_1 of output will be taken by the seller of the quota, it will still be worthwhile for the buying firm to buy quota rights because it will capture the producer surplus (the difference between marginal cost and P_1) for all units of output Q_3Q_1 .

The total rent for OQ_3 of output (P_3P_2AB) (Fig 3.) will be a short-run phenomenon, if the firm is able to acquire Q_3Q_1 of incremental export quota from other firms. In a period that is sufficiently long to permit the acquisition to be transacted, the rents for OQ_3 of output will be enlarged to P_1P_2AC . The increase in output from Q_3 to Q_1 will cause average cost of production to have fallen. The short-run smaller rents will become long-run experience, if the firm is not permitted to purchase (or does not receive from the relevant public authorities, by an additional allocation) the Q_3Q_1 export rights.

Since it pays an export-constrained country to maximize its rents, it would optimize for the country, if export rights were distributed among firms so that each of them produced at minimum average cost, rather than having a larger number of firms, each of which produced an OQ_3 output at higher average cost.

Such a distribution of export rights might be achieved, in principle, by applying a physical quota rationing rule, but this is not likely to occur in practice. A price-rationed distribution of export rights in a market in which export quotas are transacted is, however, likely to tend to bring about a socially-optimal distribution of export rights among companies.

If the conditions of production are heterogenous among firms -- so that some are more efficient than others - there will be a market price for quota rights that will make it advantageous for both to engage in quota right exchange transactions -- one as buyer and the other as seller.

The rents produced by the use of Q_1Q_2 of export rights (Fig. 4) by the more efficient firm is the whole area of the rectangle ABCD formed by Q_1Q_2 and the unit rent P_1P_2 . The rent produced by the use of those export rights

Fig. 4

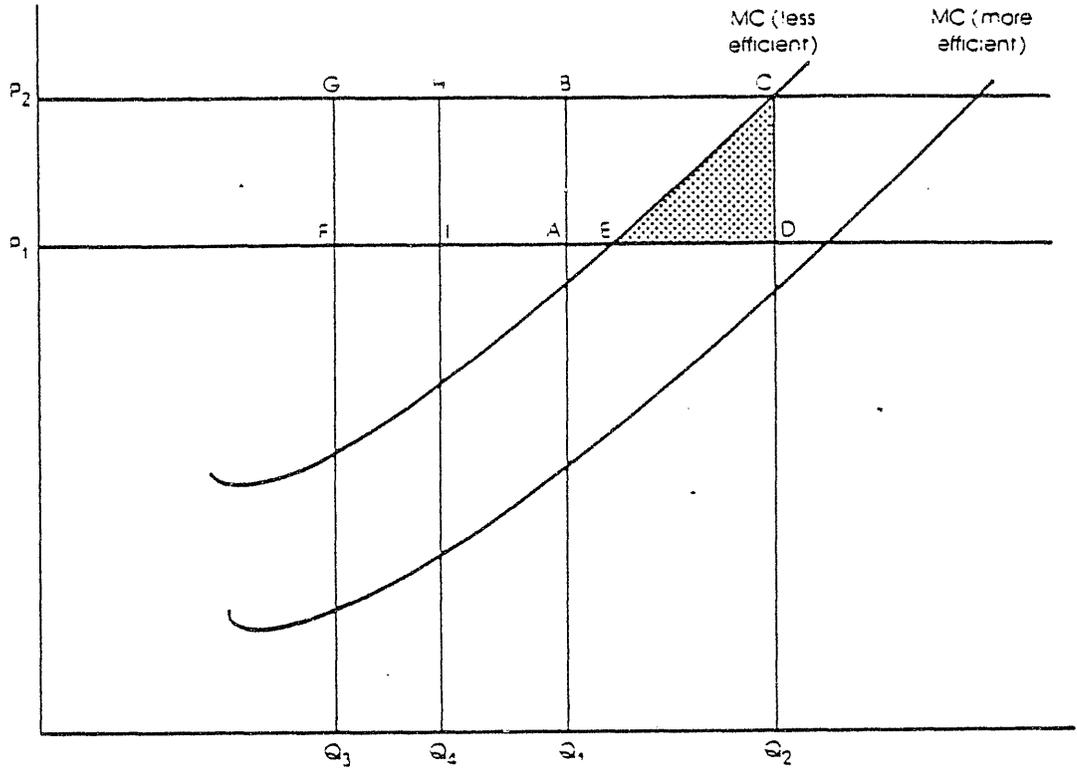


Figure 4

by the less efficient firm is smaller; it is the area ABCE of that rectangle which is net of the shaded area of real resources that the less efficient firm would have to expend in rent-acquisition. Clearly, less efficient firms will sell quota rights to more efficient firms.

Indeed, less efficient firms holding export rights Q_3Q_4 can be expected to sell those rights to more efficient firms, even though the rents FGHI would be the same for both, when producing Q_3Q_4 quantity for export. This is because producer surplus associated with the production and export of Q_3Q_4 quantity would be larger for more efficient firms. The value of the right to export that quantity is higher for more efficient firms. Again, it can be expected that the market for export rights would generate a price that would cause a transfer of export rights to occur from less to more efficient firms in exchange transactions; both sellers and buyers would be advantaged by the exchange.

The quota-purchasing firm would not push output beyond Q_1 (Fig. 3). The market price, P_2 , decomposes into a payment for the services of resources employed in the production of the commodity, and a transfer payment (which can be perceived to have the properties of a gift) from consumers and other nationals of the importing countries to the exporting country's producers. It optimizes for the exporter to carry the quantity produced for export to the point where the marginal revenue from production, which is the price without export constraints is equal to the marginal real resource cost of production, if its export quota permits it to go that far, and to receive, in addition, a per unit transfer payment equal to the difference between what the world price of the commodity would have been without export constraints (P_1) and what that price is (P_2) with export constraints.

It would sub-optimize for a firm that buys export rights to push output beyond Q_1 , (Fig. 8) assuming that production costs of incremental output rise with rising output, because the price it would pay for additional export rights (the value of the rent generated by additional exports) would exceed the additional rents, net of production costs, that it would capture.

The optimal quantity of production for export for a firm in a trade-constrained world in which some quantity of license to export must be purchased is different from what it would be in a world without trade constraints. In the latter case, quantity produced to export would push further to the point where a higher world commodity price, (P_2), generated by other circumstances than trade constraints is equal to marginal real resource production cost.

Internationally-traded commodities can be decomposed into exportable commodities and export rights. These can be seen as two inputs that are combined to produce exported commodities.

There is a market for export rights; that market can be either explicit or implicit. The demand for export rights is derived from the demand for the exported commodity and the production costs of the exportable commodity. In a competitive market in which there are no constraints on exports, the supply schedule of export rights, S_1 (Fig. 5), would coincide with the quantity axis on conventional two-dimensional graphs. This is because export rights consume no real resources in their production; their price will be zero for any quantity. The quantity of them that will be "transacted" in market would be defined by the intercept of the demand schedule with the quantity axis. How much of that quantity of export rights would be used in the export of commodities would depend upon incremental revenues from increments of exported goods and upon incremental costs of production of exportable goods.

If, however, quantitative constraints are imposed upon exports and export licenses must be acquired for any quantity of exports, even up to the constraints of the limit, the supply schedule of export rights will be vertical at that limit, S_2 (Fig. 5). In a quantitatively restrained export market, therefore, export rights will have a positive price defined by the intersection of the supply and demand schedules.

The system for the allocation of export rights among firms might be characterized completely by price-rationing. This would occur, if not only were transfers of export rights between firms permitted, but also the first distribution of those rights were done by auction sale. It is assumed that government is the initial monopoly holder of the aggregate of a country's export right allotment and that government would seek to sell at auction the whole of the export rights it possesses, rather than only so much of it as will maximize the government's rental revenue. If the demand for export rights were linear, and if the aggregate of export rights for the country exceeded half the quantity that would be purchased at auction at a zero price, the government could maximize its revenue by stopping the initial auction sale when the quantitative half-point had been reached. (Fig. 6). Quantities beyond the mid-point would produce diminished total revenue for government in the sale of export rights since those quantities are characterized by negative marginal revenue. If the aggregate export rights allotment to a country is OQ_1 (Fig. 6), the whole would be offered for sale, even though rent revenue would be maximized by the sale of only OQ_2 . If the aggregate export rights of a country were OQ_3 , government would maximize its revenue in the sale of export quotas to firms, subject to the aggregate country-quota constraint, by selling all of OQ_3 quantity of export quota rights; every unit of quantity to OQ_3 is characterized by positive marginal revenue.

Fig. 5 - Export Rights

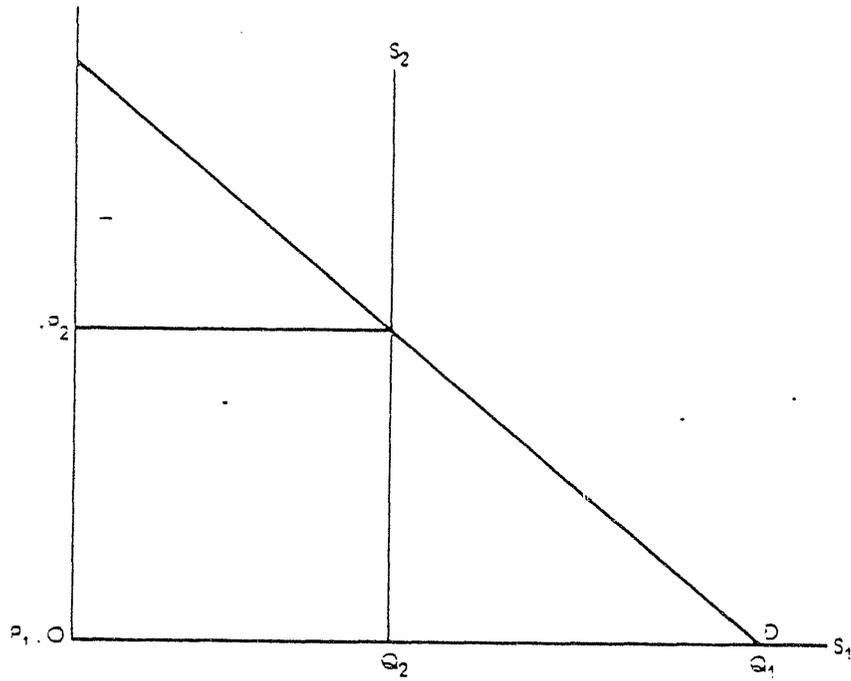


Figure 5

Export Rights

Fig. 6

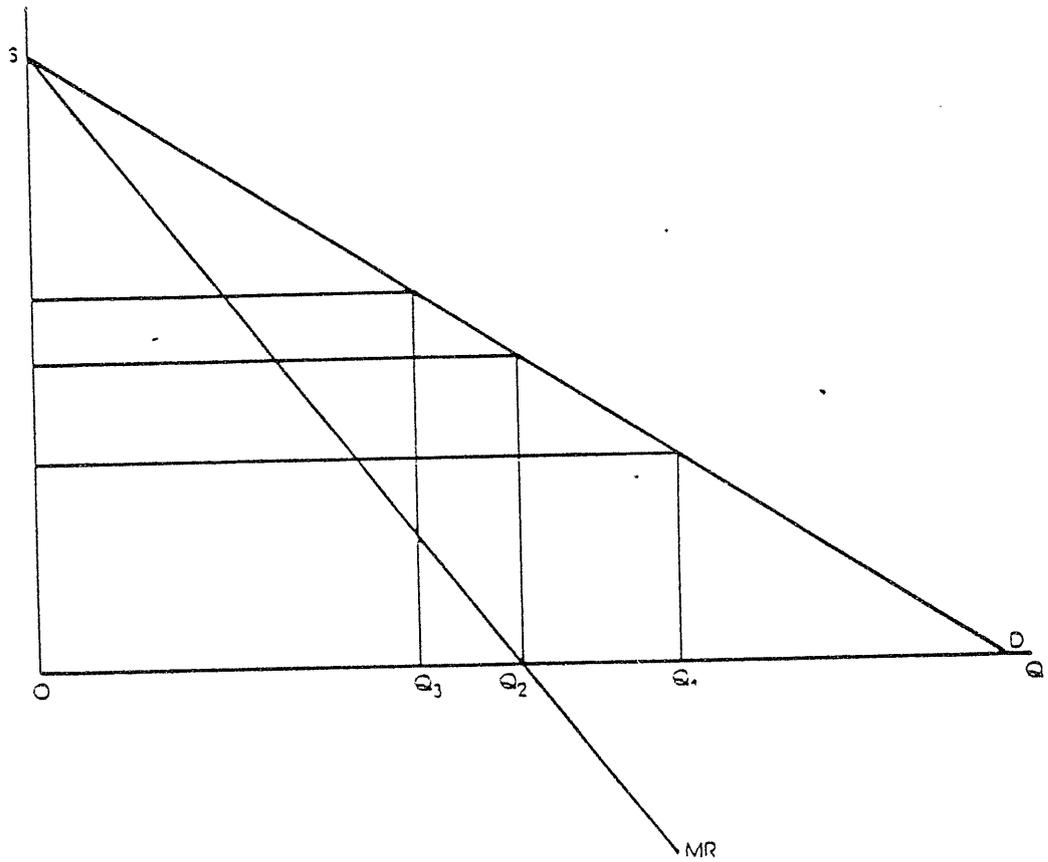


Figure 6

Export Rights

It is not true that it necessarily serves an exporting country's interests to exhaust or use the whole of its export rights in its export shipments. Commodity market conditions may change so that commodity prices make it worthwhile to export less than the quota permits or, indeed, none of the relevant commodity at all.

In the long-run, the market price for a commodity must be sufficiently high to cover average total cost or the commodity will not be produced. In the short run, however, it may still pay to produce some quantity of a commodity, even if its price is less than average total cost. How much of the commodity should be produced depends upon its market price and upon cost conditions.

If cost conditions are as shown in Figure 7 and the commodity market generated price P_1 , the whole quota, OQ_3 , should be met and rents will be earned; if the price were P_2 , the whole quota, OQ_3 , should be met, even if there will be losses because the price is sufficient to cover variable costs at output OQ_3 ; if the price were P_3 , only OQ_4 (less than the quota permits) should be exported because at output OQ_4 , variable costs are still covered and optimal output OQ_4 is defined by the equation of marginal costs and revenues; if the price falls to P_4 , there would be, and should be no export of the commodity at all and the industry producing the relevant commodity should shut down because the price has fallen below its variable costs at any output. At price P_4 , losses from meeting fixed costs will be less than they would be, if the firm produced and exported any output at all.

If commodity price P_1 persisted in the market, cost conditions may change, of course, to produce the same set of alternative outcomes with respect to whether the whole, or only part, or none of the export rights should be exercised.

Firms moved by profit-maximizing standards will be instructed by the principles that are implicit in Figure 7 in making their decisions on whether to produce for export and on which quantities they should produce for export. Assuming homogenous cost conditions among firms, a commodity price P_4 will not only make it desirable that the firm holding export quota rights shut down its production of the relevant commodity but also it will find that there are no other firms that are prepared to pay a positive price for those quota rights. In responding to profit-maximizing (that is to say, cost-minimizing) rules, the firm holding an export quota will be serving not only its own but also the general community interest by shutting down when the commodity price is P_4 . It would be wasting community resources that have alternative uses that have value for society, if it continued to produce and export under the defined conditions. It is, therefore, incorrect for the public authorities to require that export quotas be filled by quota holders as a condition for the retention of quota rights in ensuing periods.

Fig. 7

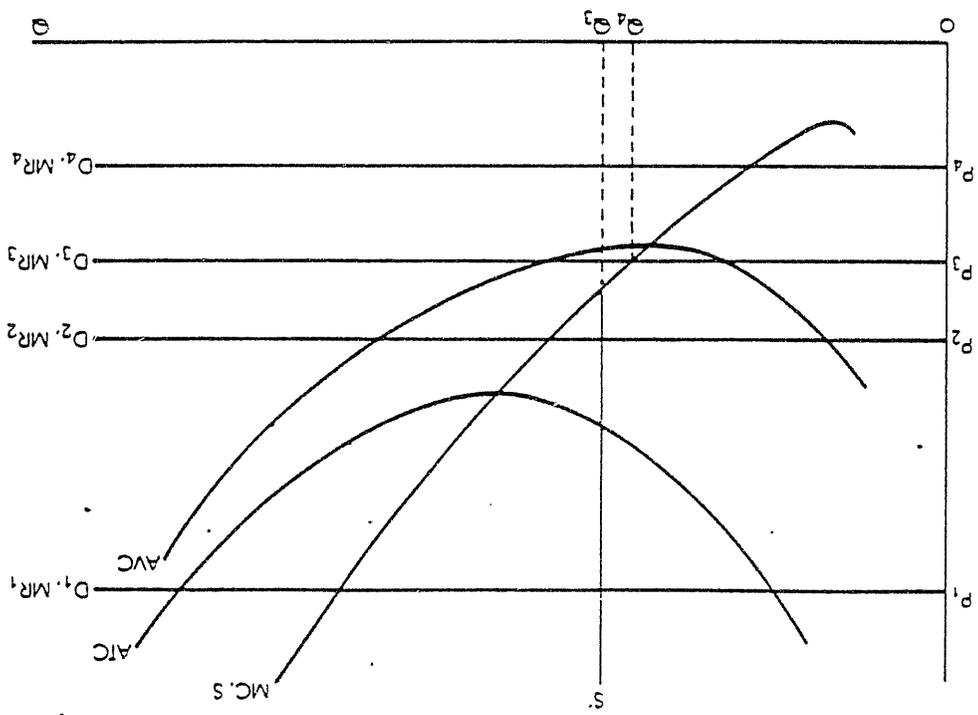


Figure 7

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