

Imperfect Competition and International Trade*

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1. Introduction

The theory of international trade has depended heavily on the assumption of purely competitive product and factor markets for determinate positive results and simple welfare rules. The reasons for this apparent lack of integration of alternative market structures and international trade theory, as Harry Johnson [1967] has pointed out, include first, the difficulty of reconciling the essentially general equilibrium nature of international trade theory with the partial equilibrium approach of industrial organization and second, the fascination with formal theoretical problems (like the existence, uniqueness and stability of equilibrium solutions) in the pure theory of trade to the exclusion of empirically relevant problems. Some attempts, however, have been made to introduce the assumption of imperfect competition into international trade models.¹ Among those contributions to the theory of international trade, the most classical and popular argument would be for dumping.

Figure 1 allows us to build our avenue of research in this paper. It should be noticed that with respect to the no-dumping case in

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1. For a survey on the subject of imperfect competition and international trade see Tanaka [1973].

the open economy the domestic monopolist becomes just one more competitor in the world market place if the economy in figure 1 is small relative to the rest of the world. In figure 1 the comparison between 2 and 3 is concerned with the question whether dumping is in the national interests of the exporting country, as distinct from the private interests of the monopolist. The standard theory of dumping compares two situations, that is, the no-dumping and

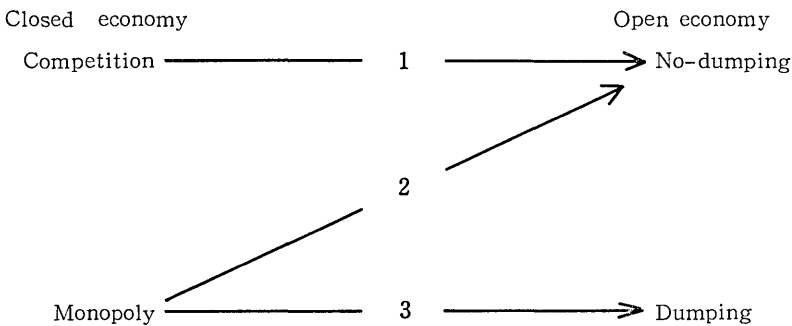


Figure 1

dumping cases respectively in the open economy. The standard comparison is essentially the same as that between 2 and 3. It is important since national policy, in the form of tariffs, can make private long-term dumping possible, and the removal of tariffs can put an end to such dumping. On the other hand, the comparison between 1 and 2 or 3 allows us to consider first, the gains from trade under monopoly or perfect competition; second, the effects of international competition on domestic market; and, third, the effects of domestic market structure on international trade performance.

The purpose of this paper is to consider, in the context of general and partial equilibrium models, the normative implication of industrial market power. The technique of this paper will be to

compare the results yielded by a competitive market structure with those yielded by monopoly. In section 2 we discuss the question of the gains from trade with monopoly in the general equilibrium framework, and in section 3 it is also discussed in the partial equilibrium analysis. Section 4 and 5 consider the question of domestic market structure and international trade performance. Finally, section 6 presents a theoretical analysis comparing the effects on welfare of monopoly behavior in a closed home market vs. discriminatory monopoly when the economy is open to international trade, and section 7 presents a summary and some concluding remarks.

2. Foreign Competition and the Gains from Trade

It has been generally recognized that an open import regime --low tariffs and the absence of quotas--can improve domestic market performance, essentially by providing more competition for domestic producers. If we assume that the country in question is small relative to the rest of the world, and if the rest of the world is assumed to be perfectly competitive, then when trade is allowed, and if, because of competition from the rest of the world, the domestic industries are forced to behave as perfect competitors, the final equilibrium will be identical to the one which would have occurred if initially perfect competition had prevailed domestically. The gains from trade will be greater than in the perfectly competitive case, however. As well as the usual gains from trade, we also have the gains due to the removal of the distortion due to monopoly.

Import Competition

One source of welfare gains from foreign competition can be illustrated in figure 2, which assumes that a small country can produce two goods, X and M . Its factor markets are competitive and externalities are absent, so that it operates at some point on its transformation curve TT . In the absence of trade and with both industries competitive production and consumption would take place at P_1 , when exposed to world prices indicated by the slope C_2P_2 , the country's tastes, technology, and factor endowments are such that it will export goods X .

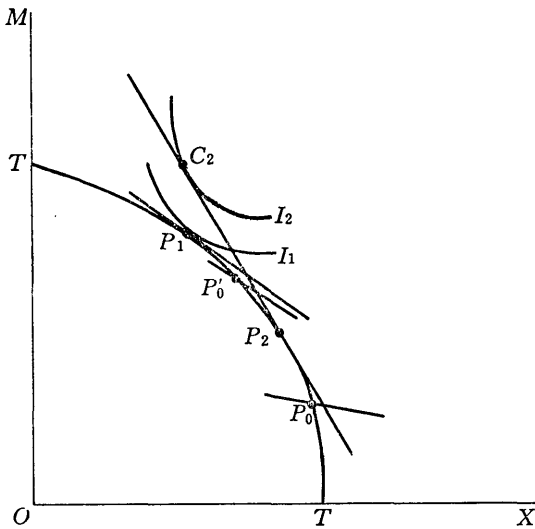


Figure 2

Now two points can be made. First, we will not in general, expect that autarky equilibrium point to be the same under monopoly

as it was in perfect competition.² This point can be seen as follows. For the two industries in perfect competition we have $MC_m/MC_x = P_m/P_x$, that is, the slope of transformation curve is equal to the output prices. For monopoly we have $MC_m/MC_x = MR_m/MR_x = P_m \times (1-1/\varepsilon_m)/P_x(1-1/\varepsilon_x)$. It is clear that only if the price elasticities of demand for M and X are equal will monopoly give rise to the same production position and will the marginal costs equal product prices. If the two equilibrium positions are identical, the only effect of monopoly is to redistribute income from factors to the monopolists.³ However, the slope of transformation curve will not, in general, be equal to the product prices. Suppose now that M industry is monopolized. In the closed economy the output of goods M will be restricted and the output of goods X expanded so that production takes place at a point like P_0 or P_0' . The elevated domestic relative price of goods M might be as shown by the lines intersecting at those points and tangent to social indifference curves that lie below I_1 . When the economy is opened to trade, the monopolist must choose the most profitable output attainable at the new world prices; he becomes just one more competitor in the world market and behaves no differently from a competitive industry.

The welfare gains from the opening of trade, to the level of social welfare I_2 from the level indicated by the social indifference curve tangent to the intersecting line at P_0 or P_0' , consists of two components: the usual exchange gain from trade (I_1 to I_2) and the gain from improving the misallocation of resources due to monopoly

2. Notice the assumption that we have the same production functions and factor prices in both industries equal.

3. For discussions of the existence of equilibrium for an economy in which pure monopoly or monopolistic competition exists see Melvin and Warne [1973] and also Negishi [1961].

(P_0 or P_0' to P_1). Of course the domestic price of goods M will be reduced when trade is opened. However it should be noticed that the output of goods M may either increase or decrease when the economy is opened to trade.

Export Opportunities

Figure 3 corresponds to figure 2, except that it supposes X industry to be monopolized. On certain assumptions, the social welfare gains from exposing the monopolist to export opportunities is symmetrical with those from facing him with import competition. In the same way, figure 3 illustrates the increase in real income

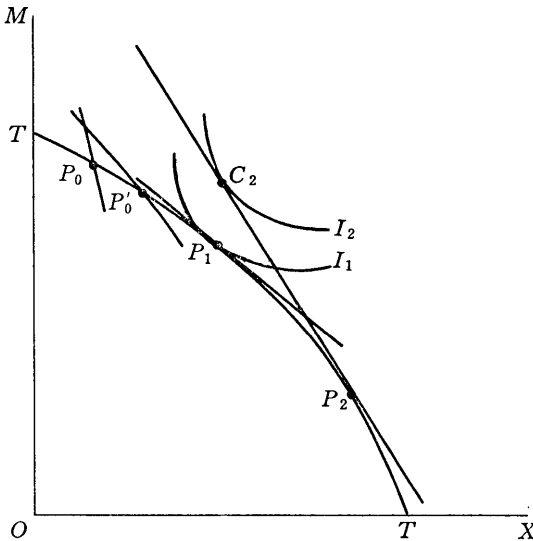


Figure 3

from the opening of trade (P_0 or P_0' to C_2) will be greater than it would be if the domestic market were competitive (I_1 to I_2). In

this case the domestic relative price of pre-trade monopoly-ridden goods X may either increase or decrease, although the output will be expanded.

3. Foreign Competition and the Gains from Trade: Restatement

Another consideration in the gains from trade from introducing foreign competition could be made in the analysis of partial equilibrium.⁴ It is assumed here that the supply curve for the competitor's industry is identical to the marginal cost curve for the monopolist. This assumption is made so that exclusive focus can be placed on the effects of market power (domestic market structure).

Import Competition

Welfare gains from import competition can be illustrated in figure 4, which represents the factors governing the price set by a profit-maximizing monopolist in the small country's case. Total domestic demand for the product is shown by demand curve D , and the corresponding marginal revenue curve is MR . The Monopolist's long-run marginal costs are indicated by the MC curve. In the absence of competition from abroad, the monopolist would choose the output that equates MC to MR . According to this, he would charge price OP_0 for output P_0B . The simplest way to depict foreign competition is to suppose that the product is produced competitively and sold at a market equilibrium price P_2 in the world market place. By assumption the supply of imports becomes perfectly elastic at the world price P_2 and can be shown as P_2D . The monopolist now becomes a price taker, and can only sell the output that will max-

4. The discussion here owes to Caves and Jones' (1973, Ch. 11) treatment.

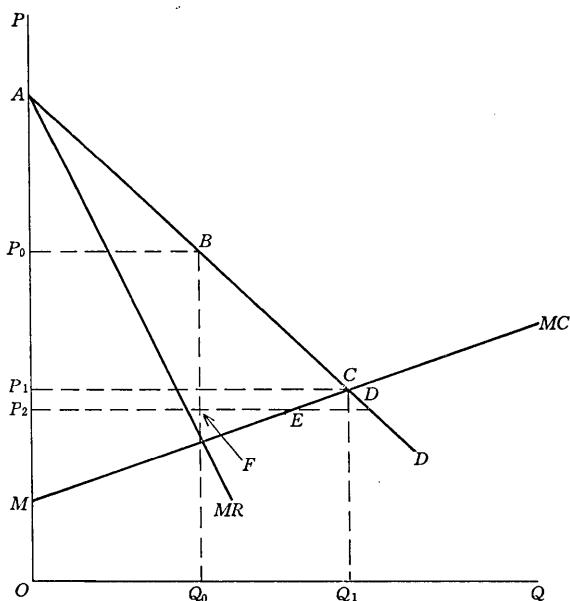


Figure 4

imize his profit at the world price P_2 . That output P_2E , and the country would consume P_2D , importing ED .

Figure 4 allows us to illustrate the change in consumer welfare that results from eliminating the monopolist's sheltered position in the domestic market. With import competition setting price P_2 , this consumer's surplus is AP_2D . But when the sheltered monopolist sets price P_0 , it is only AP_0B . The gain in consumer welfare, area P_0BDP_2 is not the same as the gain in social welfare, however. Part of it comes at the expense of profits for the monopolist, he loses extra profits above the world price on sales of OQ_0 , and this loss must be offset against the gain to consumers.⁵ A net gain remains, however, measured by BFD . We can also argue that a

5. In order to avoid income distribution problems, a government is assumed to secure a desirable distribution of incomes through some adjustment.

smaller gain would have resulted if the product had been sold competitively before the introduction of trade into the sheltered domestic market. Supply and demand in a sheltered domestic market would have been equated at price OP_1 , with quantity OQ_1 produced and sold domestically. By analogy to the case of the monopolist, we can see that the gross gain in consumer's surplus is now P_1CDP_2 . But part of this gain, again, represents a transfer away from the profits or surplus earned by firms in the competitive domestic industry.⁶ That surplus is reduced by the amount of P_1CEP_2 , leaving a net gain of CDE . This is included in BFD , the net gain when a monopolized market is open to trade, and thus is smaller.

Export Opportunities

Figure 5 reproduces the basic elements of figure 4, but the world price P_2 is now raised so that it lies above point C . And AC curve is not relevant yet here. Without protection of trade barriers he cannot charge price higher than P_2 at home. However at P_2 he will profit by supplying not only the quantity OQ_1 demanded by the domestic market, but also exports of Q_1Q_2 . Once again a net social gain accrues, measured by BDG (a net increase in consumer's surplus) and GKH (a gross gain in the producer's surplus, which may or may not offset his loss of P_0BGP_2).

The pre-trade competitive equilibrium would have yielded the price and quantity indicated by point C . The net welfare gain from trade of DKC is less than that in the monopoly case, $BDG+GKH$.

6. It is assumed that normal profits are included in the supply curve of the competitive industry (or the long-run marginal cost curve of the monopolist).

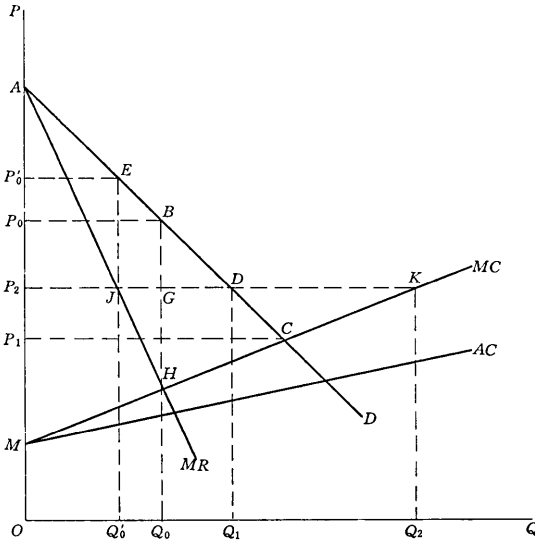


Figure 5

Notice how the output and domestic price of monopolized goods will be changed after the opening of trade. In partial equilibrium analysis we can not also predict the direction of change of an import-competing monopolist's output and the domestic price of an export-competing monopolist's product. Nonetheless we can make further remarks. The introduction of trade would bring a higher domestic price of exportable goods if the export-competing monopolist would discriminate between his domestic and foreign markets and otherwise it would cause a lower price for the domestic market.

4. Foreign Competition and Allocative Efficiency

In the previous section we could see that the introduction of foreign competition would eliminate monopoly profit, improve consu-

mer's welfare, and] increase social welfare as tht nee result. In other words, so far we immediately provided the result that either import competition or export opportunities tended to hold an industry's activity level to a competitive outcome. The effects of international competition in practice can diverge substantially from the restricted geometrical models which we described above.

In those models, imports selling in the domestic market at the world price were subject to no systematic disadvantage (or barriers to entry) relative to domestic import-competing sellers. Indeed, the number of firms and their behavior may be influenced by various barriers to entry. Although the economies of scale, absolute cost and product differentiation barriers are common to both the potential domestic and foreign entrants, the latter face an additional barrier--tariffs. However, the existence of the tariff barrier does not always mean that the height of the overall barriers is greater for the potential foreign entrants. Because different factor prices between countries determined by different factor endowments may generate lower long-run average costs for the potential foreign entrants relative to the potential domestic entrants, this implies that the absolute cost barrier will be lower for the foreign entrants.⁷ Moreover tariffs are likely to induce foreign firms to get behind the tariff walls, so that tariffs are not quite the barriers they seem.

In this context, another important point can be pointed out. That is, the monopolistic elements in national markets, such as scale economies, product differentiation will influence international trade performance in some different ways from industrial performance in domestic markets as we will describe below. Now the landed price

7. We assume that the potential domestic and foreign entrants have available similar technologies.

of imports is not simply the world price. Transportation costs should also be viewed as a barrier to entry for foreign firms. Thus the import price will reflect not only production and selling costs but transportation costs and tariffs as well. Empirically, these factors of comparative advantage, transportation costs, and tariffs have been found to be significant deterrents of excess profit. Empirical studies use total imports (or total exports in the case of export opportunities) as a percentage of domestic value of shipments to measure the degree of actual foreign competition or the level of international trade performance in an industry. The ratio also serves as a proxy for the threat of the potential foreign competition.

Esposito and Esposito [1971] have proved the negative and significant relationship between the ratio and profit rates to imports empirically. This result supports the hypothesis that one would expect profit rates to be lower in those industries where potential foreign competition is greater if foreign competition does limit established firms' ability to raise prices above long-run average costs. The theoretical and empirical analysis thus makes clear about the effects of import competition on allocative efficiency; the allocative efficiency effects of trade is positive.⁸ Let us now argue

8. The hypothesis may hold true if the dominant firms in the home market are domestic while the smaller firms and potential entrants are foreign. Alternatively there might be the opposite case where a tariff preserves competition in the domestic economy. The domestic market is supposed to be supplied by a large number of firms, domestic and possibly also foreign, so that concentration is low and competition vigorous. If free trade were certain to be maintained, a foreign producer might in time acquire a dominant position by temporary undercutting of prices and other familiar devices. However it may be known that government policy is to preserve part or all of the market for the domestic producers, or to preserve domestic competition, so that tariff would be imposed if a foreign entrant did acquire dominance or threatened to do so. The threat of a tariff in the case preserves domestic competition.

the influence of export opportunities on the degree of domestic monopoly. We discussed in section 2 and 3 that on certain assumptions, export opportunities are symmetrical with import competition in decreasing the ability of domestic firms with potential monopoly power to cause the misallocation of resources. Considering the export side, it is more ambiguous, that is, a number of cases arise.

In the case of export opportunities, the results are uncertain. It is well known that dumping is a profit maximizing strategy as long as the foreign elasticity of demand is greater than the domestic elasticity. As already shown in section 3, the price discrimination between the domestic and foreign markets causes a higher price to be charged in the domestic market than if no trade were occurring. Like other forms of discrimination, dumping tends to increase profit. Therefore the theoretical predictions about the effect of export opportunities on allocative efficiency are not clear.

Richard Caves [1974] has recently pointed out that dumping may be a more common business behavior in the context of oligopoly.⁹ The argument is derived from the hypothesis that domestic oligopolists are more likely to recognize their mutual interdependence in national markets than in world markets. That is, oligopolists are likely to be more collusive with their domestic rivals and more competitive in dealing with foreign rivals, so that a reduction in domestic price is perceived more likely to be matched by rivals than a reduction in foreign price. This implies that the foreign demand would be viewed as more elastic than the domestic demand and the conditions necessary for dumping arise. Moreover, the hypothesis

9. Notice that the standard theory of dumping has been within the context of monopoly. However, we can interpret a simple domestic producer as a collusive group of domestic producers behaving like a single producer through market-sharing arrangements.

of greater interdependence in national markets explains another likely behavior that occurs when domestic oligopolists facing rising import competition refuse to meet the lower price charged for imports. It could be suggested that in the face of import competition, oligopolists might simply yield up a share of the domestic market rather than cut prices to forestall foreign entry.

The reason for this behavior is that oligopolistic firms, at least in the short run, would rather suffer this erosion than enter into price competition because of the imperfect collusion among themselves. Although import competition is generally considered as a good anti-monopoly device oligopolists sometimes refuse to respond to its pressures. Unfortunately, there is little systematic evidence on the extent of dumping in markets for manufactured goods. An empirical study suggests that oligopolists are often willing to give up market share to imports rather than risk the breakup of tacit understandings.¹⁰

Recent contributions to international trade theory have attempted to introduce new and more concrete elements into traditional explanations of comparative advantage.¹¹ In these new explanations of trade flows, roughly speaking, there might be two common characteristics. First, it is assumed implicitly or explicitly that domestic demand is a prerequisite to developing an export industry when the products of this industry have to overcome barriers in order to enter foreign markets. Second, some of the traits of markets where competition is imperfect help new explanations of patterns of trade.

Product differentiation is one of the elements of imperfect

10. For example see Krause [1962], which deals with U. K. producer's responses to import prices.

11. These new models are surveyed by Tanaka [1973].

competition. In what follows, wherever international competition does occur in differentiated products, it makes market adjustments differ from what the theory of competitive markets leads us to trade flows. When products are differentiated the market share of individual producers becomes less sensitive to variations in prices offered by rivals resulting in a variety of forms of no price competition. In addition, differentiation may create barriers not only to potential domestic entrants, but to potential foreign entrants as well. Differentiation, however, is somewhat specific to national markets, that is, it may respond in some measure to national character, the physical environment, the taste of consumers.

It implies that, unless there is snob appeal attached to the foreign product and the potential foreign entrants already sell in other markets, domestic producers in differentiated industries will face less effective import competition (given the relative costs of production) than if the product were undifferentiated. Likewise, potential exporters of differentiated products face the need to make additional investments to produce customized orders to the differing specifications demanded by foreign buyers or produce goods which are specifically designed to meet the taste of consumers in the countries to which they are sold.¹² Therefore, the predicted role of both import competition and export opportunities in reducing the degree of monopoly should be weakened when differentiation is present.

12. Many goods are effectively differentiated between national markets--not just consumer goods styled to national tastes but all sorts of goods for which national standards exist and differ. But Esposito and Esposito's empirical analysis, dividing their sample into consumer-and producer-goods industries, concluded that product differentiation was the most important determinant of market power in consumer-goods industries. On the other hand, it indicated that seller concentration was the most important explanatory variable of profit rates in producer-goods industries.

A powerful test of the importance of product differentiation in international trade [Grubel and Lloyd, 1975] has been provided by the formation of the EEC, which has removed all tariffs among its member countries. The empirical study has shown that the increased international competition may serve mainly to deepen *intra-industry* rather than *intra-industry specialization*, extinguishing some industries and greatly expanding others. The oft-noted phenomenon of *intra-industry specialization* involves the exchange of goods which require essentially the same production process and which therefore cannot be explained by the traditional theory of comparative costs.¹³

We turn our attention to another monopolistic element. Scale economies also conspire to permit markets to be dominated by a few sellers within national economy. Generally economies of scale may affect international trade performance by providing domestic producers cost advantage in world markets and also generate feedback effects upon the level of industry concentration. If the relationship holds, this explanatory variable of market power will affect in favor of the rate of profit on the export side.

Drèze [1960] inquiring into the trade performance of Belgium advanced the hypothesis that small countries have a comparative advantage in goods that are internationally standardized and subject to economies of scale. In fact, only large markets would allow the exploitation of economies of scale. Thus, when production entails economies of scale, only large countries are able to produce efficiently

13. The intra-industry argument discusses mainly on the trade flows of relatively closer substitutes with the similar ratio of inputs. In addition, it involves the economies of scale. Otherwise it cannot explain completely a large increase in the interpenetration of markets.

products having national characteristics that differentiate them from foreign products. On the other hand, the market for internationally standardized products is worldwide, and small countries are on the same footing in it as large ones. This would give them a comparative advantage to specializing their production in exporting undifferentiated intermediate goods and importing differentiated goods. Indeed as described above, product differential barrier would be higher for potential foreign entrants (in the world market) than potential domestic entrants, and pervasive differentiation may restrict small countries' large-scale exports.¹⁴

5. Domestic Market Structure and International Trade

We have just considered that the hypothesis that less restricted trade policies encourage more competitive pricing behavior in domestic industries. Alternatively we could expect another relationship that runs from domestic market structure to international trade performance. A firm with market power will face different incentives and behave differently with respect to these trade performances than would a group of competitors. Unfortunately, there is little theoretical and empirical analysis on the effects of domestic market structure on trade flows. One suggestive study is White's argument [1974] thereafter extended by Pagoulatos and Sorensen [1975]. These analyses provide a useful starting point for analyzing the impact of market power on international trade.

The main conclusions emerging from White's paper are as follows. First, domestic industry market structure affects an indu-

14. Considering the import side, many ambiguous cases arise. See Caves [1974], p.14.

stry's international trade performance only when barriers to trade exist. When impediments to trade do exist, the world price need not prevail in the domestic market and the performance of monopoly and competitive industries is likely to differ substantially. Second, on the import side, a monopoly market structure is likely to allow greater levels than would a competitive industry, unless the domestic and imported products are perfect substitutes and all variables are known with certainty. The following reasoning for this proposition can be made. Since the demand for the domestic product is now less than infinitely elastic, the monopolist will set a higher price than will the competitive industry. This, however, will induce a greater demand for the imported product, hence more imports.¹⁵ Third, in exporting situations, however, the results are ambiguous. But a monopolist capable of dumping may export more than a competitive industry.

These complicated cases can be comprehensively illustrated in figure 5 in section 3. In section 3 we described the no-dumping case, in which domestic market structure does not affect the level of exports. Then he can choose to export and also sell at home but forego the monopoly profits from the domestic market. In this case, he becomes just another competitor in the world market and exports the same amount as would a competitive industry. But if he can segment his markets, the monopolist will generate a higher level of exports than will be a competitive industry, a difference of $Q_0'Q_1$. Alternatively suppose that dumping is not permitted by international trading rules. Unless the monopolist is willing to give up his extra profits from the domestic market, he will produce

15. For the detail of this proof see White [1974], pp.1015-1018.

exclusively for the domestic market and forego exporting, and no exports will occur. In the case where he cannot segment between domestic and foreign markets, which alternative he will choose will depend on the extra profits above the world price P_2 , that could be made by selling exclusively in the domestic market ($P_0 BGP_2$), versus the extra producer's surplus to be derived from selling in export markets (GKH). Therefore if dumping is not allowed, he might choose to focus his attention on the domestic market and export less than a competitive industry because at best, then, he will export the same amount as a competitive industry.

So far our analysis deals with the export and import side somewhat separately. Thus, one question arises: how the effects of domestic market structure on trade are in the context of general equilibrium framework. Pagoulatos and Sorensen [1975] give an answer in their analysis of multivariate regression for United States manufacturing industries. Market power gives a positive influence upon industry exports and also in import-competing situations the existence of market power is likely to result in industries allowing higher levels of imports. But the net effects of market power will deteriorate the balance of payments. Moreover the empirical analysis supports the hypothesis that the effects of market power on trade should be most pronounced in industries which are afforded some form of protection. Indeed, in the absence of impediments to trade, market power should have no or little effect upon an industry's international trade performance. Then the equilibrium point after the opening of trade is likely to be the same point as that starting from the competitive closed economy if the country in question is relatively small. Finally, the empirical result shows that there is a significant and positive relationship between scale economies and

export performance. The result is consistent with our argument in the previous section.

6. Monopolistic Closed Economy Versus Dumping in the Open Economy: Comparative Analysis of Welfare

As we already pointed out, the theoretical predictions about the effect of export opportunities on allocative efficiency, domestic market structure on the level of exports, and the direction of change of the domestic price with the opening of trade, depend upon whether dumping occurs in export industries when the economy is open to trade. However we are still left with the unsolved problem of whether dumping should increase national welfare in the country, although the effect of international trade on allocative efficiency is clearly negative in this case. This is a convenient place to make clear about this point.

The comparison in question is that between the effects on welfare of monopoly behavior and of discriminatory monopoly when the economy is open to trade.¹⁶ The consideration here is of the third comparison in figure 1. The two situations in question are illustrated in figure 5. Now *AC* curve is relevant in the context of discussion below. All assumptions already made hold. But another new one is added. The upward slope of the cost curve is assumed to reflect rising real cost at constant factor prices. In this case there is no producer's surplus and social gain is the total of profits and consumer's surplus. When the economy is open to trade, consumer's

16. The discussion below owes much to Cocks and Johnson's treatment. See Cocks and Johnson [1972]. Moreover, for a survey on the subject of dumping see Corden [1974, Ch. 8].

surplus would be reduced by $P_0'EBP_0$, while monopoly profits would be increased by JKH . In fact, monopoly profits must rise with the opening of trade, but producer's gain may or may not offset consumer's loss. There is nothing obvious in the diagram to give any guidance on the question of whether the gain of monopolist's profits is greater or less than the loss of consumer's surplus; and therefore whether the economy apart from the monopolist gains or loses from the opening of trade.

This question can, however, be resolved by means of elementary algebra. Let the cost curve be $c=m+bx$, with marginal cost $c'=m+2bx$, and let the domestic demand curve be $p=a-dx$, with marginal revenue $p'=a-2dx$. Equating MC with MR for profit maximization in the closed economy, we obtain

$$x=(a-m)/2(b+d),$$

$$c=m+b(a-m)/2(b+d),$$

$$p=a-[d(a-m)/2(b+d)].$$

$$\text{profit}=(p-c)x=(a-m)^2/4(b+d).$$

$$\text{Consumer's surplus}=(a-p)x/2=d(a-m)^2/8(b+d)^2.$$

$$\text{Total social gain}=(a-m)^2(2b+3d)/8(b+d)^2.$$

For the open economy, let P be the constant foreign price, x domestic production, and X domestic consumption. Setting $P=c'$ to determine x , and $P=p'$ to determine X , we obtain

$$x=(P-m)/2b,$$

$$c=m+b(P-m)/2b=(P+m)/2,$$

$$X=(a-P)/2d,$$

$$p=a-[d(a-P)/2d]=(P+a)/2.$$

$$\text{Profit} = (p - P)X + (P - c)x = \{[(a - P)^2/d] + [(P - m)^2/b]\} / 4.$$

$$\text{Consumer's surplus} = (a - p)X/2 = (a - P)^2/8d.$$

$$\text{Total social gain} = [3b(a - P)^2 + 2d(P - a)^2] / 8bd.$$

Subtracting the total social gain in the absence of trade from the total social gain with monopolistic discrimination in trade and factoring, $a - m = (a - P) + (P - m)$ yields

$$(1/8bd)[1/(b + d)^2][(4b^2d + 3b^3)(a - P)^2 + (2d^2 + d^2b)(P - m)^2 - (6d^2b + 4b^2d)(a - P)(P - m)].$$

Since the square of the coefficient of the third term is greater than four times the product of the coefficients of the first and second terms within the square brackets, the total expression is capable of taking on a negative value for low enough values of $(a - P) \cdot (P - m)$, indicating the possibility of a social loss from monopolistic discrimination.

7. Summary and Conclusions

The objective of this paper has been to investigate the normative implication of industrial market power. The gains from trade were then considered within the context of both general equilibrium and partial equilibrium, and it was shown that in the case where the rest of the world was perfectly competitive, trade would result in larger gains than in the competitive case, for besides the usual exchange gain from trade we have the gain from improving the misallocation of resources due to monopoly. The effects of international competition in practice, however, can be much more complicated than in the simple geometrical models. Therefore the effects of international competition on allocative efficiency were further exam-

ined under some systematic barriers to entry, and it was found that some monopolistic elements would influence the allocative efficiency effects of free trade; the predicted role of both import competition and export opportunities in reducing the degree of monopoly should be weakened when product differentiation, dumping, and scale economies are present.

The second task was to consider another relationship between domestic market structure and international trade performance. It was then concluded that a monopolistic market structure characterized by product differentiation was likely to allow greater import levels than would a competitive market. On the export side there would be a positive relationship between scale economies or dumping and export levels. The result would be consistent with economic reality.

Final problem was whether dumping should increase national welfare in the country while the allocative efficiency effects of international trade were negative. Our answer for this problem would be maybe or maybe not.

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