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No. 10, NOVEMBER 1974

INTERNATIONAL TRADE,
INTERNATIONAL INVESTMENT,
AND IMPERFECT MARKETS

RICHARD E. CAVES

INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY · 1974

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PETER B. KENEN, *Director*
International Finance Section

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MEMORANDUM

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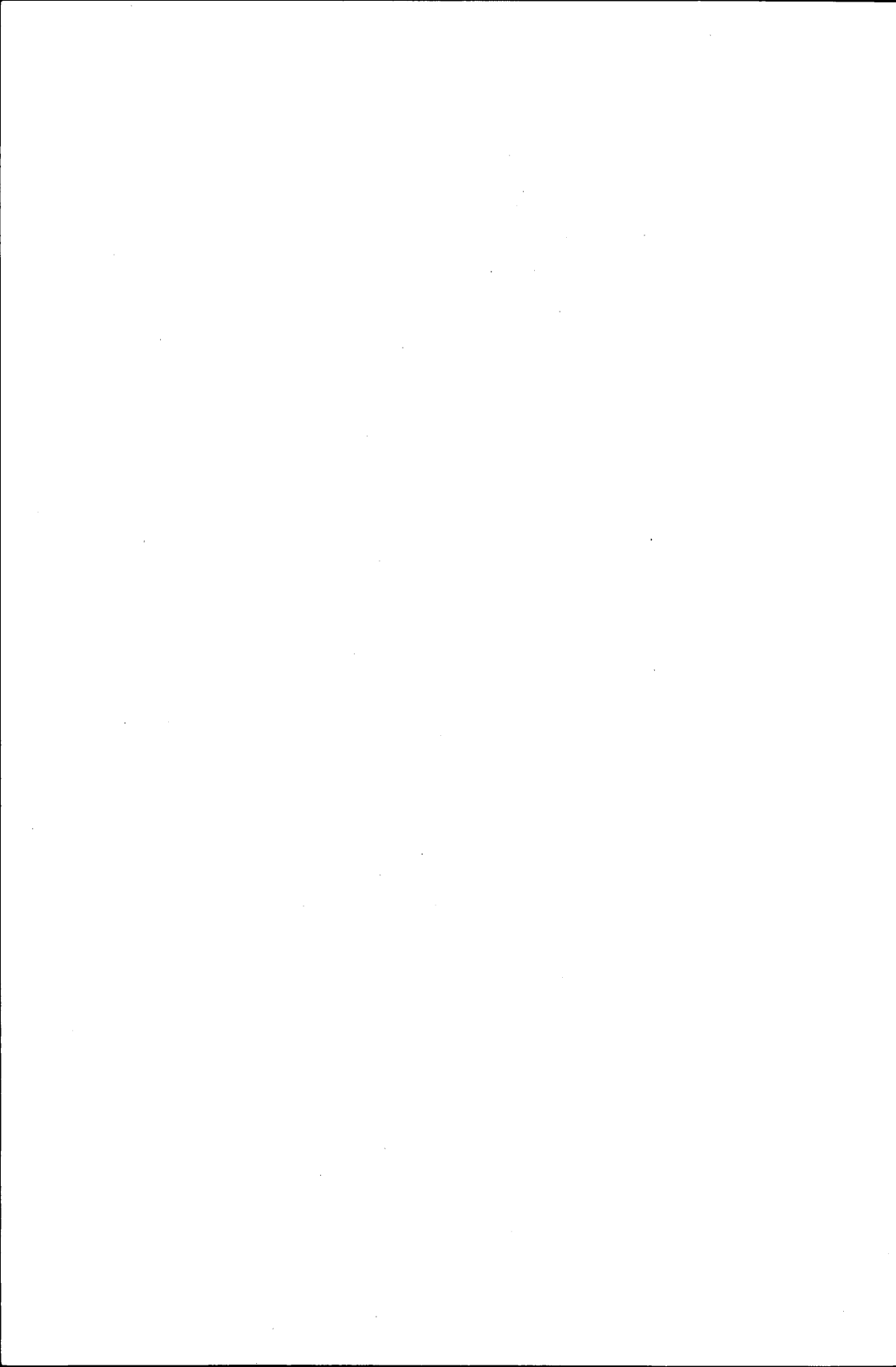
PREFACE

Much of the toil of my professional career has been in the vineyards of international trade and industrial organization. Until a few years ago these two branches of economics remained in sanitary isolation from each other—in my own thinking, and in that of nearly all other practitioners. Yet the intellectual costs of this *cordon sanitaire* kept appearing on the accounts. Why should research on industrial organization assume that markets always stop at national boundaries? How can international economics continue to ignore all microeconomic market imperfections? How can we light our way to understanding foreign direct investment with general-equilibrium theory for a lantern?

Several years ago, my research turned to the multinational corporation as a prime fugitive through the intellectual cracks between international trade and industrial organization. And I found myself in contact with other congenial research projects. Doctoral dissertations by William James Adams, Javad Khalilzadeh-Shirazi, and Robert T. Kudrle were delving into the effects of foreign trade on industrial organization and performance. Thomas Horst's research on the multinational company has run parallel to my own and supplied a continuing stimulus. And my bouts of recurrent Canada-watching have yielded nuggets of insight.

This essay, which has its origins in the Graham Memorial Lecture at Princeton University, attempts a brief statement of the interrelation of international trade and industrial organization as it appears to me today. I have tried to advance a loose-knit but flexible conceptual framework suited to the problems of empirical research. I have given some attention to the normative issues that arise when one contemplates industrial organization in an open economy. And I have sought to identify, doubtless with many oversights, some of the more fruitful research in this field. I am grateful for the honor of delivering the Graham Lecture as an occasion to gather these thoughts between covers. Thanks for stimulus and suggestions go to Michael E. Porter as well as those named in the preceding paragraph.

R. E. C.



International Trade, International Investment, and Imperfect Markets

The theory of international trade, like most general-equilibrium theory in economics, has depended heavily on the assumption of purely competitive product and factor markets for determinate positive results and simple welfare rules. The field of economics that studies actual product markets—industrial organization—by contrast takes an empirically oriented approach to its subject matter, eschewing general equilibrium and depending heavily on made-to-measure varieties of oligopoly theory.¹ The two subjects have never surveyed and recorded their common boundary. The problem is not one of disputed territory, but instead of a no-man's-land where important empirical phenomena have escaped capture by either side.

Among contributions to the theory of international trade that bear some relevance to the structures of multiple product markets, Frank Graham's model stands out. But Graham, like his programming progeny, needed the assumption of pure competition to obtain determinate results. In a sense, Graham's approach should have been more fruitful than it has been for empirical research in international economics. The world *does* contain n commodities and m countries, not two and two. Yet the development of theoretical research along this line since Graham (McKenzie, 1968), whatever its formal delights, has been fairly unproductive—except of cautions and warnings—for research into the causes and effects of the actual structure of trade. Instead, in response to the challenge of empirical explanation, we have the "new theories" of international trade, which steal into the micro-economic territory of industrial organization and quietly jettison the

¹ The reason for this will prove important to the discussion that follows. Traditional oligopoly theory, from Cournot and Bertrand to the theory of games, begins with cognitive and motivational assumptions that cannot be verified directly. Although testable assumptions are not always necessary for a fruitful theory, the combination that traditional oligopoly theory offers of nonoperational assumptions and indeterminate results leaves the empirical researcher with a nearly empty tool box. Specialists in industrial organization have tried to derive their theoretical predictions from observable and stable market characteristics—market structure rather than business behavior. For examples, see Bain (1968) and Stigler (1964).

assumption of pure competition without being very explicit about what they are putting in its place, or what the general-equilibrium and normative implications of that substitution might be.²

In light of the poverty of assistance forthcoming from international economics, this essay takes its viewpoint from the field of industrial organization. That field's research strategy is organized around the question: What elements of market structure are associated with good qualities of market performance? To address that issue, I shall try to build the forces of foreign trade and investment into the framework of concepts often used in industrial organization. The first section sets the scene by defining the gains from trade when monopoly is present. The second incorporates international trade into the analysis of market performance, and the third adds the role of foreign direct investment and the multinational corporation.

I. GAINS FROM TRADE WITH MONOPOLY

Assume that a small country can produce two products, food and clothing. Its factor markets are competitive and externalities are absent, so it operates at some point on its production-possibilities curve TT , in Figure 1. In the absence of trade and with both industries competitive, production and consumption would take place at C_1 . When exposed to world prices indicated by the slope C_2P_2 , the country's tastes, technology, and factor endowment are such that it will export clothing. Suppose now that the food industry is monopolized. In the absence of trade, food output will be restricted and clothing output expanded, so that production takes place at a point like P_0 or P_0' . The elevated domestic relative price of food might be as shown by the lines intersecting at those points and tangent to social indifference curves that lie below y_1 (tangent to TT at C_1). When the economy is opened to trade, the monopolist must choose the most profitable output attainable at the new world prices; he becomes a price taker and behaves no differently from a competitive industry.³ The increase in real income following the opening of trade, to the indifference curve y_2 from the indifference curve tangent to the intersecting line at P_0 or P_0' , consists of two components: the conventional gain from trade (y_1 to y_2) and the gain from forcing the food monopolist to stop restricting output (P_0 or P_0' to y_1). Notice that food output may either contract or expand when trade is opened, because the pre-trade monopoly-

² These models are surveyed by Johnson (1968); the most comprehensive empirical application is Hufbauer (1970).

³ Notice the assumption that the number of producers operating in an industry makes no difference for its cost function.

ridden output could be either P_0' or P_0 .⁴ The domestic price of food of course falls.

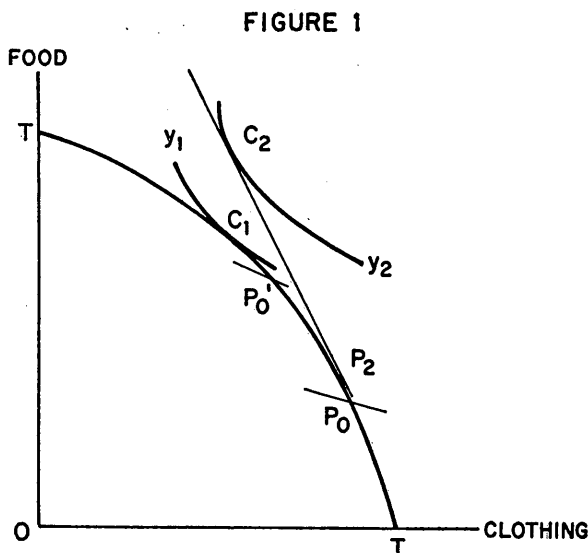
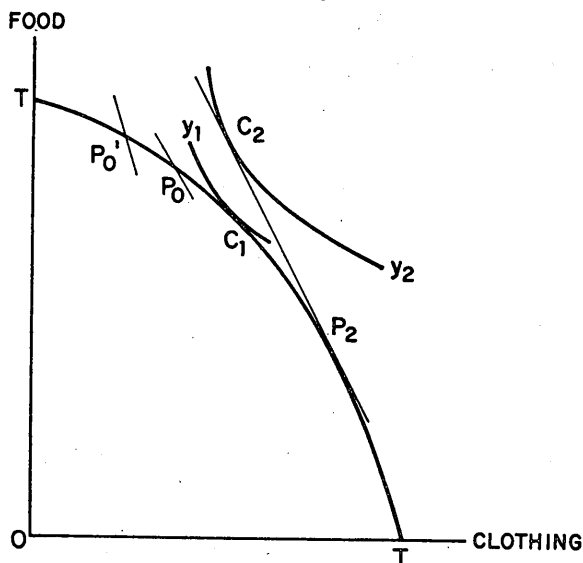


Figure 2 shows the effects of exposing a monopolist to trading opportunities when his industry is the potential exporter. Because we assume no transport costs or tariffs, so that the exporting monopolist must sell at the same price at home as he does abroad, this case turns out to parallel closely that of Figure 1. That is, the social gains from exposing a monopolist to export opportunities are conceptually like those from confronting him with import competition. Figure 2 matches Figure 1, except that it supposes the clothing industry to be monopolized. In the absence of trade, production of clothing at a point like P_0' or P_0 will be less than it would be (at C_1) if both industries were competitive. Opening the economy to trade makes it profitable for the clothing monopolist to expand output to P_2 and sell at price-ratio C_2P_2 both at home and abroad. Once again, the associated increase in real welfare combines the conventional gains from trade when all markets are competitive (y_1 to y_2) with the gain from forcing the monopolist to cease producing an output the marginal opportunity cost of which is less than its social marginal value (P_0 or P_0' to y_1).

⁴ Various writers have shown that in partial equilibrium we cannot predict the direction of change of an import-competing monopolist's output when impediments to trade are changed (see Vicas and Deutsch, 1964; Finger, 1971).

Notice that the domestic relative price of clothing may either fall (P_0') or rise (P_0), although the quantity of clothing produced definitely increases.⁵

FIGURE 2



II. FOREIGN TRADE AND MARKET PERFORMANCE

Using simple assumptions, the preceding analysis identified conditions under which threats or opportunities in the international economy would put an end to monopoly rents without altering monopolistic market structures. Considering the ingenuity that has been expended—fruitlessly, in my view—on confecting statistical or theoretical reasons why concentrated industries may not distort the allocation of resources, it is surprising that this line of attack has not proved popular.⁶ But the theoretical argument also makes it surprising that

⁵ For a somewhat simplified partial-equilibrium analysis of these cases, see Caves and Jones (1973, pp. 206-210); for further general-equilibrium results, see Melvin and Warne (1973). The partial analysis has the attraction of isolating possible consequences for the producer's surplus. By dealing with increasing costs in general equilibrium, the present text also neglects certain welfare problems that arise in the decreasing-cost case.

⁶ But cf. Stigler (1942, p. 7) and Weston (1953, pp. 114-115).

economists have scored fair success in finding statistical associations between allocative inefficiency (measured by excess profits) and the structural and behavioral determinants of access to monopoly rents (Comanor and Wilson, 1967), without taking international factors into account. Such results—mostly for U.S. manufacturing industries—indicate that international trade is not a sure cure for distortions in the national product market. On the other hand, recent research has suggested that trade variables can, in fact, add handsomely to our ability to explain the incidence of both allocative distortions (hereafter *allocative inefficiency*) and technical inefficiency (lack of cost minimization, e.g., owing to inefficiently small plants). The balance of this paper concentrates on generating explanations of how interindustry differences in international market forces can be expected to relate to differences in these dimensions of social performance. A principal result is that *the constraints which international trade and international investment impose on the price-quantity nexus chosen by producers function as substitutes for one another, and we can predict theoretically which is likely to be the strongest in a given market.*

Trade and Allocative Efficiency

The theoretical findings of section I immediately provide the result that either import competition or export opportunities tend to hold an industry's activity level to a competitive outcome. Which force is operative depends on where comparative advantage locates an industry's unit costs of production relative to the world price. There is no obvious reason to suppose that these unit costs are generally influenced by the structures of markets (cf. Pagoulatos and Sorenson, 1973), although I shall show below that international competition can influence unit costs by affecting the degree to which economies of scale are exploited.

The effects of import competition and export opportunities in practice can diverge substantially from the restricted theoretical model of section I. In that model, imports selling in the domestic market at the world price were subject to no systematic disadvantages—barriers to entry—relative to domestic import-competing sellers. Firms with established markets elsewhere in the world can potentially avoid two of the standard sources of disadvantage to market newcomers—the need to produce large quantities in order to reap substantial scale economies in production (relative to the national market) and absolute-cost disadvantages. (They may not avoid the third—product differentiation—as we shall note below.) The landed price of imports

is not simply the world price, however. It will be elevated by transport costs⁷ and by tariffs and related artificial impediments to trade, and these should thus be positively related to the excess profits that can be earned in the domestic market, *given* the level of domestic unit costs. But the positive relation is a contingent one. Tariffs and transport costs drive a wedge between the external and domestic price, but an industry with high unit costs may still be left with little opportunity to elevate price above cost.

Empirically, these factors of comparative advantage, transport costs, and tariffs have been found to be significant deterrents of excess profits when wrapped up in a composite proxy, the ratio of imports to domestic shipments (Esposito and Esposito, 1971; Khalilzadeh-Shirazi, 1974; cf. Jones, Laudadio, and Percy, 1973). This variable is not a very accurate specification of the underlying forces. What should constrain the profits of import-competing producers is not the market share held by imports but the responsiveness of their supply to an increase in the domestic price above the competitive level. A small share *ex post* could be associated with an elastic supply of imports, and hence a "limit price" allowing little permanent excess profit.⁸ Considering that the industries for which we have data are at least somewhat heterogeneous, however, the successful performance of the import-share variable grows more plausible, according to the following argument: Some well-defined products (hereafter *subproducts*) classified to an industry have no close importable substitutes, while others are subject to high cross-elasticities with respect to the prices of imports and face varying amounts of actual import competition. The import share, as a weighted average of these situations, probably reflects the prevalence of subproducts with close importable substitutes. An analogous argument might hold for the height of effective tariffs as a hypothetical predictor of excess profits for protected producers. The higher a tariff, the more likely is it to prohibit imports entirely (even at a price that maximizes the profits of domestic sellers). Against this argument run two other possibilities, however. First, tariffs may be set at a level designed to ensure the existence of a domestic industry; their relation

⁷ International transport costs need not exceed those for domestic shipments, and in some U.S. industries imports dominate coastal submarkets but not inland markets. On the other hand, international transport costs can be thought of as including extra real resource costs of transfer due to differences in language, legal system, product standards, etc.

⁸ Vicas and Deutsch (1964) have pointed out, for instance, that an import-competing monopolist can be forced to price at marginal cost by a government that stands willing to subsidize imports by the excess of their c.i.f. price over the monopolist's marginal cost. No actual imports need enter for the policy to be effective.

to domestic unit costs would then be systematic, and their height might be unrelated to the potential profits of domestic sellers.⁹ Second, data available on tariffs by domestic industrial categories are averages that seldom have the appropriate weights, i.e., the outputs of the protected subproducts that would be observed with competitive markets and free trade (Preeg, 1970, Appendix A). These problems may explain the negative results reported by McFetridge (1973).

I argued in section I that, on certain assumptions, export opportunities are symmetrical with import competition in constraining allocative inefficiency. The argument from the monopoly case is equally plausible for the case of oligopoly,¹⁰ where it suggests that the presence of an alternative export market renders sellers less conscious and solicitous of their mutual dependence in the domestic market, and hence less likely to effect a collective restriction of output. But the assumptions for this result are far less innocent than those generating the same prediction for imports. Ruling out transportation costs is particularly suspect, for a margin equal to twice international unit transport costs (perhaps plus tariffs as well) protects a collusive export industry that sells at home at a price higher than the "world" level.¹¹ The familiar geometry of "dumping" shows that, with non-decreasing average unit costs, the domestic price is apt to increase with the introduction of trade if the world demand curve is more elas-

⁹ Macdougall (1951, p. 704) found this pattern in pre-World War II U.S. tariffs.

¹⁰ The following analysis turns at several points on the consequences of confronting oligopolistic firms with a perfectly elastic demand curve. Hence, we should note how this maneuver will affect their profit rates. A firm having market power in its domestic sales expands its output to the point where the *marginal* rate of return on capital equals the opportunity cost of capital, at which point any monopoly rents leave the *average* rate above that opportunity cost. If export opportunities permit the firm, now acting as a competitive price taker, to expand foreign sales at a rate of return equal to or above the opportunity cost of capital, it will do so until rising marginal costs (or general-equilibrium changes in factor costs) make further expansion of exports unprofitable. In the process, its average rate of return could be drawn down; while total profits increase, the lump of profit from domestic market power is now averaged in with export activities yielding no such lump. The argument in the text emphasizes conditions whereby export opportunities might shrink domestic monopoly profits, but this effect is actually not necessary to a prediction that the export share of a firm's business is negatively related to its average rate of profit.

¹¹ Domestic price can exceed the f.o.b. revenue from a foreign sale without making arbitrage profitable. Another force works counter to any tendency of firms with extramarket opportunities to be less collusive in their home market. Evidence is accumulating that the "deep pocket" a firm acquires through diversified activities in markets other than the one under scrutiny tends to raise the excess profits earned in this base market. The mechanism at work is presumably that the "deep pocket" and the chance to conceal excess profits in a consolidated income statement deter new entry and perhaps discourage the expansion of small firms (see Rhoades, 1973).

tic than the domestic one. Like other forms of discrimination, dumping tends to increase profits.¹² I shall argue below that this outcome is theoretically likely even when oligopoly spills across national boundaries.

The theoretical predictions about the effect of export opportunities on allocative efficiency thus are not clear. One test, based on an international sample of large firms in selected industries, confirms the negative relation derived from the simple model (Adams, 1973, Chap. 7).¹³ The other, which studies the determinants of price-cost margins in U.K. manufacturing industries, uncovers a significant positive influence of the share of industries' outputs exported on their rates of profit (Khalilzadeh-Shirazi, 1973, Chaps. 1, 2). Its author offers as a possible explanation the greater riskiness of foreign than domestic trade owing to higher information costs, risks of exchange-rate variation, and risks of adverse actions by foreign governments. This uncertainty could drive up the supply price of capital and thus the rate of profit.¹⁴

Product Differentiation

An important conclusion of research on industrial organization is that the elements of market structure interact in determining profit rates and other measures of performance (Gale, 1972), and this finding extends to the role of international trade. Surely its principal interaction is with the structural trait of product differentiation (itself an amalgam of intrinsic traits of the product and past behavior of its producers). Product differentiation generally reduces the sensitivity of producers' market shares to variations in others' prices, diverts rivalry into nonprice forms, and contributes importantly to the creation of barriers to the entry of new firms. It has been widely suggested that product differentiation is somewhat specific to national markets, so that the varieties turned out by producers domiciled in one nation will be closer substitutes for one another than for differentiated

¹² Basevi (1970) shows that it can do so even if exports are sold at a price below pre-trade average cost (see also Frenkel, 1971; Pursell and Snape, 1973).

¹³ The same result appears in preliminary work on the French manufacturing sector by F. Jenny.

¹⁴ Also, it is possible that the comparative-advantage patterns of some countries, including the United Kingdom, allow exports to be dominated by products whose market-structure traits tend to support excess profits. If the hypothesis of a general negative relation between export opportunities and profit rates is valid, one would expect the "perverse" relation to be weaker in the more highly concentrated U.K. industries, and that is in fact the case. It is also worth noting that export opportunities seem to be associated with larger plant scales in those U.K. manufacturing industries where the diseconomies of small-scale plants are particularly important.

varieties originating in other countries. Differentiation may respond in some measure to national character, the physical environment, and the "public good" components of national conventions and habits. Even so, the producer who has differentiated his good successfully at home must enjoy some advantage for doing so abroad. Differentiation must supply most of the underpinning of Burenstam Linder's (1961, Chap. 3) proposition that a producer must establish himself in a domestic market before he can export successfully (cf. Hsu, 1972). On the other hand, the novelty value of imports may give them a product-differentiation advantage in some markets, at least for claiming small market shares. If the former proposition holds, it implies that 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 goods face the need to make additional investments to establish their intangible assets of "brand image" abroad, even though the prior establishment of such assets at home greatly facilitates that task. Therefore, the predicted role of both import competition and export opportunities in constraining market distortions should be weakened when differentiation is present.

The evidence from the effects of import competition on U.S. industries is rather mixed.¹⁵ In the cases of U.K. industries, it runs in the right direction but is not strong.¹⁶ Some potent evidence does appear, however, in the relative size of the discounts offered by various Indian exporters of manufactured goods from the prices of competing wares; differentiated products, as our hypothesis predicts, take a larger discount relative to physically similar goods produced in industrial nations and enjoying stronger reputations (Frankena, 1973).

Recent research by Porter (1973) has shown that important structural differences appear among the products that we usually consider differentiated, and these differences should influence the effect of international trade on market performance. Advertising and product competition influence final consumers, of course, but manufacturers proximately sell their wares to the nation's distributive sector, and the

¹⁵ Esposito and Esposito (1971) divided their sample into consumer- and producer-goods industries. With differentiation much more evident among consumer goods, we would expect import competition to have less impact on profits there. This relation appears in their most fully specified equations (Table 1, equations 2a, 3a) but vanishes when other variables are dropped or a heteroskedasticity correction is made.

¹⁶ Khalilzadeh-Shirazi (1973, Chap. 2) finds that the sensitivity of margins to import competition is greater in producer-goods industries, but the difference is not statistically significant. The same is true of the differential sensitivity of the margins of consumer- and producer-goods industries to export opportunities.