Geographic Market Definition in an International Context

George Hay

John C. Hilke

Philip B. Nelson

GEOGRAPHIC MARKET DEFINITION IN AN INTERNATIONAL CONTEXT

GEORGE HAY,* JOHN C. HILKE,**& PHILIP B. NELSON***

I. INTRODUCTION

Market definition is generally regarded as a key step in antitrust analysis. Market definition has two components. Product market definition seeks to include all products that are meaningful substitutes. Geographic market definition seeks to incorporate all relevant sources of the product in question. This paper is concerned with geographic market definition and, in particular, how geographic markets are defined in situations where competition may, at least to some extent, transcend national boundaries.

The subject of the paper may be of some current interest for two reasons. First, the perception is widespread that, over the past twenty or so years, competition in many products and services has become increasingly international in scope and that this trend will continue. Second, the way in which foreign competition is taken into account in performing the antitrust analysis can have a dramatic impact on the legal or policy conclusions that are reached in a particular instance. The legality of a proposed merger, for example, may turn entirely on how competition from foreign sellers is treated.[1]

For antitrust purposes, when we say that competition has become more international in scope, we mean primarily that the range of possible suppliers for many goods and services to U.S. consumers increasingly includes sellers who do not produce or are not primarily headquartered in the United States or that an increasing portion of sales by American-based firms are to customers abroad.[2] Many aspects of antitrust are po-

---

* Professor of Law and Economics, Cornell University. B.S. 1963, Le Moyne College; M.A. 1967, Ph.D. 1969, Northwestern University.
** Staff Economist, Bureau of Economics, Federal Trade Commission. B.A. 1973, Swarthmore College; M.A. 1976, Ph.D. 1978, Cornell University. The views expressed in this paper do not necessarily reflect those of the Commission or of any individual Commissioner.
*** Senior Economist, Economists, Inc. A.B. 1973, Dartmouth College; M.A. 1975, M. Phil. 1977, Ph.D. 1980, Yale University.
1. See, e.g., Note, *Antitrust Implications of Domestic Mergers: A Proposal for the Treatment of Imports and Its Application to* LTV-Republic, 60 N.Y.U. L. REV. 667 (1985).
2. The internationalization of markets may not be completely symmetric. Many American producers complain that while foreign suppliers are welcomed in U.S. markets, American suppliers have a difficult time breaking into foreign markets for reasons having little to do with the price or

tentially affected by these changes.[3] Some of the more complex issues involve "jurisdictional considerations" and these will not be discussed here.[4] As we will see, however, the subject of market definition exposes almost all of the substantive (as opposed to jurisdictional) considerations that come into play when we take account of the international aspect of certain markets.[5]

The paper has three main parts. The first focuses on the role market definition plays in antitrust analysis and, in particular, the link between market definition and market power. The second explores the particular issues that are raised with respect to market definition when there is an international aspect to competition. The final section addresses some of the empirical questions raised by the largely theoretical analysis of the first two parts of the paper.

II. MARKET DEFINITION AND MARKET POWER

To understand the role of market definition, and geographic market definition in particular, some context is helpful. Modern antitrust analysis usually contains two main steps. First we assess the degree of so-called "market power," which represents the potential for competitive harm; then we analyze the competitive consequences of certain specific conduct that has been brought to our attention.[6]

---

quality of American goods. The evidence supporting this complaint, perhaps unavoidably, is largely anecdotal.

  3. Large chunks of antitrust "activity" continue to involve products and services that are very local in character. To confirm this phenomenon, one need only peruse the press releases of the Justice Department announcing the filing of new antitrust cases.

  4. For a nice summary of these issues and the way the Justice Department recommends they be handled, see the recently issued Antitrust Guide for International Operations, 53 Fed. Reg. 21,584 (1988) (proposed June 8, 1988).

  5. It should be acknowledged that, while the influence of foreign suppliers is perhaps quantitatively more significant than it has been in this country's recent past, foreign competition is not unique to the 1980s. Hence, it should come as no surprise that many of the issues being discussed in antitrust circles today have been subjects of discussion for much of the life of our antitrust laws, with some of the important, and still relevant, decisions dating back more than fifty years. See, for example, the discussion of foreign competition in Judge Hand's famous *Alcoa* opinion. United States v. Aluminum Co. of Am., 148 F.2d 416 (2d Cir. 1945).

  6. Certain categories of conduct are regarded as illegal per se, and will be condemned without any showing of individual or collective market power. Horizontal price fixing is the classic example. Traditionally, we have regarded price fixing as so inherently anticompetitive (and so lacking in offsetting benefit) that we condemn it irrespective of the degree of market power held by the price-fixers. When conduct falls in the category of a per se violation, the result is that once the conduct has been established, there is no successful defense, including the defense of no market power. There is a bit of a contradiction here since, if there is really no market power, and therefore no potential for competitive harm, it is difficult to see how the conduct can be seen as inherently anticompetitive. One answer is that we recognize the imperfection of our market power analysis; *i.e.*, it is possible to make a mistake and conclude there is no market power when in fact there is. (Indeed the behavior of the parties in seeking to fix prices suggests that they think there is some potential for extracting higher prices from consumers.) Since we cannot think of any redeeming virtue for the conduct, the

We do the analysis in two steps to save ourselves some effort. If we find that the structure of the market is such that there is little potential for competitive harm (because competition is too intense), we can choose not to bother with the second step and let firms behave as they please without worrying about any possible anticompetitive consequences since the presence of effective competition provides a powerful antidote for efforts by firms to exploit consumers.[7] Firms that set prices too high, or impose unwanted conditions on the sale of their products (like tie-ins), or who seek to insulate dealers of their product from competition with one another, will lose out to rivals who behave more in keeping with the consumer interest.[8]

This two-step approach has long been the norm in monopolization cases under Section 2 of the Sherman Act[9] where a firm cannot be found liable for monopolization unless it has monopoly power (or at least there is a dangerous probability of obtaining it). It is also employed in merger cases under Section 7 of the Clayton Act[10] where, unless the industry displays a structure conducive to the exercise of market power, the merger will not be challenged.[11] More recently it has become the practice to evaluate most claims under Section 1 of the Sherman Act as well using this two-step process. In the case of vertical nonprice restraints,

prudent approach is to condemn it all the time. However, for conduct which is not inherently anticompetitive and has some significant potential for creating efficiencies, condemning it all the time is unlikely to be a sensible policy prescription. For a recent case in which the possible tradeoff between blanket condemnation and preliminary market power analysis is discussed in some detail, see *Superior Court Trial Lawyers Ass'n v. F.T.C.*, 856 F.2d 226 (D.C. Cir. 1988).

7. This should not be taken to mean that it is improper to examine firm conduct for evidence that a firm has market power. For a discussion of the problems that arise when firm conduct is ignored in reaching a determination about the presence of market power, see Hilke & Nelson, *Nonprice Predation and Attempted Monopolization: The* Coffee (General Foods) *Case,* in THE ANTI-TRUST REVOLUTION 208 (J. Kwoka & L. White eds. 1989).

8. A second factor is that the absence of market power may allow us to infer something about the possible social benefits of conduct without the need fully to evaluate or understand the conduct. If the firms cannot expect to earn monopoly profits from their activities (because they do not enjoy any market power), it may be reasonable to presume that the purpose of the conduct is to achieve some efficiencies. Hence, for example, vertical nonprice restraints instituted by manufacturers without market power may safely be assumed to be motivated by a desire to encourage dealers to provide certain presale services valued by the consumer rather than an effort to extract (or allow dealers to extract) supracompetitive profits. But even if we are wrong about the manufacturer's motive, we need not worry because interbrand competition will prevent the manufacturer from getting away with his misconceived scheme to bilk consumers.

9. 15 U.S.C. § 2 (1982).

10. *Id.* § 18.

11. In merger analysis, the second step is often implicit. Since a merger will almost certainly eliminate competition between the merging firms, the merger is normally presumed to be anticompetitive if the first step shows a significant potential for anticompetitive harm. Only recently has the Department of Justice begun to consider the possible efficiency gains from a horizontal merger as an offset to an otherwise anticompetitive merger. 1984 Merger Guidelines, 49 Fed. Reg. 26,823, 26.834 (issued June 14, 1984).

for example, courts are increasingly asserting that, absent a showing of market power, the restraint will be held lawful.[12]

Since market power plays such a key role in antitrust analysis, it is necessary to have both a proper conceptual understanding and a workable empirical means of identifying market power.[13] The first of these is relatively straightforward. At the conceptual level, market power can be defined as the ability of a firm or group of firms *profitably* to raise prices significantly above competitive levels for a sustained period.[14] (Henceforth we will speak primarily in terms of individual market power to make the discussion simpler, but the extrapolation to collective market power for purposes of considering conduct by several firms in concert is straightforward.) This definition is fully consistent with a consumer welfare orientation for antitrust. The concern with certain business arrangements is that they may directly or indirectly enable a firm to extract higher prices from consumers. If the market structure is sufficiently competitive that there is little danger of consumers being gouged, then there is little to fear from the business conduct under examination.

As for the second step, the tradition in antitrust analysis has been to associate market power with a large market share. For example, market share plays a prominent role in all the classic judicial opinions in Section 2 monopoly cases,[15] and is increasingly used in Section 1 cases as an indicator of market power.[16] This tradition of associating market power

12. For a good discussion of origin and application of the two-step process in Section 1 cases, see Briggs & Calkins, *Antitrust 1986-87: Power and Access (Part I)*, 32 ANTITRUST BULL. 275, 276-301 (1987). Ironically, vertical price restraints are still regarded as unlawful per se. Since price and nonprice restraints are often difficult to distinguish, the disparate treatment has resulted in considerable confusion. *See* Hay, *Vertical Restraints After* Monsanto, 70 CORNELL L. REV. 418 (1985).

13. There is an intriguing and potentially important issue of whether there is any distinction between "market power" and "monopoly power." The terms are often used interchangeably by economists and judges, yet an argument can be made that market power represents (or should represent) a lesser degree of power than monopoly power since a requirement of establishing monopoly power in Sherman Act Section 1 cases would make Section 2 of the Sherman Act virtually superfluous. For more on this esoteric but important issue, see Briggs & Calkins, *supra* note 12.

14. This particular definition has become more or less the standard among academic commentators and antitrust practitioners since it was set out in the Merger Guidelines, 47 Fed. Reg. 28,493 (1982) (issued June 14, 1982) (preceding the 1984 Merger Guidelines, *supra* note 11). Courts, on the other hand, have not always been very uniform or very precise in the definition they employ in writing opinions. *See* Briggs & Calkins, *supra* note 12. The emphasis on the word "profitably" is deliberate. Any firm, even one with many competitors, can raise the price and maintain the high price indefinitely, but the firm facing a lot of competition will lose money in the process.

15. Perhaps the most prominent example is Judge Hand's opinion in the *Alcoa* case, where he opined on the minimum market share needed to establish monopoly power. United States v. Aluminum Co. of Am., 148 F.2d 416, 424 (2d Cir. 1945).

16. *See, e.g.*, Assam Drug Co. v. Miller Brewing Co., 624 F. Supp. 411, 413 (D.S.D. 1985) (a plaintiff challenging a vertical territorial restriction must show, at the threshold, the absence of substantial competition in the relevant product market through the possession by defendant of a dominant market share).

with large market shares is what creates the need for market definition. In order to measure market share we need to know the answer to the question "market share of what?" That is what market definition, including the definition of geographic markets, is supposed to help us find out.[17] Defining markets is deciding which firms get counted (and how they get counted) when doing the arithmetic computation of market shares.[18]

Since the purpose of defining markets is to enable the factfinder to reach an inference as to the existence of market power, markets should be defined in such a way that, when market shares are computed, they provide as reliable an index as possible to the degree of market power present.[19] Markets that are defined too narrowly will typically result in market shares that overstate the degree of market power present by ignoring important sources of competition. Markets that are defined too broadly will typically understate the degree of market power by including in the market share calculations sources of competition that are distinctly inferior as a threat to the exercise of market power.[20]

As we will discuss, the risk of defining markets too narrowly or too broadly is likely to be especially serious when the issue is whether foreign sources of competition are realistic alternatives for American consumers. However, in order to appreciate the complexities associated with defining markets so as to account properly for foreign sources of supply, it is important to recognize that, even in the best of worlds, the link between market share and market power is somewhat indirect.

Market share, as we usually think of it, is historical or backward-

17. As Landes and Posner have argued, it may be possible to measure the degree of market power directly without reference to any specifically defined market or market share. However, the data with which to perform such measurements may be difficult to obtain or be subject to ambiguous explanations. Thus, analysts have typically turned to more indirect ways of assessing power. *See* Landes & Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937 (1981).

18. Market definition has both a product and a geographic dimension. It matters for purposes of measuring Coca-Cola's market share whether we are limiting the market (*i.e.*, the denominator which will be divided into Coca-Cola's sales) to cola-flavored soft drinks or to all carbonated non-alcoholic beverages. (In this example, market definition can also affect the numerator. If Coca-Cola sells non-cola-flavored carbonated soft drinks, its own sales, the numerator, as well as the denominator will be affected by expanding the market.) It matters for purposes of measuring U.S. Steel's market share of a particular steel product whether we are considering only sales made in the United States, or are including in the denominator sales by steel companies anywhere in the world.

19. Landes and Posner have observed that, at least in principle, it ought to be possible to assess the degree of market power without bothering with market definition (and hence without using market shares). Data availability problems, however, may necessitate the use of more indirect measures of market power, such as market share. Landes & Posner, *supra* note 17, at 952-53.

20. In rare cases, an excessively narrow definition may result in understating market power and vice versa. For example, an overly broad definition may artificially inflate a firm's market share by including the firm's sales of a related product when that related product is not in fact an effective substitute for the product under consideration.

looking; it tells us the relative sales success of a firm and its rivals last month or last year, a period when competitive conditions may have prevailed.[21] On the other hand, the concept of market power is dynamic, or forward-looking. The degree of market power enjoyed by a firm depends on how much business it will lose to its rivals *if* it attempts to raise price above competitive levels. The traditional link between market power and market share is based on the assumption that, if a firm had a large share of the market before initiating a noncompetitive increase, it will retain much of that business afterwards, *i.e.*, that rivals will not take away enough business to make the price increase unprofitable.[22] However, there may be many circumstances in which this working assumption will not be satisfied 'and (historically) small rivals would be fully capable of rapidly expanding output and attracting additional customers from the firm that initiated the price increase. In such a case, historical market shares would tell us nothing about market power.[23]

The purpose in exposing these limitations on the inferences to be drawn from market share is to lay the groundwork for the introduction of foreign competition. Our goal cannot be to define markets so that market shares are a perfect proxy for market power. Rather, the more modest objective is to treat foreign sources of competition in such a way that market shares are no less valid a proxy for market power than they would be in a purely domestic context.

---

21. It is of course possible that, in the base year for measuring market shares, the firm with 90% of the market was already charging a price that exceeded the competitive level. Hence, the firm enjoys monopoly power even if it could not profitably raise prices any further. Where we can actually observe and detect supracompetitive pricing, the need for inferences based on market share is obviated.

22. This assumption is, in turn, supported by the intuitive notion that there is a natural limit to the degree to which rivals are capable of expanding output. Hence, if a firm starts out with a large share (*e.g.*, 80%), even a doubling of the rivals' collective sales would still leave it with a large enough volume of sales that the price increase will have proved profitable. If, on the other hand, the firm initiating the increase starts out with only 20% of the market, even a modest percentage increase in output on the part of rivals collectively will result in a substantial loss of sales, enough that the higher price on the retained sales probably will not compensate for the foregone revenue from the sales that are lost.

23. The degree of market power will also be affected by the availability of good substitutes for the product in question. The tradition in antitrust has been to evaluate the "goodness" of substitution on an either/or basis. If there are good substitutes, the market is redefined to include those substitutes. Otherwise, the market is defined narrowly, and it is presumed that a firm with a large share of the market as defined has "market power." How good the degree of substitutability has to be to cause the substitutes to be included in the market is not always specified with precision. The 1982 Department of Justice Merger Guidelines (and the 1984 revised version) reverse the process, and state that the market will be defined narrowly if a firm with a large share (*e.g.*, 100%) is sufficiently insulated from substitutes that it can profitably raise price significantly above the competitive level. Of course, before one can use this rule to decide how to define markets, one needs to know what is meant by "significantly." The tradition since publication of the Merger Guidelines has been to think in terms of a 5% or 10% increase in price as the benchmark.

III.   MARKET POWER AND FOREIGN COMPETITION

A.   *How Foreign Competition Can Limit Domestic Market Power*

Under the U.S. antitrust laws, the issue of foreign competition typically arises when it is claimed that competition from foreign producers limits the market power of domestic firms.[24] This can happen in several ways.

At least in principle, foreign producers can affect the market power of domestic firms even where foreign producers make no sales in the U.S. and, for whatever reason, are unlikely to do so even if the price in the U.S. were to be elevated above competitive levels. For this to occur requires that domestic producers sell in foreign markets where they compete against foreign producers, and that the following two conditions be met:

1. Sales in foreign markets are a significant percentage of total sales for U.S. producers.

2. U.S. producers cannot discriminate in price between foreign and domestic sales; *i.e.*, they must charge the same price (net of transportation charges) in the U.S. as they charge for sales to foreign consumers. (This condition is more likely to be fulfilled when there are good opportunities for arbitrage, *e.g.*, some intermediary buys goods intended for export to foreign markets and redirects them to the U.S. market.[25] This arbitrage will frustrate the efforts of U.S. sellers to charge higher prices to U.S. consumers.)

Where both of these conditions are satisfied, U.S. producers, who would then be faced with the choice of selling to both sets of consumers (U.S. and foreign) at a price which reflects the competition they face against foreign firms, or abandoning foreign sales and selling only in the U.S., where they can take advantage of the more limited competition, are more likely to choose the former.[26] Mechanically, the way this situation would be analyzed under the market share approach to assessing market power would be to define the market as international (even though the

---

24. Obviously, there may be special circumstances when the producer with market power is itself a foreign firm. It will be straightforward to extend the analysis presented in the text to cover that situation.

25. In the case of branded consumer products, arbitrage may be limited by the U.S. Customs policy of preventing "unauthorized" entry of goods bearing a trademark owned by a U.S. firm. An exception to this policy is allowed when the U.S. trademark holder is owned by a foreign firm. For a discussion, see Hilke, *Free-Trading or Free-Riding: An Examination of the Theories and Available Empirical Evidence on Gray Market Imports*, 32 WORLD COMPETITION 75 (1988).

26. For a more precise (but more complex) explanation and a mathematical proof of the impact of foreign sales on a domestic firm's market power, see Landes & Posner, *supra* note 17, at 968, 983-96.

focus of interest is on U.S. consumers),[27] and to count all the sales of foreign producers and both the domestic and foreign sales of U.S. producers. The apparent high shares of domestic producers (vis-à-vis domestic consumers) would evaporate as the market was expanded, and the (presumably) much lower degree of concentration in overall sales would provide an accurate picture of the state of competition. Hence, while U.S. consumers are genuinely without competitive options, U.S. producers would not find it profitable to take advantage of their vulnerability.[28] If this approach is to be followed, a rule is needed to decide when sales of U.S. producers in foreign markets are "enough" so that the first condition is satisfied.

However, the most obvious way that foreign firms can limit the market power of domestic firms is when foreign firms actually sell some or all of their output in the U.S. in direct competition with domestic firms, or at least are prepared to do so if the price in the U.S. rises above the competitive level. In these circumstances, one might attempt to incorporate the competitive effect of the foreign suppliers simply by defining the geographic market as the U.S. and, where the foreign firm has a record of actual sales, to include those historical sales in the market share calculations just as if the firm were domestic.[29] For example, in the case of a foreign firm which had actual sales in the U.S. equal to 5% of total U.S. sales in the time period for which data are available, the foreign firm would be given the same weight as a domestic seller which also had 5% of the market.

Our earlier discussion of the meaning of market shares makes it clear why this approach may not be satisfactory. Keeping in mind the

27. When we indicate that a market is "international" we do not necessarily mean that all foreign producers are in the same market as U.S. producers. We only mean that some foreign producers must be recognized as effective competitors of U.S. firms. For example, tariff barriers that insulate foreign producers from competition may allow inefficient foreign producers to survive. These inefficient foreign firms will have no impact on U.S. prices and thus are not in the relevant market.

28. These conditions seem somewhat esoteric, but the reader will recognize that an analytically similar phenomenon is routinely experienced in the context of defining product markets. The fact that some consumers would not change to an alternative brand of cigarettes even at substantially higher prices ("I'd walk a mile for a Camel!") does not give the manufacturer of that brand any exploitable monopoly power if most of that producer's customers are prepared to switch as soon as prices are raised above competitive levels.

29. Where a firm has made no sales in the U.S. (even though it might have substantial worldwide capacity and may have been a significant seller in other parts of the world), it would be ignored in calculating U.S. market shares (as would a potential competitor based in the U.S.) and, therefore, would not be directly taken into account in assessing the market power of domestic firms. Just as potential domestic competition, *e.g.*, new entry, can be tacked on to the market share-based analysis, so too could the foreign firm with significant capacity be taken into account as an "extra" factor, and serve to modify the conclusions that were tentatively drawn from the market share analysis.

forward-looking meaning of market power (what will happen if a firm attempts to raise price above the competitive level), the interpretation we are implicitly adopting is that the foreign firm with historical sales accounting for 5% of the U.S. market represents the same threat to the dominant firm attempting to exercise market power as the domestic firm with a 5% share.

This interpretation may understate the competitive threat posed by the foreign firm. The domestic firm with 5% of the market may try to expand sales somewhat at the expense of its larger rival who has initiated the noncompetitive increase, but there are likely to be limits on the amount of additional output that can be expected due to the difficulty of economically expanding production capacity in a short amount of time or some other constraint.

However, an important distinction between the foreign firm with 5% of U.S. sales and its domestic counterpart is that, in most instances, the foreign firm will not be devoting all its production capacity to serve the U.S. market.[30] If prices in the U.S. rise, it is possible for the foreign firm, without increasing total output, to reorient its distribution pattern and ship a larger percentage of its total production to the U.S. Hence, unlike the "typical" domestic rival, the foreign firm need not depend on increasing production to increase sales in the U.S. and hence is likely to be able to respond not only more quickly but also with greater quantity. If so, the foreign firm is more of a threat than the domestic firm with the same historical "market share" and conclusions about market power based on historical market shares are subject to error to a greater degree than is anticipated in the situation where competition is limited to domestic firms.

It might be argued that, in other respects, a foreign firm is at a disadvantage relative to the domestic firm with comparable U.S. sales, due to the possibility of transportation costs, tariffs, or other trade barriers. However, at least in the first example we used above, where the foreign firm has actually made some sales in the U.S., it must have overcome those barriers in order to penetrate the U.S. in the first place. (Perhaps the foreign firm's manufacturing costs at home are low enough to compensate for any disadvantages, or the foreign firm has some other offset-

---

30. The fact that foreign supply is being imported into the U.S. suggests that it is unlikely that much U.S. production is being exported (unless transportation costs are trivial or structured so that imports are flowing into one part of the U.S. while exports are flowing out of another part of the U.S.). If products are defined properly, two-way trade flows of the identical product are the exception, not the rule. Hence it is unlikely that the typical domestic firm has the capacity to increase sales in the U.S. by redirecting production that is currently going elsewhere. A finding of two-way trade suggests the need for a tighter production market definition.

ting advantage.) Hence, these trade barriers should not be an obstacle to the firm's making additional sales in response to the higher domestic price.[31] Indeed, even where the foreign firm has not penetrated the U.S. market at all, while it is certainly possible that such barriers are substantial enough to keep out foreign supply even if prices in the U.S. are raised, it is also possible that imports were just marginally unprofitable at competitive prices and a noncompetitive price increase would be enough to cause large diversions to the U.S. market.

B.   How Traditional Merger Analysis Accounts for Foreign Competition

Where it is clear that, because of the threat of foreign competition, domestic market shares provide a seriously misleading picture of the degree of market power, the traditional solution has been to redefine the market to make it broader than the U.S. (*e.g.*, all North America, North America and Europe, the entire non-Communist world, the entire world, etc.). Market shares are then be measured based on sales everywhere in this broader market and the usual inferences about market power drawn.[32] Much of the literature on geographic market definition has been concerned with deciding when the geographic market should be expanded beyond the U.S.[33] The analytical tests that have been suggested fall primarily into three categories.[34]

---

31. Quotas make for an exceptional case. Where the foreign firm is subject to a quota expressed in terms of a specific volume of shipments, and the firm is already at the ceiling permitted under the quota, then no additional imports will be forthcoming regardless of the higher price. Where the foreign firm is under a percentage quota, where the level of permissible imports is expressed as a percent of domestic output or consumption, the situation is perverse. As the domestic price rises, domestic production and consumption will decline, requiring a concomitant decline in the amount of allowable imports. In this case, the foreign firm would represent less of a threat to the market power of a domestic firm than would a domestic rival with the same historical market share so long as the quotas remain in effect.

   The dynamics of other trade restrictions may cause them to resemble quotas. It is often observed that pressure to increase trade protection and more vigorously enforce current restrictions increases with the volume of imports. If so, other restrictions will resemble quotas in their effect.

32. Implicit in this approach is the expectation that all consumers in the market as defined, not merely consumers in the U.S., would be the potential victims of a noncompetitive increase. This is not inconsistent with the focus of concern being consumers in the U.S.

   This approach may lead to incorrect conclusions when some foreign producers can not influence U.S. pricing. For example, it may be that Japanese firms are insulated from foreign competition by a tariff. Thus, some inefficient Japanese firms may survive, (perhaps because of high Japanese prices set by a dominant firm). These inefficient Japanese firms will not affect U.S. pricing in any significant way, even if there is a relatively efficient Japanese firm that could compete for U.S. sales at higher U.S. prices.

33. For an excellent discussion of these issues, and a more detailed survey of the relevant literature see Dobson, Breen & Hurdle, *Geographic Market Definition: A Review of Theory and Method for Domestic and International Markets*, 14 J. REPRINTS FOR ANTITRUST L. & ECON. 937 (1984) (an undated Federal Trade Commission paper). Some of what follows is drawn from that paper as well as from the specific sources discussed or cited in that paper.

34. The tests are not mutually exclusive. The 1984 Department of Justice Merger Guidelines,

1. Analysis of Possible Barriers to Imports

The first is an evaluation of the factors that are (or at least ought to be) important in determining whether foreign firms can compete on a more-or-less even footing in the U.S. The factors that tend to be emphasized are those which might operate as barriers to effective competition by foreign firms, especially trade barriers—tariffs or quotas—or high transportation costs. A finding that there are significant barriers to trade, such as high transportation costs, is used to support a narrow definition of the market.[35]

However, while an attempt to identify possible barriers to free trade is undoubtedly a useful undertaking, there is a danger in relying entirely on the findings of such an inquiry. For one thing, a failure to find any significant barriers may not mean that none exist, but simply that they do not fall in the usual categories. Recently, for example, it has been argued that the real barriers to effective participation of U.S. firms in Japanese domestic markets are not formal tariffs or quotas (and not transportation costs) but various regulatory restrictions that seem to operate disproportionately against American products. In the U.S., buyer preferences may operate in favor of domestic suppliers for a variety of reasons ranging from patriotism to concern about assurance of supply.

On the other side of the coin, for reasons discussed above and with the possible exception of quotas,[36] a finding of high tariffs or transportation costs does not necessarily mean that foreign sellers are not viable competitors in the U.S. since these disadvantages could be offset by lower manufacturing costs. This possibility becomes less remote when we recall that the issue is whether foreign firms would be viable as sellers to U.S. consumers *if* domestic firms raised prices above the competitive level. As discussed above, tariffs or transportation costs may make exporting to the U.S. marginally uneconomic at competitive prices, but exports would be profitable if the price in the U.S. were to increase by any significant amount.

---

for example, indicate that the Department will consider all the kinds of evidence discussed below in deciding when to expand the geographic market, without being specific about how it will utilize any given data. The Guidelines very clearly reflect, however, the inadequacy of historical market shares as a guide to market power, and the need to examine what foreign sellers could achieve if domestic producers were to raise prices.

35. Areeda and Turner indicate that transportation costs, buyer convenience, and localized buyer preferences for the products of particular sellers are the primary factors that might limit the ability of some firms to sell in particular geographic areas. 2 P. AREEDA & D. TURNER, ANTITRUST LAW 358-67 (1978).

36. *See supra* note 31 and accompanying text.

2. Correlation of Prices

A second approach to identifying geographic markets compares prices in the U.S. to those in the rest of the geographic area being considered for inclusion in the market. If the two regions are really part of a single market, one might expect prices in the two regions to tend toward equality, since if prices are higher in one region than another, product will move from the high price to the low price region until prices are equalized.[37]

In fact, under most circumstances, prices in the two regions do not have to be equal so long as they move in parallel. For example, the price of crude oil at the Persian Gulf might be $20 a barrel, and the price of domestic crude oil $22 a barrel. But if transport costs between the regions are only about $2 a barrel, a price increase in the United States will create an incentive to import Middle Eastern crude until the price differential returns to $2. Arabian antitrust authorities concerned about customers for crude oil in the Middle East might not regard American crude producers as exercising any competitive restraint on the pricing of Persian Gulf crude,[38] but from an American perspective the relevant market can be extended to include the Persian Gulf since American producers lack the power profitably to raise prices above $22.

While it is possible for there to be high correlation between prices without a single market being indicated,[39] commentators are prepared, in principle, to presume a single market based on the price data.[40] The main problem with this test seems to be a practical one—the difficulty of obtaining the data adequate to perform the correlation analysis.[41]

---

37. One of the more prominent advocates of this approach is Ira Horowitz. *See* Horowitz, *Market Definition in Antitrust Analysis: A Regression-Based Approach,* 48 S. ECON. J. 1 (1981). It is also endorsed by Areeda and Turner in their treatise. *See* 2 P. AREEDA & D. TURNER, *supra* note 35, at 355-58 (price relationships are clearly the best single guide to geographic market definition).

It may be easier and more useful to take the opposite perspective, *i.e.*, using price differences or independence in price movements as evidence that areas are not in the same geographic area. *See* Hilke & Nelson, *supra* note 7, at 212.

38. Although, as discussed above, if a significant percent of Persian Gulf crude oil is exported to the U.S., and price discrimination is not feasible, Persian Gulf producers will price at home as though they were competing against U.S. producers.

39. Such a correlation may be completely spurious, or the result of prices in both areas being driven by a common third factor, *e.g.*, input costs. Obviously, the longer the period of high correlation, the less likely the correlation is not a genuine indicator of a single market.

40. *See, e.g.,* 2 P. AREEDA & D. TURNER, *supra* note 35, at 355-57. For a criticism of the use of price correlation as a means of market definition, see J. BAKER, WHY PRICE CORRELATIONS DO NOT DEFINE ANTITRUST MARKETS: ON ECONOMETRIC ALGORITHMS FOR MARKET DEFINITION (U.S. Federal Trade Commission, Bureau of Economics Working Paper No. 149, 1987).

41. *See, e.g.,* Elzinga & Hogarty, *The Problem of Geographic Market Delineation in Antimerger Suits,* 18 ANTITRUST BULL. 45, 49-50 (1973).

3. Analysis of Actual Shipments into the U.S.

The third, and most frequently mentioned, approach to deciding when to expand the geographic market beyond the U.S. involves an analysis of shipments. The basic idea is that if shipments into the U.S. have been significant over time, then it is safe to presume that any barriers to product flow (at least in the direction relevant for the inquiry) have been overcome and the market is properly redefined to include the source of the shipments.[42] The precise level of shipments needed to satisfy the test is naturally somewhat arbitrary. The most prominently mentioned test, proposed by Elzinga and Hogarty with special reference to defining geographic submarkets within the U.S., originally referred to a 25% threshold but the figure was subsequently revised to 10%.[43] That is, if 25% of the sales to consumers in the U.S. are from producers outside the U.S., the market has been defined too narrowly and must be expanded to incorporate the source of the foreign supply.[44]

While there may be exceptions,[45] the presumption created by a finding of significant imports is a strong one. Moreover, proponents of the test would claim that data availability is likely to be far less serious of a problem for shipments than for price, for example.[46] One criticism of the shipments-based test is that, used in isolation, it is too conservative. The test will tend to define the U.S. as a separate geographic market based on a low level of imports in the past, even in cases where an increase in the domestic price above the competitive level could not be sustained because

---

42. Areeda and Turner are particularly critical of the use of shipments data to infer geographic markets. 2 P. AREEDA & D. TURNER, *supra* note 35, at 357 ("Although actual sales patterns can aid in the interpretation of ambiguous price data or otherwise illuminate the geographic character of a market, we should be aware that actual patterns can be virtually meaningless.").

43. Elzinga & Hogarty, *supra* note 41, at 74. The revision of the threshold is suggested in Elzinga & Hogarty, *The Problem of Geographic Market Delineation Revisited: The Case of Coal,* 23 ANTITRUST BULL. 1 (1978). This is referred to as the LIFO (little in from outside) test. There is a parallel LOFI (little out from inside) test aimed at identifying the case where the price of domestic producers is determined by the competition they face in their export markets. For a discussion of some of the possible technical problems with the Elzinga-Hogarty test, see Werden, *The Use and Misuse of Shipments Data in Defining Geographic Markets,* 26 ANTITRUST BULL. 719, 739 (1981) (exchange between Professors Elzinga and Werden).

44. There is a potentially serious ambiguity in this test when the foreign supply comes from two or more geographic regions. Suppose, for example, that 24% of U.S. consumption of a product originates in Germany, and 2% originates in Japan. Does the Elzinga-Hogarty test instruct us to include neither region in the market (because neither accounts for 25%), both regions (because the total exceeds 25%), or only Germany? Expanding the market to include Japan may result in seriously overstating the threat to U.S. producers from producers in Japan if the few Japanese imports can be explained by special circumstances. It is precisely the concern about such special circumstances, after all, that caused Elzinga and Hogarty to decline to expand the market when total imports account for only a few percent of domestic consumption.

45. *See* Dobson, Breen & Hurdle, *supra* note 33, at 954-55.

46. Elzinga & Hogarty, *supra* note 41, at 75-76.

imports *would* enter the U.S. at prices only slightly higher than current and recently prevailing levels.

Another criticism is that in some circumstances the shipments-based test is too permissive. In particular, if products are not strictly homogeneous, the presence of imports may have little to do with the status of domestic firms' market power. Further, when production is geographically concentrated, shipments tests are prone to exaggerating the extent of the market.[47]

C. *Attempts to Move Beyond the Traditional Approach*

1. The Landes-Posner Assessment of Foreign Competition

Recognizing the pitfalls in the use of shipments data, William Landes and Richard Posner have attempted to build on the basic intuition of the shipments approach, but have modified the test dramatically in order to reflect the potentially large difference between a foreign producer's historical sales in the U.S. and its true threat to the market power of a domestic producer.[48] They recommend that, "if a distant seller has some sales in a local market, all its sales, wherever made, should be considered a part of that local market for purposes of computing the market share of a local seller."[49] For U.S. industries characterized by international product flows, Landes and Posner's approach requires the inclusion of all foreign production by a manufacturer as part of the U.S. market if that manufacturer sells any products in the U.S.

Underlying the Landes and Posner argument is the intuitive idea that it is easy for a foreign producer to divert some of the output he currently sells abroad to the U.S. if prices in the U.S. rise relative to foreign prices.[50] In particular, Landes and Posner believe that if foreign

---

47. Werden, *supra* note 43.
48. Landes & Posner, *supra* note 17. For elaboration and criticism of the Landes and Posner approach, see Brennan, *Mistaken Elasticities and Misleading Rules*, 95 HARV. L. REV. 1849 (1982); Kaplow, *The Accuracy of Traditional Market Power Analysis and a Direct Adjustment Alternative*, 95 HARV. L. REV. 1817 (1982); Schmalensee, *Another Look at Market Power*, 95 HARV. L. REV. 1789 (1982).
49. Landes & Posner, *supra* note 17, at 963.
50. In Landes and Posner's own words:

> The formal analysis that leads to this result is somewhat complicated, and hence relegated to the Appendix. It involves showing that the supply response of the competitive fringe (here consisting of the distant sellers that have some sales in the local market in question) is an increasing function of the ratio of the distant sellers' sales in their other markets to their sales in the local market. The higher the ratio, the higher their supply response will be, because it is easier for distant sellers to divert a small fraction of their output to the local market should price rise there than it would be to divert a large fraction of their output to the local market.

Id. at 963-64.

firms "can sell one unit of the product in the domestic market, they ought to be able to sell many units there at no appreciably higher cost, since they have only to divert output from other markets."[51] They also conclude that, "if the domestic producer cannot keep foreign production out, then he cannot raise price without being inundated by such production."[52]

Landes and Posner justify the inclusion of all the foreign producer's output in the U.S. market by arguing that the size of the foreign producer's output "relative to the size of the local market indicates the probable ease with which they [foreign producers] can expand their output in the local market without incurring substantially higher costs of production."[53] Moreover, they extend this argument by indicating that it would be correct to include all the foreign producer's capacity, not just its historical sales.[54] In their view, "[u]nused capacity implies a high supply elasticity of the competitive fringe because such capacity can be brought into production promptly and with no increase in production costs; hence it is an effective constraint on the pricing of the local seller."[55]

Landes and Posner extend their analysis in one other way, based on their examination of the implications of the presence of exports (*e.g.*, exports by U.S. firms). They conclude that, if there are exports, then it is appropriate to include the production of foreign firms that are in competition with these exports in the foreign market, as well as the exports themselves.[56] They base this conclusion on the notion that foreign production that competes with a U.S. firm's exports constrains the ability of the U.S. firm to raise prices because an effort to raise prices would lead to higher prices at home and abroad. The higher foreign prices would lead foreign producers to increase supply, "which would in turn induce [the U.S. firm] to divert supply to its domestic market, thereby reducing price in that market."[57]

While Landes and Posner recognize that their approach is not flawless,[58] they nonetheless strongly advocate its application. Indeed, they

---

51. *Id.* at 964.
52. *Id.*
53. *Id.*
54. *Id.*
55. *Id.*
56. In Landes and Posner's words:
   One can show that to derive the domestic firm's demand elasticity and hence its market power, (1) its exports and the production of foreign firms (provided the domestic firm sells in their markets) should be included in the denominator of the market share calculation, and (2) the domestic firm's exports should be part of the numerator of this calculation.
Id. at 968.
57. *Id.*
58. Landes and Posner explicitly address two problems with their approach. First, they recog-

suggest only three qualifications that should be made when applying it. First, they require that the product be a homogeneous product,[59] since the presence of product differentiation might make it optimal for a domestic monopolist to set a price that allowed some imports.[60] Second, they suggest that the foreign supplier should have had nonnegligible sales in the U.S. for a continuous period of several years.[61] Third, they require evidence that the product reaches more than the U.S. coast, since it is conceivable that transportation costs insulate the interior markets or the other coast.[62]

Landes and Posner conclude that their approach may still be overly conservative. In particular, they believe that, to the extent their analysis will make a mistake, it will be a mistake along the lines of concluding that the U.S. is a relevant market when the correct market is broader. The reason for this, as they point out, is that the absence of imports today does not necessarily mean that imports will not materialize if U.S. prices rise above competitive levels.[63]

2. *Comments on the Landes-Posner Approach*

Underlying Landes and Posner's analysis is a formal economic model which assumes that the relevant market is characterized by the presence of a large firm with monopoly power, a U.S.-based competitive fringe, and imports. Using technical model characteristics, such as the fact that the quantity supplied must equal the quantity demanded in equilibrium, Landes and Posner correctly show in the technical appendix to their paper that the elasticity of demand for a dominant firm depends

nize, as is explained more fully in the text, that their analysis depends on the product being perfectly homogeneous. Second, they recognize that their approach may encourage domestic firms to raise prices to a level (perhaps above profit maximizing monopoly levels) that attracts some imports so that the market is treated as international antitrust enforcers. *See id.* at 965 & n.46.

59. They back away from this requirement at times. In particular, they criticize Areeda and Turner for viewing the simultaneous presence of imports and exports as indicating that a product is sufficiently differentiated that it would be inappropriate to include foreign production in the market. In their words:

> [T]he existence of some differences across brands does not warrant the exclusion from the market of distant sellers who have proved their ability to overcome the barriers of transportation costs and tariffs, especially since the producer of one brand of a product can often tailor the brand to the slightly different preferences of foreign consumers . . . .

Id. at 970.

60. *Id.* at 965. Although Landes and Posner do not discuss homogeneity extensively, homogeneity must apply to both the product itself *and* to the distribution of the product. This may be a formidable requirement.

61. *Id.* at 967. This makes sense since transitory imports are less likely to reflect an infrastructure that can support additional supplies.

62. *Id.*

63. *Id. See also* Brennan, *supra* note 48, at 1854-55 (wherein he states that Landes and Posner's approach understates the elasticity of supply of foreign producers).

on the market elasticity of demand, the elasticity of supply of domestic fringe competitors, and the elasticity of supply of foreign fringe competitors. Moreover, under conditions Landes and Posner explicitly or implicitly assume, it is also true that the elasticity of supply of foreign competitors will equal or exceed the elasticity of supply of domestic fringe competitors. However, this is not a robust result, since the relative elasticities of supply depend on the assumptions one makes about production and distribution costs in the U.S. and abroad, foreign demand conditions, and the competitive behavior of firms in foreign markets.[64]

In addition, by recognizing the presence of costs not reflected in the model above, such as different distribution costs in the U.S. and abroad, it is possible to generate examples where the elasticity of supply of a foreign producer is low and less than the elasticity of supply of the domestic fringe. For example, if there are economies of scale in distribution and the foreign firm supplies less to the U.S. market than the domestic fringe, its marginal cost of supplying additional units will be larger. This higher marginal cost may make the foreign supplier somewhat less responsive to increases in U.S. prices than the domestic fringe.

The possibility of differences in distribution costs appears to be most likely if there is clear evidence that the foreign manufacturer uses a different distribution system and that the distribution system used by the foreign producer operates most efficiently at a smaller scale than the distribution system used by U.S. producers. For example, it might be that the foreign producer relies on third party distributors who handle numerous products, while domestic producers have their own distributors.

To this point we have followed Landes and Posner's lead in considering the results of comparative static analysis of trade in homogeneous products. However, actual imports that are observed typically are differentiated and occur in a dynamic world that admits strategies which are not well captured by simple static models. When these more dynamic and strategic considerations are recognized, an unambiguous finding that the supply elasticity of the foreign fringe will necessarily be higher than the domestic fringe's supply elasticity becomes even more problematic.

For example, if there are non-recoverable costs associated with expanding shipments to market A, then there must be some prospect that the price increase will last long enough to allow the firm to recover these costs.[65] Since price responses by domestic firms may be quick, sunk costs

---

64. See the appendix to this paper for an example of how somewhat different assumptions can alter the Landes and Posner conclusions.

65. For a more general discussion of why markets may not be contestable if the response lag by the established firms is short relative to the time needed to recoup the (possibly small) sunk costs, see

CHICAGO-KENT LAW REVIEW [Vol. 64:711]

may be nontrivial, and established foreign demand and supply patterns may have to be disrupted in order to serve the U.S. market, there is a potentially sizeable risk involved in diverting supplies from foreign markets to the U.S. market. Among the costs associated with product diversion are reputation costs, which may make it hard for foreign suppliers to attract customers in the U.S. In particular, a customer's production and inventory costs may increase with less stable supply relationships, which may discourage customers from turning to less reliable foreign producers.[66]

Contractual arrangements between foreign producers and foreign buyers may limit diversions directly. Even if such arrangements do not currently exist, any history of sudden withdrawals of supplies to foreign buyers might be expected to result in pressure for contracts that guarantee supply in the future, vertical integration by foreign buyers, or foreign government pressures to halt the diversions.

Turning to differentiation, U.S. markets may be characterized by mobility barriers. That is, foreign products may have captured a particular segment of the market, but they may not be effective substitutes for U.S. products in other segments of the market. Thus, U.S. prices in the differentiated segment may have considerable leeway before foreign products would be regarded as substitutes.

Lastly, strategic considerations may play some role if U.S. firms are the main potential entrants in the foreign markets and the foreign firms are the primary potential entrants in the U.S. markets. Indeed, many licensing agreements contain clauses designed to limit such competitive geographic incursions. The threat of protectionist legislation or litigation may be equally effective in encouraging restraint in exporting to the U.S.

In summary, foreign producers and domestic fringe suppliers often can increase their supplies to a market in response to a price increase in that market. Foreign suppliers, because they often can divert output from other areas as well as increase their output, may add more output in response to a price increase than domestic fringe suppliers. However, neither of these general statements is valid in all cases. Clearly, when cost curves differ because of different input costs or production functions, the supply responses can be quite different for the domestic fringe and the foreign producers. In fact, it is possible that a domestic fringe firm will increase its supplies to the market in response to a price increase,

Schwartz, *The Nature and Scope of Contestability Theory*, 38 OXFORD ECON. PAPERS 37 (Supp. 1986).

66. The way in which a product is used in a subsequent production process will affect the extent to which a manufacturer can rely on inputs from several different sources.

while a foreign fringe firm will not, or that neither will. As a result, economic theory alone can not resolve how foreign producers should be treated in the analysis of the relevant geographic market.

IV.   EMPIRICAL ANALYSIS OF FOREIGN COMPETITION

While our discussion of the Landes and Posner extension of the traditional approach to geographic market definition suggests that the assumptions underlying their proposal may not apply in all circumstances, it does not indicate that their approach is not a valuable rule of thumb. Only empirical testing can reveal the extent to which additional imports will flow into the U.S. if U.S. producers try to raise prices above competitive levels.

Two approaches suggest themselves. One relies on using historical price data to estimate import demand elasticities. A second explores how import levels have changed in response to changes in the value of the dollar (and thus relative prices). We explore both empirical approaches here.

A.   Estimates of Import Price Elasticity for Various Industries

Economists have tried to estimate import price elasticities in aggregate and in a number of more narrowly defined industries. A wide range of import price elasticities have been reported. Indeed, both elastic (elasticity greater than one) and inelastic (elasticity less than one) demand have been observed. Estimates of long-run elasticities of demand for imports of manufacturers into the United States based on industry-specific data from the 1950s and 1960s, are summarized by Stern, Francis, and Schumacher.[67] The best estimates of elasticities from this period suggest a wide range: -.55 (paper) to -5.26 (rubber).

More recent estimates, incorporating data up to 1978, have been presented by Sheills, Stern, and Deardorf.[68] These recent studies also produce a wide range of estimated elasticities. The import price elasticity estimates for the earlier and later studies are shown in Table 1.

The empirical elasticity estimates shown in Table 1 are, we believe, reason to reject unquestioning and universal application of the Landes-Posner approach. There are many industry groups in which imports do

---

67. R. STERN, J. FRANCIS, & B. SCHUMACHER, PRICE ELASTICITIES IN INTERNATIONAL TRADE: AN ANNOTATED BIBLIOGRAPHY 15-17 (1976).

68. Sheills, Stern & Deardorf, *Estimates of Elasticities of Substitution Between Imports and Home Goods for the United States,* 122 WELTWIRTSCHAFTLICHES ARCHIV 497 (1986).

TABLE 1
IMPORT ELASTICITY ESTIMATES

Industry SIC	Industry Name	Number of Old Estimates	Range of Old Estimates	"Best" Old Estimate	New Estimate
311-12	Food Products	12	−0.44 to −2.30	−1.13	−0.21
313	Beverages	2	−1.63 to −1.65	−1.64	−0.70
314	Tobacco	1	−1.13	−1.13	−7.57
321	Textiles	6	−0.99 to −1.92	−1.14	−1.41
322	Wearing Apparel	2	−3.77 to −4.06	−3.92	−0.52
323	Leather & prod.	2	−0.74 to −2.42	−1.58·	−2.01
324	Footwear	3	−0.79 to −4.31	−2.39	−2.42
331	Wood prod., excl. furniture	8	−0.1 to −3.20	−0.69	−1.32
332	Furn. & Fixt., excl. metal	1	−6.00	−3.00	−9.56
341	Paper & paper prod.	5	−0.30 to −1.40	−0.55	−1.80
342	Printing & publ.	1	−6.00	−3.00·	−1.46
351	Industrial chem.	6	−0.60 to −5.46	−2.53	−6.82
352	Other chem. prod.	n.a.	n.a.	−2.53	−5.00
353	Petroleum refineries	3	−0.63 to −1.3	−0.96	−0.79
354	Mis. prod., (n.e.c.) of pet. & coal	n.a.	n.a.	−0.96	−16.11
355	Rubber prod.	4	−3.13 to −6	−5.26	−1.32
356	Plastic prod., n.e.c.	n.a.	n.a.	−2.53	−8.18
361	Pottery, china, & earth	3	−1.03 to −4.6	−2.85	−1.37
362	Glass & prod.	1	−1.60	−1.60	−2.86
369	Other non-met. min. prod.	n.a.	n.a.	−2.00	−1.18
371	Iron steel bas. ind.	2	−.85 to −2	−1.42	−2.28
372	Non-ferr. met. bas. ind.	3	−.45 to −1.5	−1.38	−0.67
381	Metal prod., excl. mach.	4	−.67 to −3.8	−3.59	−0.94
382	Machinery, excl. elect.	7	−.84 to −3.2	−1.02	−0.88
383	Electric machinery	5	−.71 to −5.42	−1.00	−3.08

384	Transport Equipment	4	−2.34 to −6	−3.28	−1.24
385	Prof., photog. goods, etc.	1	−1.08	−1.08	−0.44
389	Other manuf. ind.	7	−.09 to −3.77	−2.06	−2.37

not apparently surge in response to domestic price increases in the U.S. in the long-run. Moreover, since short-run elasticities are lower than long-run elasticities, the long-run elasticities typically shown in Table 1 may overstate the elasticity of supply of imports over the shorter time period used in most antitrust market definition tests.[69]

B.   Exchange Rate Elasticity Estimates

The Landes and Posner proposal suggests that events that tend to raise the prices charged by U.S. domestic producers will precipitate enough imports to defeat the effort to raise prices. The rapid increases in the value of the dollar through 1985 should have been perceived by importers in much the same way as monopolistic price increases. As with a monopolistic price increase, an increase in the value of the dollar (a rise in the exchange rate) is an event of uncertain duration[70] which increases the price foreign producers obtain from selling their products in the U.S. As a result, an increase in the value of the dollar should create incentives for foreign producers to increase their imports to the U.S. which are similar to those created by monopolistic price increases.

Translating the Landes-Posner view into terms that relate to changes in the exchange rate, their theory predicts that substantial changes in imports and import shares should appear in industries when exchange rates change substantially.[71] Exchange rate fluctuations have been substantial, and to a large extent unexpected, in recent years. This

69. The Department of Justice Merger Guidelines recommend a one year period.

70. We suspect that changes in the exchange rate may be viewed as more predictable and likely to be sustained longer than many monopolistic price increases. If this is the case, then the elasticity of supply of imports for a change in the exchange rate probably exceeds that for a monopolistic price increase, since importers will have a shorter period to recoup entry/expansion costs in the case of a monopolistic price increase. For a discussion of how "hit and run" entry is discouraged by a shortening of the response time of established firms (represented here by the time before the value of the dollar falls in the case of exchange rates), see Schwartz & Reynolds, *Contestable Markets: An Uprising in the Theory of Industry Structure: Comment*, 73 AM. ECON. REV. 488 (1983).

71. Previous research has addressed related issues. For example, researchers have investigated the relationship between the profitability of U.S. firms and the level of imports. Articles in this tradition include Esposito & Esposito, *Foreign Competition and Domestic Industry Profitability*, 53 REV. ECON. & STATISTICS 343 (1971), and Marvel, *Foreign Trade and Domestic Competition*, 18 ECON. INQUIRY 103 (1980). Research in this area has generally concluded that trade does discipline U.S. profit rates to some extent, but that growth in demand is a much more significant factor.

facilitates the analysis.[72] First, it makes the resulting change in prices more closely parallel to the change that would result from a monopolistic price increase. Second, it allows us to focus on sizeable price changes that occur during a brief period when other factors are less likely to have changed so much that they confound the analysis.

We have developed some crude measures of the sensitivity of imports for industries to changes in exchange rates.[73] The increase in the value of the dollar between 1980 and 1981 provides a large and rapid enough increase in the value of the dollar to meet the Justice Department Merger Guidelines hypothetical, so the analysis will focus on this period.[74] In this analysis, two import trade penetration measures are used. The first is the ratio of imports to U.S. production. (U.S. supply is total U.S. production plus imports.) This will be termed the gross import penetration. The second measure is the net import penetration ratio. This is calculated as imports minus exports divided by U.S. production. The export data for this measure were gathered from the TSUSA export data and concorded to the output four digit industries. The import data were also concorded to this basis.

For our exchange rate-elasticity study, import data were obtained from the U.S. Bureau of Labor's trade monitoring project. This unpublished data base contains information on imports at the four digit level for 1975 to 1981. Among import data sets, it is fairly unique in the amount of effort devoted to tracing changes in import codes to provide consistent import summaries. The exchange rate used in the study is the multilateral trade-weighted value of the dollar as calculated by the Federal Reserve. To allow for lags in the response of imports to changes in the exchange rate, changes in imports during 1981 are compared to the changes in exchange rate between 1980 and 1981.

These import elasticity measures do not include consideration of

72. For a similar interpretation of exchange rate changes, see Feinberg, *Interaction of Foreign Exchange and Market Power Effect on German Domestic Prices*, 35 J. INDUS. ECON. 61 (1986).

73. There have been many studies in the international trade literature attempting to estimate the impact of currency changes on a country's overall balance of trade or balance of payments. These studies are not directly related to our interest in the response of imports to a domestic price increase because changes in the balance of trade reflect the combined effects of a change in the physical quantity of exports and imports and a change in the value of the currency in which the trade balance is measured. Nevertheless a number of these studies, which argue that devaluation of a country's currency may not improve the balance of payments, at least in the short run, suggest that the response of imports to changes in the value of a country's currency may be relatively slow. *See, e.g.,* Brillembourg, *Purchasing Power Parity and the Balance of Payments: Some Empirical Evidence*, 24 INT'L MONETARY FUND STAFF PAPERS 77 (1977).

74. The real multilateral trade-weighted value of the dollar rose from an index level of 84.8 to 100.8 (roughly 19% above the 1980 level) between these two years (1973 = 100). 1986 ECON. REP. PRESIDENT 373.

price changes by domestic firms (which will bias our elasticities downward if U.S. firms raise prices in response to higher import prices and upward if U.S. firms follow the less likely strategy of lowering prices in response to the increase dollar price of imports). In addition, these estimates do not accommodate lags in trade adjustments in a particularly sophisticated way. Exchange rates for individual currencies may differ from the average exchange rates that were used and trade with these countries may be concentrated in a subset of products.[75] Finally, income elasticities of demand are not considered separately. In short, the "crude" import elasticity measures simply reflect trade flow changes during a historical period when domestic prices were likely to be rising rapidly compared to import prices. Nonetheless, given the rapid change in prices, we think the results are worth reporting since it is unlikely that adjusting for all these factors would alter the general findings significantly.

As the results in Table 2 indicate, the percentage change in the value of imports was often less than the percentage change in the exchange rate, suggesting that in many industries there was not a surge of imports in response to the relative increase in U.S. prices even in industries where imports were already present. Indeed, in several industries which we did not select for inclusion in Table 2, there was an absolute decline in imports.[76] Moreover, the elasticities reported in the third column of Table 2 suggest that there is significant variation in import elasticities of supply across industries.

---

75. *See* Kercheval, *Another Look at the Dollar's Trade-Weighted Value*, 12 Bus. Econ. 43 (1987).

76. Some examples are provided in the following table:

Industry SIC	Industry
2011	Meat Packing Plants
2331	Women's, Misses', & Junior's Blouses, Waists & Shirts
2611	Pulp Mills
2721	Periodicals: Publishing, or Publishing & Printing
3021	Rubber & Plastics Footwear
3111	Leather Tanning & Finishing
3554	Paper Industries Machinery
3563	Air & Gas Compressors
3861	Photographic Equipment & Supplies

TABLE 2

ILLUSTRATED IMPORT AND NET IMPORT ELASTICITIES

Industry SIC	Industry Name	Gross Import Penetration Elasticity	Net Import Penetration Elasticity
2032	Canned Specialties	0.73	5.16
2211	Broadwoven Fabric Mills, Cotton	0.09	0.55
2221	Broadwoven Fabric Mills, Manmade Fiber & Silk	0.07	−20.41
2283	Yarn Mills, Wool Including Carpet & Rug Yarn	1.46	1.96
2386	Leather & Sheep Lined Clothing	0.24	0.31
2643	Bags, Except Textile Bags	1.60	−2.20
2654	Sanitary Food Containers	4.88	−0.90
2655	Fiber Cans, Tubes, Drums & Similar Products	5.09	1.09
2711	Newspapers: Publishing, Publishing & Printing	0.52	0.54
2841	Soap & Other Detergents, Except Specialty Cleaners	0.27	−1.40
2842	Specialty Cleaning, Polishing, & Sanitation Preparations	1.17	−0.34
2844	Perfumes, Cosmetics, & Other Toilet Preparations	0.11	−0.84
2879	Pesticides & Agricultural Chemicals, Not Elsewhere Classified	0.07	0.79
3316	Cold-Rolled Steel Sheet, Strip & Bars	0.82	1.01
3331	Primary Smelting & Refining of Copper	1.26	1.25
3334	Primary Production of Aluminum	0.35	0.17
3411	Metal Cans	0.10	−4.82
3494	Valves & Pipe Fittings, Except Plumbers Brass Goods	0.02	−0.57
3541	Machine Tools, Metal Cutting types	0.28	1.65
3612	Power, Distribution & Specialty Transformers	0.44	1.61

3645	Residential Electric Lighting Fixtures	0.05	−2.06
3724	Aircraft Engines & Engine Parts	1.30	−1.80
3728	Aircraft Parts & Auxillary Equipment, Not Elsewhere Classified	3.07	0.46
3843	Dental Equipment & Supplies	0.56	0.69

V. CONCLUSIONS

The empirical findings in the previous section, in addition to our earlier theoretical discussion, should suggest some caution in expanding geographic markets in such a way as to incorporate foreign production or capacity in amounts substantially greater than the actual amounts of imports that have entered the U.S. Moreover, even if empirical studies show a significant degree of "import elasticity," it is important to recall that changes in exchange rates, in a direction that make imports more expensive, can take place rapidly and to a degree that would reverse the import-generating effect of a modest increase in the domestic price level. In addition, actions of a political nature, either at home (such as higher tariffs or quotas) or abroad (such as "voluntary" restrictions on exports to the U.S.), can also dramatically undermine the restraint to the exercise of domestic market power that imports may have offered.[77]

At the same time, we are not suggesting that the correct policy is to ignore the imports altogether. However, precisely how to shape these uncertainties into a concrete recommendation is a task of some difficulty. In part, this is because the "right" answer depends on one's assessment of the costs associated with error. This is most easily illustrated in the merger context. Those who believe that horizontal mergers have a strong potential for creating efficiencies and that domestic concentration is unlikely to result in monopoly pricing regardless of the degree of imports will wish to "tilt" the analysis of import competition to downplay the concern that imports may not always be forthcoming in response to a domestic price increase. Those who are less sanguine about the societal benefits of horizontal mergers, and are more concerned that higher do-

---

77. For contrasting views on how to deal with these uncertainties, see Baker, *Market Definition and International Competition,* 15 N.Y.U. J. INT'L L. & POL. 377 (1983) (arguing that these uncertainties should cause us to discount the significance of foreign competition) and 2 P. AREEDA & D. TURNER, *supra* note 35, at 362-63 (arguing that foreign imports should not be treated differently because of political factors involving domestic and foreign tariff and trade policy). *See also* Remarks Delivered by Terry Calvani, Commissioner, Federal Trade Commission (Oct. 22, 1987), *printed as The Uncertainties of International Geographic Markets,* 32 WORLD COMPETITION L. & ECON. REV. 93 (1988).

mestic concentration would, in the absence of imports, result in noncompetitive pricing, are more likely to attach a significant weight to the possibility that economic or political factors will eliminate the threat of imports and thus will want to define markets more narrowly to minimize the chances of permitting what might turn out to be a noncompetitive merger.[78]

There is no question that foreign competition can exercise a significant restraint on the exercise of market power by domestic firms. There is also no question that the traditional approaches will often underestimate the significance of foreign competition by concentrating on historical snapshots of the degree of foreign competition and failing to take into account the added incentive provided to foreign firms of any attempt by domestic firms actually to exercise market power. However, the approaches that have been suggested to deal with this problem carry with them the possibility of overstating the degree to which foreign competition can be depended upon in any given instance. We can only suggest that policymakers consider carefully their own degree of risk-aversion along with the theoretical and empirical analysis we have offered in deciding how to deal with the question of the significance to attach to the potential for foreign competition.

---

78. Similar conclusions can be expressed about the desirability of defining markets narrowly in a Section 2 context. Those who tend to see efficiency-creation in the actions of large firms will be less concerned with the risk of defining markets too narrowly.

APPENDIX

To illustrate the lack of robustness in the Landes and Posner result, consider a market in which the foreign producer that supplies imports to the U.S. has market power in its home market (which is protected by barriers to entry, such as quotas) and price discriminates between the U.S. and its home market. Figure 1 illustrates this case. In this figure, MC represents the marginal cost of production for the foreign firm and the domestic fringe. D_B and MR_B represent the demand and marginal revenue curves faced by the foreign firm in its home market, and P^0_A represents the initial market price the foreign firm faces in market A (perhaps in the U.S.).

FIGURE 1

ANALYSIS OF OUTPUT RESPONSE BY AN IMPORTER
AND DOMESTIC FRINGE
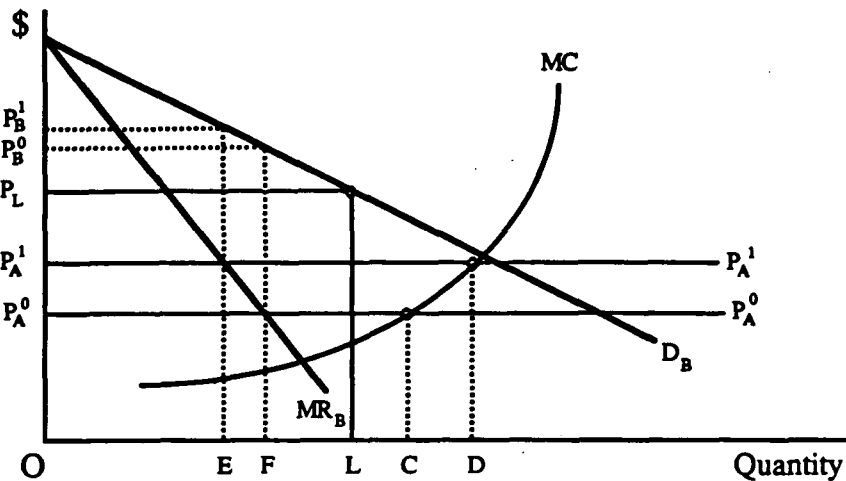
If $P^0_A > MR_B$ at the monopoly output level for serving market B alone,[79] then the foreign firm will serve both markets.[80] Maximization of joint profits in markets A and B requires that $P^0_A = MR_B = MC$.[81] P^0_A

79. Since monopoly output is determined by setting MR_B equal to MC, this requires P^0_A to lie above MR_B at the point where the MR_B and MC curves cross, which is true in Figure 1.
80. This also assumes the P_A is less than the vertical intercept of the foreign demand curve.
81. For example, if $P_A > MR_B$, then the firm would gain by diverting output from B to A. If P_A or MR_B were less than MC, then the firm would gain from reducing output, since the incremental costs of producing output exceed the incremental revenues the firm gets from the output.

equals MR_B at F, so the firm supplies OF to market B at a price P^0_B. Since P^0_A equals MC at C, the firm supplies FC to Market A. The total output supplied by the foreign firm is thus OC. A domestic (market A) fringe firm with costs MC facing a market price of P^0_A would also produce OC, but all of this output would be supplied to market A.

A price increase in market A from P^0_A to P^1_A will cause the foreign firm to cut its sales to market B to OE. An amount, EF, will be diverted from market B to market A. In addition, the foreign firm will increase its output by CD which will all be sold in market A. As a result, it will supply ED to market A—which is EF + CD greater than the amount it sold in A before the price increase. In contrast, a domestic fringe in A with the same costs will only increase its output by CD in response to the same increase in price.

From Figure 1, one sees that both because of the possibility of diversion (EF) and the lower initial level of supply of market A by the foreign firm (FC < OC) that the elasticity of supply of the foreign fringe in A is likely to exceed that of the domestic fringe. This is the basic Landes-Posner result.

The Landes and Posner result is not particularly general. By modifying the basic demand, cost, and competitive conditions facing the foreign firm, one can construct cases in which foreign supply is less responsive to changes in domestic prices than domestic fringe producers.

Foreign firms will not always find it profitable to divert products from their home market to export markets in response to a price increase in foreign markets. For example, if we alter the competitive structure of market B, so that the foreign firm faces rival competitors that limit its ability to raise its price in its home market to P_L, then the foreign firm will supply OL to market B both before and after the price increase in area A.[82] This change means that there will be no diversion of output from B to A, so both the domestic fringe and the foreign competitor will increase their supply to market A by CD. While the elasticity of supply of the foreign fringe is still greater than the elasticity of supply of the domestic fringe, since the initial supply level of the foreign fringe is less (LC < OC), the quantity added to the market and thus the price effects of the additional supply from the two sources will be the same.[83]

Changes in the foreign producer's production costs can further re-

---

82. One would observe this type of behavior if the foreign producer has been following a policy of limit pricing in its home market.

83. Again, this agrees with the Landes and Posner result, since this means that the fringe firms' market share may overstate the domestic fringe's importance relative to the importer, since the importer's share of market A will be smaller.

duce its responsiveness to a domestic price increase. This can be visualized by looking at Figure 1 and noticing that if a foreign producer had a steeper marginal cost curve, its curve would cut P_A to the left of D. Thus, if the foreign firm faced a limit price P_L, and had steeper costs, the quantity response for the foreign producer could be less than that of the domestic fringe.[84] In particular, if the foreign producer faced a capacity constraint that caused its marginal cost curve to go up vertically at point C, the foreign supplier's elasticity of supply would be zero, and thus less than the domestic fringe's elasticity of supply.

---

84. It may be that its supply response relative to its previous sales in market A is still larger than domestic firms.