The 1982 Department of Justice Merger Guidelines: An Economic Assessment

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Well before the new Merger Guidelines were issued in June 1982, it had become commonplace to criticize the reigning 1968 Guidelines as significantly out of touch with the new learning in industrial economics. In the intervening years, students of empirical industrial economics had argued that the market share increments that were likely to be challenged—for example, a horizontal merger of two firms each with a 5% market share—were not likely to enhance substantially the market power of the merger partners. Neither was the resulting increase in concentration likely to worsen market performance appreciably. Other empirical arguments suggested that markets in which four firms held a 75% market share, "highly concentrated markets" in the language of the 1968 Guidelines, were not always susceptible to collusion and that the incumbent firms might be expected to behave as rivals, if not necessarily as competitors. Furthermore, theoretical work in industrial organization showed that vertical mergers were less likely to cause resource misallocation than was feared by the drafters of the 1968 Guidelines. In fact, a substantial consensus emerged that vertical mergers were as likely to promote efficient allocation of resources as not.

The 1982 Merger Guidelines were expected to close the gap between this new learning and the enforcement of the merger statutes. Not surprisingly, the new Guidelines: (1) increase the market share levels of the merging firms at which a merger will presumptively go unchallenged; (2) significantly raise the benchmark levels for classifying markets as concentrated and highly concentrated; and (3) markedly restrict the universe of vertical mergers that are likely to be challenged. Surprisingly, however, the Guidelines also provide a novel way of con-

structing the relevant product and geographic market for the purpose of evaluating the likely effects of an acquisition or a merger. Furthermore, sharply breaking with tradition, the Guidelines measure concentration using the Herfindahl-Hirschman Index (HHI) in place of two-, four-, and eight-firm concentration ratios (CR2, CR4, and CR8, respectively).

In this Article, we survey the new Guidelines from the vantage point of the economic theory of industrial organization. We focus on the question of whether the Guidelines will accurately identify those mergers likely to have anticompetitive effects. Our goals are to expose the conceptual foundations that underlie the Guidelines, to illustrate and clarify the Guidelines' usefulness in merger analysis, and to suggest some of their weaknesses in light of the most recent advances in industrial organization economics.

In Part I, we discuss the Guidelines' general methodology for establishing the relevant product and geographic market. We find this methodology consistent with, and considerably more practical than, the theoretical economic analysis of horizontal mergers. In Part II, we attempt to clarify geographic market definition and analysis of concentration, because we feel that the Guidelines delineate a highly desirable approach in a somewhat cryptic manner. In Part III, we address the Guidelines' approach toward assessing the effects of a horizontal merger within the relevant market. Again, we find much consistency with economic learning, but we also identify important weaknesses in the Guidelines' handling of potential entry and firm conduct. Finally, in Part IV, we state our view that the economics literature has recently formulated a perspective on vertical mergers that the Guidelines overlook, and that the Guidelines could be improved in this area.

I
MARKET DEFINITION: A FIRST STEP IN MERGER
ANALYSIS

A. *An Economic Analysis of Mergers*

From the perspective of pure theoretical economics, the concern of antitrust analysts with matters of market definition has always seemed misplaced. Arguments for and against a merger that turned upon distinctions between broad and narrow market definitions have always seemed theologic rather than economic. The focus on market definition has seemed to be an inadequate substitute for, and a diversion from, sound direct assessment of a merger's effects.

A theoretical economic analysis of a horizontal merger need never include the step of determining a relevant market. Instead, the focus

would be placed on the assets combined by the merger, on the cross-elasticity of demand for the products produced by those assets, and on the premerger and postmerger total own-price elasticity of demand for those products, which is the price elasticity of demand facing the firm.[1] In these terms, a horizontal merger will raise prices (relative to costs) to the extent that it lowers the own-price elasticity of demand for the affected products, thereby reducing the loss in sales volume caused by a given price increase.

A horizontal merger can make demand more inelastic in several ways. First, the merged firm can internalize demand shifts between the merging firms' products that are induced by price rises and that served, before the merger, as constraints on the abilities of the merging firms to elevate prices. Thus, the merged firm may have incentives to raise prices because diversion of sales is less of a threat, inasmuch as the diversion is to another of its own products. Second, the merger partners can coordinate the production and pricing of their products, thereby replacing any premerger competition with cooperation. Third, the supply and pricing decisions of the merging firms' active and potential rivals might become less competitive because of the rivals' perceptions of the merged firm's new strategic position. On the other hand, these anticompetitive effects of a horizontal merger may be inconsequential or nonexistent if the own-price elasticity of demand after the merger is sufficiently large because of the availability of close substitute products, the vigorous competition of rivals, or by the force of potential supply and entry.

B. Market Definition in the Guidelines

1. Methodology

The essence of the Guidelines' framework is its definition of a market as "consist[ing] of a group of products and an associated geographic area such that (in the absence of new entry) a hypothetical, unregulated firm that made all the sales of those products in that area could increase its profits through a small but significant and non-transitory increase in price (above prevailing or likely future levels)."[2] Thus,

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1. This total own-price elasticity, referred to in economic jargon as the reduced-form demand elasticity facing the firm, measures the effects of price changes on the quantity demanded, with all responses by consumers, rival firms, and potential suppliers and entrants accounted for. Thus, this elasticity incorporates, among others, rivals' supply elasticities. Where firms decide on quantities produced rather than on prices, as in an industry that supplies a homogeneous product, the construct measures the effects of quantity changes on price.

2. U.S. Dep't of Justice, Merger Guidelines § II n.6, 47 Fed. Reg. 28,493, 28,494 n.6 (1982), *reprinted in* 71 CALIF. L. REV. 649, 650 n.6 (1983) [hereinafter cited without cross-reference as Guidelines].

by this definition, the firms operating in a relevant market could exercise market power by profitably elevating price if they were to coordinate their decisions in a cartellike manner.

Obviously, which grouping of firms or products constitutes such a relevant market depends on the price increase that the hypothetical cartel is supposed to attain and maintain. The Guidelines stipulate that a provisional market is too narrow if a nontransitory 5% increase in the prices of products inside the market would significantly divert customer demand within one year to products outside the market.[3] Then, the relevant market will be broadened to include some of these products, in the order of their substitutability,[4] until and no further[5] than the point where a hypothetical cartel could profitably elevate product prices inside the market by 5%.

If the merging firms are in the same product and associated geographic market,[6] the Guidelines will consider the merger horizontal. Thus, for the analysis of a horizontal merger, a relevant market is a group of sellers that includes the merging firms, where: (1) a hypothetical cartelization of the group could profitably elevate prices; and (2) the remainder of the group could not profitably elevate prices upon the exclusion of either the sellers of any of the products represented in the group, or the sellers in any of the geographic regions represented in the group.

There may be more than one relevant market in which to assess a given merger, and to avoid challenge a merger must appear to be free of anticompetitive effects in each. In determining whether to challenge a horizontal merger, the Justice Department will assess the merger's effects by analyzing concentration, market shares, and other factors relevant to each market that includes both of the merging firms.

To illustrate this process of market definition, imagine that a national manufacturer of chocolate-covered cherries, Chock-Cheri, Inc., wants to acquire a national manufacturer of chocolate-covered peanuts, Tasty, Inc. There are many product groups that include the output of these two firms and that are potentially relevant markets, e.g., candy, chocolate candy, chocolate-covered edibles, and food and drink sold at theaters. Candy would be too broad to serve as a relevant market if producers of a subset of types of candy could, by agreement, profitably elevate prices. Chocolate-covered edibles would be too narrow to serve as a relevant market if a hypothetical cartel would lose too many sales to other candies to make a 5% price increase profitable.

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3. *Id.* § II(A), 47 Fed. Reg. at 28,494-95, 71 CALIF. L. REV. at 651.
4. *Id.* § II(A) n.12, 47 Fed. Reg. at 28,495 n.12, 71 CALIF. L. REV. at 651 n.12.
5. *Id.* § II(A) n.11, 47 Fed. Reg. at 28,495 n.11, 71 CALIF. L. REV. at 651 n.11.
6. *Id.* § III, 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. at 655.

Chocolate candy would be a relevant market if all chocolate candy producers could profitably elevate prices by agreement, but could not do so without the participation of all subgroups, such as sellers of chocolate-covered nuts and fruits. In addition, goods sold at theaters could define another relevant market with a different group of firms that included popcorn sellers and did not, by description, include firms that sell chocolates only through specialty retail outlets.[7]

2. The Guidelines and Economic Analysis

a. A Useful Forensic Framework

The 1982 Merger Guidelines provide a conceptual framework for horizontal merger analysis that is largely consistent with the perspectives of theoretical economics. Indeed, the noteworthy intellectual feat of the Guidelines' authors is the creation of a forensically useful framework that embodies much of the best available economic learning. The framework's centerpiece is its market definition methodology. Far from a theologic diversion, this process of determining the relevant market will effectively channel attention and promote appropriate economic analysis.

The usefulness of the Guidelines' framework is shown by reference to the concept of total own-price elasticity of demand. As described in Section A, a merger's effects could be assessed in terms of economic theory by determining whether the merger appreciably lowers the total own-price elasticity of demand for the affected products. This measure of the loss in sales that results from price increases can be disaggregated into the portions that are diverted to various categories of other products. From this viewpoint, in principle, the Guidelines draw the boundaries of a relevant market just widely enough that the diversion of sales to products outside would permit profitable coordinated elevation of prices inside the market by 5%. Then, the question whether the merger would actually raise prices reduces to the question of the extent to which price increases by the merger partners would divert their sales to other firms or products inside the relevant market. In this way, the Guidelines standardize market definition as the first step in merger analysis so that the subsequent steps can focus on effects that occur within the market. This market definition process succeeds in decomposing merger analysis into steps that are each more manage-

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7. It is important to note, however, that market shares for the firms in this relevant market must be calculated on the basis of all their sales, not just sales at theaters, unless their sales at theaters are made at special wholesale prices. *See id.* § II(A) & n.14, 47 Fed. Reg. at 28,495 & n.14, 71 CALIF. L. REV. at 652 & n.14 ("If . . . price discrimination is possible, the Department will consider defining additional, narrower relevant product markets oriented to the buyer groups subject to the exercise of market power.").

able, that each relate to forensic custom, and that, as a whole, implement many of the lessons of economic theory.

b. The 5% Test

The Guidelines provide no justification for the proposed 5% figure. Perhaps this is because the figure is not intended to be inflexible, even in principle.[8] Although literal interpretation of the 5% threshold might lead to an excessively narrow market definition in some circumstances, this is mitigated by the stipulation that "the Department will not exclude any product that is at least as good a substitute as any product included."[9]

Moreover, from an economic standpoint, it is not necessarily relevant to ask whether a cartel could induce a price increase of any particular percentage. A 5% price increase may result in almost no social welfare loss (as measured by total real income, including consumer surplus and profits) in some markets, while inducing a substantial loss in other markets. The size of the loss is directly related to the value of market sales, to the elasticity of market demand, and to the preexisting percentage difference between price and marginal cost. However, while considerations of this kind are germane to a detailed cost-benefit analysis that weighs the social losses from any diminution of competition against efficiency gains, it seems appropriate to focus upon price changes when defining markets in a set of guidelines that must be less detailed. Therefore, we will not concern ourselves here with the concept and the size of the percentage threshold.

c. One Inconsistency with Economics

There is one type of situation in which the Guidelines' conceptual framework is inconsistent with the perspective of theoretical economics. A relevant market must make business sense in that it must include products with enough competitive interaction that firms in a successful cartel would have to coordinate all of their prices. These products may be consumer goods, basic resources, or intermediate goods or services at any level of a vertical chain of production. The Guidelines, however, can establish relevant markets that make no business sense, most glaringly in this latter case, by excluding consideration of potential entry in assessing the profitability of price increases by the hypothetical

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8. *Id.* § II(A), 47 Fed. Reg. at 28,495, 71 CALIF. L. REV. at 651 ("As a first approximation, the Department will hypothesize a price increase of five percent and ask how many buyers would be likely to shift to the other products within one year. The Department will continue expanding the provisional market until it satisfies the general profitability standard stated above." (footnotes omitted)). *See also id.* n.10, 47 Fed. Reg. at 28,495 n.10, 71 CALIF. L. REV. at 651 n.10.

9. *Id.* § II(A) n.12, 47 Fed. Reg. at 28,495 n.12, 71 CALIF. L. REV. at 651 n.12.

cartel.[10]

For example, imagine that National Nail, which produces and packages nails, merges with General Hardware Distribution, which packages and distributes nails, screws, wire, and other hardware. Under the Guidelines, firms that package nails would make up a relevant market if purchasers would not substitute screws, rivets, or unpackaged nails in response to a 5% increase in the price of packaged nails. Then, the merger could be viewed in part as horizontal, even though it might have been the case that the overlapping activity of packaging nails provided relatively little value added, required no specialized assets, and was not subject to significant economies of scale. Yet these facts would imply that nail packaging is an insubstantial stage of production in both the business and economic senses.

Fortunately, the merger between National Nail and General Hardware Distribution would not be challenged under the Guidelines. On the above-mentioned facts, virtually any entrepreneur, and especially other nail manufacturers and other hardware distributors, could package nails. And the Guidelines state plainly: "If entry into a market is so easy that existing competitors could not succeed in raising price for any significant period of time, the Department is unlikely to challenge mergers in that market."[11]

The point remains, however, that the Guidelines can define as relevant markets product groupings that are irrelevant to both economic and business analysis because of ease of entry. Such anomalies could have been avoided by including in the definition of relevant markets the constraints on price elevation that arise from potential entry.

3. Subjective Factors in Market Definition

The Guidelines do not remove all foibles and elements of subjectivity from the market definition process. This is the case for several reasons. First and most obviously, the needed fine-grained demand data may be unavailable to perform rigorously the 5% tests of sales diversion called for by the Guidelines. Then, the analyst will have to rely on less precise criteria such as those set forth in the Guidelines.[12]

Second, the outcome of a 5% test of sales diversion is sensitive to assumptions concerning the behavior of the firms outside the provi-

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10. *Id.* § II n.6, 47 Fed. Reg. at 28,494 n.6, 71 CALIF. L. REV. at 650 n.6.

11. *Id.* § III(B), 47 Fed. Reg. at 28,498, 71 CALIF. L. REV. at 657.

12. *Id.* § II(A), 47 Fed. Reg. at 28,495, 71 CALIF. L. REV. at 651. *See also* Edwards, Joffe, Kolasky, McGowan, Mendez-Penate, Ordover, Proger, Solomon & Toepke, *Proposed Revision of the Justice Department's Merger Guidelines,* 81 COLUM. L. REV. 1543, 1556-60 (1981); U.S. v. E.I. du Pont de Nemonrs & Co., 351 U.S. 377 (1956); Brown Shoe v. United States, 370 U.S. 294 (1962).

sional market. An assumption that the excluded firms would accommodate the efforts of the hypothetical cartel to raise prices would yield the smallest possible market and encourage challenge of a merger. Conversely, less intervention would be associated with a presumption of nonaccommodating behavior, since such an assumption yields more broadly defined markets.

The importance of this behavioral dimension can be shown by an example. Assume that three gas stations are located along North-South Avenue. These stations compete on price at the pump. Each station has certain locational advantages, in the sense that some of its customers prefer it to the other two gas stations. Prior to the merger, a pricing equilibrium has been reached, perhaps at levels above marginal costs, but not substantially so. The important feature of this equilibrium is that none of the three firms by itself can raise its price without losing profits.

Assume now that A and C, who are located on either side of B, want to merge. Can they profitably raise their price by 5%? The answer is "No" if B does not go along. The reason is that if A raises his price, some of his customers will leave for B, but none of his customers will venture to C. His merging partner C faces the same predicament. In the postulated scenario, the analyst might conclude that the merger is non-horizontal because A and B do not need the cooperation of C to raise their prices profitably, and C and B do not need the cooperation of A to raise their prices. Yet such a conclusion is likely to be incorrect. The analyst must inquire whether B is likely to maintain his price, or whether he is likely to take advantage of A's and C's efforts and raise his price as well. If the latter is true, then according to this inquiry, the merger can lead to a price increase, even though a more simple-minded approach might produce a different conclusion. While this example is broadly drawn, it may be relevant to the analysis of geographic markets and of markets where differentiated products have localized rivals.

In any case, it is always true that behavioral considerations cannot be avoided when performing the 5% sales diversion test. In asking whether a hypothetical cartel could raise a price by the hypothesized 5%, it is also necessary to ask, "Under what assumptions regarding the behavior of the firms which are not the cartel members could the price rise occur?" In some circumstances, this question is amenable to economic analysis. For example, nonaccommodating behavior is certainly more likely, if expansion is less costly for the other firms, and if less commitment is required of them. Behavioral history may also be relevant evidence on this point.

Third, the 5% test may lead to the lenient treatment of mergers in markets subject to substantial premerger coordination. For example,

consider a merger of two firms in a perfectly cartelized broccoli market in which all broccoli manufacturers have already established output levels such that the resulting price maximizes their joint profits. In such a case, a 5% price increase would not be profitable—if it were, the initial price would have been 5% higher. Hence, it follows from the Guidelines that the relevant market for merger assessment must extend beyond broccoli to, perhaps, all green vegetables.

Even though this merger could not raise price above the preexisting cartel level, allowing the merger to remain unchallenged may not be a desirable solution in view of the concern that increased concentration stabilizes noncompetitive behavior in markets that already do not function well. Perhaps this merger would be handled under the proviso that the Department is more likely to challenge mergers in markets that are already performing noncompetitively.[13] It is not clear, however, how much weight the Department will put on the various qualitative indicia of noncompetitive behavior, as opposed to an apparent quantitative finding that the firms in a hypothesized market cannot pass the 5% test, or that there is a demonstrably low degree of concentration in the expanded market.

II
GEOGRAPHIC MARKET DEFINITION

From the standpoint of economic analysis, the distinction between product and geographic markets is not particularly useful. Whether one searches for a definition of the relevant product or geographic market, one's first concern is identifying firms or products that can constrain the ability of the merging firms to increase price after the merger.[14]

The Guidelines do not make an analytic distinction between geographic and product market definition. Thus, they correctly apply the same general methodology to both market definition issues. However, they also proceed from an initial assumption that postmerger price discrimination will be impossible, without providing a clear indication of why price discrimination should make a difference in the analysis. In this Part we examine the significance and implications of this assump-

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13. Guidelines § III(C)(4), 47 Fed. Reg. at 28,499, 71 CALIF. L. REV. at 659.

14. *Id.* § II(C), 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. at 653. Thus, for example, the ability of a brewery in Oregon to raise the price of its beer may be constrained not only by the availability and prices of different alcoholic and nonalcoholic drinks, but also by the availability of beer produced elsewhere. If so, beer imported into Oregon can be treated as another substitute product that is available to Oregon beer drinkers. It need not be a perfect substitute for the Oregon-brewed beer (perhaps because of taste differences or because imported beer is priced more dearly due to transportation costs), but it is surely likely to be a constraining factor on the ability of the Oregon brewer to raise prices.

tion. We also identify some minor technical defects in the Guidelines' approach to geographic substitutability.

A. Absence of Postmerger Price Discrimination

In determining the boundaries of a market, the Guidelines initially assume that price discrimination between geographic areas is impossible.[15] Based on this assumption, this Section shows that a geographic market can be no smaller than the area in which the prices of a merging firm (or hypothetical cartel) are uniform. It then shows that if there are imports into the area from another region in which an equal price must prevail, the firm or cartel must be able to raise prices profitably in both the importing region and the exporting region in order to exercise market power. The geographic market must include the exporting region if the participation of the exporters is needed to accomplish this price increase.[16]

Assume that in the United States for example, the proverbial widget is produced by a number of firms. Two of these firms—Widgets Inc. (WINC) and Widgets and Accessories Corp. (WAC)—plan to merge. Assume also that WINC sells its widgets at uniform prices (net of transportation costs) throughout the United States. This means that as far as WINC's products are concerned, the relevant geographic market under the Guidelines' analysis is no smaller than the United States, provided that after the merger, spatial price discrimination does not become possible. The fundamental reason is that, absent postmerger price discrimination, WINC cannot selectively raise prices in any portion of the United States. Consequently, any firm that produces and sells a competing product anywhere within the United States constrains WINC's power to elevate prices throughout the country.

The Guidelines caution that such a provisional market may be too small for the purpose of assessing the possible anticompetitive effects of a merger if: (1) there are imports into the area from productive facilities located outside of the provisional geographic market; (2) imports could be triggered by a small nontransitory price increase in the area; or (3) the geographic area in which the hypothetical cartel makes its sales were to shrink as a result of such a small nontransitory price increase.[17] Therefore, it is necessary to examine how the presence of imports affects the construction of geographic markets.

To this end, we complicate our widget example and postulate that imported Japanese widgets compete in the United States with domesti-

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15. *Id.,* 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. at 654.

16. If it cannot be shown that this will occur, the provisional market must be expanded. *Id.,* 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. 653-54.

17. *Id.* § II(C) & n.21, 47 Fed. Reg. at 28,496 & n.21, 71 CALIF. L. REV. at 653 & n.21.

cally manufactured widgets. We assume that there are no trade barriers and that widgets sell in Japan for a price equal to the United States price, less the transportation cost. In other words, there is no international price discrimination. This means that arbitrage[18] between the United States and Japan would render ineffective any attempt to drive a wedge between net widget prices prevailing here and in Japan.

This does not imply, however, that arbitrage could undo a uniform increase in prices here and abroad. If WINC and WAC had sufficient market power to be able to raise the price throughout the geographic area in which price discrimination is not feasible, arbitrageurs would be unable to prevent the two firms from exercising that power.

Given that there is no spatial price discrimination between the United States and Japan, it is important to determine whether the United States and Japan together constitute a geographic market for widgets. This determination will influence the calculated market shares of the merging firms (WINC and WAC). It is possible that a cartel composed solely of American widget manufacturers could effectively and profitably increase widget prices by 5% here and abroad by constricting its United States output. Even though imports would be stimulated, they would not necessarily increase enough to make the price increase unprofitable. Hence, a coordinated use of the productive assets of American producers might be sufficient to induce a threshold price increase, even if Japanese producers behaved like a competitive fringe in the United States market and were also perfect competitors in Japan.

By application of the 5% test in this case, the United States would constitute the relevant geographic market because by constricting the output of the widget plants located in the United States, the cartel could profitably effect a small but significant 5% nontransitory price increase without stimulating a volume of imports that would make the increase unprofitable. Here, it seems, the Guidelines mandate that market shares be calculated on the basis of sales, or capacity, of only the plants located in the United States. Imports would be excluded from the base on which the shares of U.S. firms were measured.[19]

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18. Arbitrage involves the purchasing of goods in one market for resale in another market for the purpose of taking advantage of a price differential between the two markets.

19. The Guidelines define a geographic market as an area derived from the location of sellers' facilities. Where United States firms could alone raise prices by coordinating, the United States would be the relevant geographic market, and the output of foreign firms would be excluded. *Id.* § II(C), 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. at 653. On the other hand, some ambiguity remains on the interpretation of the Guidelines in this regard, in view of footnote 24. This would suggest that all of Japan be included in the geographic market inasmuch as Japanese widgets are viewed as perfect substitutes for American widgets in the eyes of United States buyers. *See id.* n.24, 47 Fed. Reg. at 28,496 n.24, 71 CALIF. L. REV. at 654 n.24. This inclusion seems to

The Department of Justice warns that since the Guidelines' geographic market is an area derived from the locations of sellers' facilities, it may differ from the traditionally defined geographic market, which was based on buyer locations.[20] However, it seems that the Department would be willing to consider geographic markets oriented to buyer locations, where price discrimination is feasible.[21] Thus, in our example, Japanese imports could be included in the United States geographic market if their net price could differ from that charged in Japan by their producers.

Absent geographic price discrimination, however, the Guidelines would either limit the market to United States plants or, alternatively, widen the market to include Japanese plants. In the latter case, market shares would be based on the entire output or capacity of United States and Japanese plants, not just on their sales to American buyers. The wider market definition would be appropriate under the Guidelines if the United States firms alone could not increase price. In addition, the United States alone would be too narrow as a geographic market if imports accounted for more than just a small share of total United States sales.[22]

Thus, in the absence of price discrimination, the Guidelines seem to rule out the middle ground of calculating the market shares of domestic merger partners on the basis of total domestic sales, including imports. We do not find this position persuasive. Instead, where United States firms together could increase prices, but where there are imports that are close substitutes, we suggest that market shares be calculated on the basis of actual sales or usable capacity for the firms whose productive capacity supplies the U.S. market. The relevant shares of Japanese firms would be calculated on the basis of their actual sales into the American market or, if the relevant data could be generated, on the basis of projected sales with a 5% price increase.

The rationale for this position is that existing and potential imports offer competitive restraint to United States firms'that can be assessed independently of consideration of their geographic origin. For example, under the hypothesis that imports instead originated from a domestic firm that exhibited the same supply responsiveness as the actual importers, both the Guidelines and economic analysis would agree on the inclusion of the hypothesized firm in the relevant geographic market. Thus, neglecting imports solely on the basis of their geo-

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be suggested notwithstanding a finding that a cartel comprised of only American firms could profitably raise price.

20. *Id.* n.21, 47 Fed. Reg. at 28,496 n.21, 71 CALIF. L. REV. at 653 n.21.

21. *Id.* § II(C), 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. at 654.

22. *Id.* n.21, 47 Fed. Reg. at 28,496 n.21, 71 CALIF. L. REV. at 653 n.21.

1983] ECONOMIC ASSESSMENT graphic origin can significantly overstate the anticompetitive effects of domestic mergers.

Under the Guidelines, the United States and Japan need not constitute a single geographic market simply because net prices of widgets are equal in Japan and in the United States, and Japanese widget manufacturers compete in the United States. As we have demonstrated, the United States alone can be a relevant geographic market if the supply of widgets from Japan to the United States is sufficiently small relative to total United States demand and is not significantly responsive to small nontransitory price increases in the United States. This supply inelasticity may exist because marginal production costs in Japan rise rapidly with the quantity of output produced and Japanese consumers have a highly inelastic demand for the exportable product. Thus, despite the presence of Japanese imports, coordinated constriction of output by U.S. firms could profitably increase price, and the products sold or produced in the United States alone would constitute a relevant market.

Some analysts would conclude that because widget prices are equal in Japan and in the United States and because importers make sales in the United States, the markets should be international in scope.[23] Thus, Landes and Posner, upon examining a model analogous to the one underlying our example, conclude that if importers make any significant sales in the importing country, all of their production capacity should be included in the market.[24] We think that the approach adopted in the Guidelines is preferable because it is more sensitive to the actual strength of the competitive constraint exercised by productive capacity that is located outside of the provisional market. When the output of that productive capacity can be easily diverted to serve the consumers in that area, the provisional market is defined too narrowly. It must be expanded, therefore, to include all of the productive capacity that constrains the market power of the hypothetical cartel.[25] On the other hand, if the productive capacity diverted is insufficient to prevent a sustainable price increase in the provisional

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23. We are fully aware that the Guidelines make a substantial, though undefined, qualification for foreign competition. *See id.* § II(C), 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. at 654 ("The Department . . . will be somewhat more cautious, both in expanding market boundaries beyond the United States and in assessing the likely supply response of specific foreign firms."). Thus, no special significance should be attached to our use of international trade in the examples developed in the text.

24. *See* Landes & Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 963-72 (1981). For a discussion of the model, see also Ordover & Willig, Market Power and Market Definition, at 23-35 (July 9, 1981) (memorandum to ABA Section 7 Clayton Act Committee), in Background Papers Re: Merger Guidelines (S. Edwards coord. n.d.). *Cf.* Brennan, *Mistaken Elasticities and Misleading Rules,* 95 HARV. L. REV. 1849 (1982).

25. In our widget example, if the Japanese firms can cheaply expand their total output of the

market, the provisional market should not be so expanded.[26]

In light of this discussion, it is apparent that debate over geographic market definition is relevant only insofar as it has implications for the market share calculations that are to serve as proxies for market power.[27]   Because they are only proxies for market power, market shares must be interpreted with caution. For example, a large market share may not imply substantial market power if it is held in a highly elastic market.[28] The algorithm developed in the Guidelines instructs the analyst to contract market shares by expanding the relevant geographic or product market until the demand elasticity facing the firms in the market is low enough to make a threshold price increase of 5% profitable.

B.   *Presence of Postmerger Price Discrimination*

The Guidelines' initial assumption of price discrimination impossibility represents an interesting but unnecessary simplification of the analysis of market definition. As this Section shows, the standards for geographic market definition developed under this assumption do not change when price discrimination exists. This Section discusses the problems involved in determining when price discrimination is feasible, and then discusses the effect of price discrimination on the Guidelines' 5% test. It concludes by evaluating the strengths and weaknesses in the methods used by the Guidelines to construct geographic markets.

1.   *Determining the Possibility of Spatial Price Discrimination*

Determining when price discrimination is possible requires identification of firms (or production facilities) whose presence in a hypothetical cartel is essential to accomplish the prescribed price increase. If a group of sellers can only achieve a discriminatory margin of less than 5% in some regions, the cartel must include those additional firms—including arbitrageurs—whose participation in the cartel is required to accomplish the threshold price increase. Hence, under the Guidelines' 5% test, a narrow area can constitute a geographic market if prices there can be elevated by 5% without simultaneous price increases elsewhere.

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exportable commodity or easily divert a portion of their domestic sales to the United States market, it is possible that a broadly defined geographic market is warranted.

26. Guidelines § II(C), 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. at 653-54.

27. The Guidelines define market power as the ability to increase price above marginal cost (so as to earn a supracompetitive rate of return). *Id.* § I, 47 Fed. Reg. at 28,494, 71 CALIF. L. REV. at 650.

28. It is shown in Ordover & Willig, *supra* note 24, that in a certain sense the narrowly defined "domestic" market is generally more elastic than a broadly defined "international" market.

There are two forces that can render spatial price discrimination infeasible. Perhaps the most important constraining factor stems from the possibility of spatial arbitrage, or spatial divertibility of sales. When arbitrage is perfect, as it would be if arbitrageurs were to incur only transportation costs, then sales destined for one geographic area would be diverted to another area as soon as any net price differential emerged. Thus, arbitrageurs who move the product around in search of the highest net price would be active competitors of the actual manufacturer of the product. They use the manufacturer's own product to compete away any monopoly profit that the manufacturer may try to extract through spatial price discrimination.[29] Because one unit of manufacturer's output (here, a widget) is a perfect substitute for another unit of his output (another widget), the relevant geographic market must include both the manufacturer and the arbitrageur as long as they are within the region subject to perfect arbitrage.[30]

Spatial discrimination may also be difficult to implement when a seller's price is constrained at virtually each location by alternatives available to local customers. Such alternatives might include customers' self-production, existing local firms, or the potential supply from new local firms. Although these alternatives may be less efficient in production than a large-scale manufacturer, they may avoid transportation costs, and may thereby offer the manufacturer stiff competition at each purchase location.

2. *Similarity to Nondiscrimination Analysis*

We must now examine the modifications to the analysis that may have to be made in the event that price discrimination is feasible. We argue that the possiblity of price discrimination does not necessitate any fundamental adjustments in the methodology. The possibility of price discrimination means that arbitrage is imperfect, and prices can be increased in some geographic area (or to one group of consumers) without requiring that prices be increased elsewhere (or to other consumers). The key question is how far price discrimination can proceed without triggering arbitrage. In other words, the profitability of

29. Consumers act, of course, as arbitrageurs. For instance, shoppers may travel from one store to another in order to purchase a can of Star-Kist tuna at the lowest possible price. New Yorkers are prone to cross the Hudson to New Jersey not only to save sales taxes but also to avail themselves of generally lower prices. This movement of consumers narrows down any sustainable price differentials. It is commonly agreed that arbitrage is most developed in financial and foreign exchange markets where "transportation" costs approximate the price of a telephone call.

30. This same argument applies to nonspatial price discrimination. To illustrate, assume that WINC sells widgets to lawyers and economists. Assume the economists pay a lower unit price. Then, if lawyers can pretend to be economists, they will undo any cross-occupational price discrimination. Alternatively, economists could transship their wares (widgets) to lawyers and render ineffective WINC's discriminatory practices.

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selective price increases depends upon how well arbitrage can be prevented. Thus, in some instances, arbitrage may become feasible if the price differential between two geographic areas reaches 1%. In other situations, however, 5% to 10% price margins may not induce any arbitrage. In the former case, products produced by a plant and destined for different geographic areas are excellent substitutes for one another, and hence should be included in the same market. In the latter case, these products are not good substitutes, and may therefore be placed in separate markets.

This analysis can be clarified by considering a modified version of our widget example. Let us assume it likely that after the merger, net widget prices in California could differ from those in Texas.[31] To see why this does not necessarily mean that these areas constitute separate geographic markets, assume that widget manufacturers whose productive capacity is located in Texas could raise the price of widgets in Texas by 3% above the California price by merging. Assume also that any additional price differential would make arbitrage between California and Texas feasible. Then, the Texas price could not be increased by 5% unless the California price were simultaneously increased by 2%, because only then could the 3% margin be maintained. Even then, any higher margin could not be sustained because of the entry capabilities of the arbitrageurs.

But this implies that Texas alone would not be a relevant geographic market under the Guidelines because productive capacity supplying California would also exert a competitive constraint on the prices prevailing in Texas. As long as the California suppliers kept their prices constant, Texas producers could not profit by raising prices the full 5%. Thus, the relevant geographic market must be widened beyond Texas.[32]

Another important instance of price discrimination arises when the exporter is "dumping" his products in the importing country. In our widget example, Japanese widget manufacturers might be selling widgets in the United States at a price below that of widgets in Japan. Such "dumping" can only occur when the exporting industry is imperfectly competitive in its home market. We have elsewhere shown[33] that such an imperfectly competitive exporting industry might exercise a more effective constraint on the domestic producers' pricing policies

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31. Historical evidence of price discrimination may serve perhaps as a signal that postmerger discrimination is likely as well. In the absence of such evidence, the analyst may find it difficult to predict the likelihood and the extent of postmerger price discrimination. Furthermore, the Guidelines are silent on how this assessment will be undertaken.

32. Of course, this analysis would not apply if Texas manufacturers could successfully prevent arbitrage, even if the price margin exceeded the requisite 5%.

33. *See* Ordover & Willig, *supra* note 24.

than it would if it were competitive at home with identical costs, because an imperfectly competitive export industry would export more at any given price than would a competitive industry. Consequently, the resulting equilibrium price in the importing country is likely to be lower if exporters were imperfect competitors at home than if they were perfect competitors.[34]

In addition, it is quite likely that the elasticity of supply of exports of an imperfectly competitive export industry is higher than that of a competitive exporting industry. Hence, domestic producers in the importing country may find it more difficult to raise price when the exporting industry is imperfectly competitive in its home market than they would if the exporting industry were competitive there. In this case, at least, the presence of spatial price discrimination suggests that a broad rather than narrow geographic market definition may be more appropriate for assessing merger effects.

C. The Guidelines' Approach to Substitutability

Finally, some minor shortcomings in the Guidelines' approach to geographic substitutability should be mentioned. First, because it is not always easy to apply the 5% price increase test, the Guidelines provide some shortcuts to measuring geographic substitutability and to constructing geographic markets.[35] While we have no difficulty with these shortcuts, we should nevertheless point out that observed "similarities or differences in the price movements"[36] may not provide the necessary information for the assessment of substitutability. It is true that if widget prices move up and down together in the United States and in Japan, then an inference of a single geographic market may appear plausible. Yet such correlated price movements may be due to "global shocks" such as a worldwide increase in input prices or a worldwide fall in demand for the product in question. Such shocks have a tendency to affect prices similarly, even in independent geographic markets. Only if "local shocks" translate into correlated price movements may an inference of a single geographic market be drawn.

Second, the Guidelines have omitted from the list of factors relevant to geographic markets any mention of cross-shipments, or a coexistence of exports and imports of products in the same product category from a given geographic area. Cross-shipping can occur when either:

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34. Our discussion assumed implicitly that importers behave like price takers in the foreign market. In the event that an importer has market power in the foreign market, it is perhaps likely he will have to be a part of the hypothetical cartel whose ability to increase prices by the threshold percentage is being tested.

35. Guidelines § II(C), 47 Fed. Reg. at 28,496, 71 CALIF. L. REV. at 654.

36. *Id.*

(1) the cross-shipped product is manufactured by noncompetitive industries in the two areas; or (2) the products belonging to the product category are not perfect substitutes.

To illustrate both situations, assume that widget manufacture in the United States and in Japan is oligopolized. Then, manufacturers in both countries may engage in "dumping" that leads to cross-shipping of widgets between the United States and Japan. Because a merger is likely to have greater adverse effects when it occurs in a market that is already not functioning competitively, the evidence of cross-shipping could be used as one of the factors that may be relevant in the assessment of merger effects in moderately concentrated markets—i.e., markets in which the postmerger HH1 is between 1000 and 1800.

Now assume that Japanese consumers do not perceive American widgets to be perfect substitutes for Japanese widgets, and vice versa. Assume also that tastes are variegated. Given these assumptions, widgets may be cross-shipped when, for example, "snobs" in both countries prefer foreign widgets to domestic widgets. When imports are not perfect substitutes for home goods, any presumption toward broad geographic market definition is, of course, weakened.

These omissions do not negate the fact that the Guidelines provide a creative and economically valid approach to geographic market definition. In particular, the geographic market Guidelines are well integrated with the general methodology for constructing markets in merger analysis. In that respect, they are a substantial improvement over approaches that focus exclusively on the existing shipment patterns.[37]

III

MARKET POWER

After the relevant market has been defined in a horizontal merger analysis, the next step is to assess the extent to which competition within the market would constrain the market power of the merged firm. At this stage of the analysis, competitive restraint on the merger partners from outside the defined market has already been accounted for in the determination of the market boundaries (with the exception of new entrants and shifts in supply that would take longer than six months). This restraint, however, is insufficient to stop firms within the market from profitably raising prices were they to coordinate perfectly or to form a cartel. A remaining question, then, is whether the merger would significantly facilitate such cartellike coordination, or whether

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37. *See* Elzinga & Hogarty, *The Problem of Geographic Market Delineation in Antimerger Suits,* 18 ANTITRUST BULL. 45, 73-80 (1973).

postmerger competition among the firms inside the market would in-
stead deter the otherwise possible price increase.

Several factors are important in answering this question. It is a
well-supported and generally accepted presumption that, other things
being equal—or as economists are fond of saying, *ceteris paribus*—a
firm has greater ability to exercise market power: (1) the larger its mar-
ket share; and (2) the more concentrated the market. Market concen-
tration facilitates the exercise of market power inasmuch as interfirm
coordination is less difficult when there are fewer market participants
and the pattern of market shares is more concentrated. Economists are
also in agreement, however, that mergers in two distinct markets char-
acterized by the same degree of concentration can produce quite differ-
ent effects on market power. For example, market power is also
dependent on entry barriers to the market. Indeed, if there are no entry
barriers to the market, market power is not an issue at all because
supracompetitive price increases are impossible.

Thus, while consideration of market concentration and market
shares is an appropriate first step in the analysis of merger effects, entry
barriers play equally important roles. Other factors may also be rele-
vant. In this Part, after setting out some general properties of mergers
and summarizing the Guidelines' approach to assessing market power,
we examine the factors affecting the ability to exercise market power.

A. *Economic Analysis of Horizontal Mergers*

Economic analysis of the effects of horizontal mergers requires
that attention be focused on two of their generic properties that may
lessen competition.

1. *Coordinated Use of Assets*

First, a merger generally permits coordinated use of productive as-
sets that the merging firms independently controlled prior to the
merger. These assets may include physical capital, organizational capi-
tal, patents, trademarks, technological know-how, and perhaps even
market share.[38] A merger thus consolidates the ownership and control
of the assets, and may augment market power as a result. Indeed, it is
worth emphasizing that market power is always associated with the

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38. The view that premerger market share is an asset implies that a subset of the firm's
customers regards its product to be superior (at the going price) to the available alternatives.
Then, a merger may enable this firm more profitably to exploit its captive customers if, for exam-
ple, the less attached customers would divert their purchases to the product(s) of the other merging
firm in the event of a price increase. It is plausible to argue, however, that there must be a more
fundamental underlying asset (e.g., locational advantage) which creates such attachment between
the supplier and its customers.

ownership of some tangible or intangible assets. In assessing a merger's possible adverse consequences, the analyst should focus attention on the assets whose coordinated use is made possible by the merger.[39] Consequently, if the merger partners do not own any assets that are both pertinent to the relevant market and not easily replicated by other firms—whether incumbent rivals or prospective entrants—then a merger cannot on this score augment the market power of the merger partners.

2. Reduction in the Number of Firms

The second generic characteristic of a horizontal merger is that, by reducing the number of independent decisionmaking entities, it may facilitate a coordinated use of assets among the remaining firms, thereby diminishing competition. It has been well known since at least the nineteenth century[40] that in an oligopolistic industry the equilibrium level of prices depends, *ceteris paribus*, on the degree of collusion or competition among the existing firms. The degree of rivalry may cover the whole spectrum from one extreme, where oligopolists behave like perfect competitors, to the other exteme of full joint-profit maximization, where they behave like a cartel.

Economists have chosen a convenient behavioral benchmark to determine whether behavior is competitive or collusive.[41] In the case of an oligopolistic industry that produces a homogeneous product, that benchmark can be defined as follows. Assume that in choosing its production plan, an oligopolist takes as given the current production plans of his rivals. In other words, he selects that level of output that maximizes his current profit, under the proviso that his rivals' total level of output remains at its current level. If all firms behave in that fashion, then the firms are said neither to be competing nor colluding, but are considered to be behaving noncooperatively. In contrast, if a firm perceives that its rivals are going to expand their output in response to its contractions, it conjectures that the industry is rivalrous. Finally, if a

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39. It is our view that such a focus on assets would help avoid some thereby obvious economic mistakes. For example, in a recent case, Federal Trade Commission lawyers argued that incumbent firms have an advantage over prospective entrants because the former already own trucks while the latter would have to obtain similar trucks. Plainly, in our economy, little if any market power can attach to the ownership of trucks which are easily bought and resold. Pre-Trial Brief, Gulf & W. Indus., No. 9153, (FTC filed Aug. 27, 1982). This is not to deny that in the United States, circa 1930, or elsewhere in the world today, a truck could be an asset to which monopoly power attaches. (We were employed by Gulf and Western as economic experts in this case.)

40. A. COURNOT, RESEARCHES INTO THE MATHEMATICAL PRINCIPLES OF THE THEORY OF WEALTH (N. Bacon trans. 1963).

41. For a more extensive and technical discussion see Ordover, Sykes & Willig, *Herfindahl Concentration, Rivalry and Mergers*, 95 HARV. L. REV. 1857 (1982).

firm perceives that its rivals will contract their output when it contracts, or expand their output when it attempts to expand, it conjectures that rivals act cooperatively.[42]

a. *Market Thinning*

There are several ways that a reduction in the number of independent entities can facilitate coordination. First, where firms are charging supracompetitive prices, market thinning—the reduction in the number of active firms—is one likely cause of postmerger price increase and resource misallocation. Market thinning does not have anticompetitive effects in all markets. Thus, a horizontal merger that does not lower production costs will not tend to increase the equilibrium price if: (1) the industry is unprotected by entry barriers so that incumbents (existing firms) are fully constrained by prospective entrants; (2) incumbent firms are already maximizing joint profits; or (3) the industry remains perfectly competitive.

b. *Reduced Strength of Competition*

Another possible effect of removing an active market participant through merger is the diminution in the strength of competition. The reduction in the competition's strength can be identified with changes in firms' conjectures about their rivals' responses to their output contractions. If, after the merger, each remaining firm believes that its output cuts will not be undone by rivals' output expansions to the same extent as was the case before the merger, then the firms will be more inclined to suppress output, thus elevating price. Alternatively, the merger may heighten firms' expectations that their output expansions will be met with punishing concomitant expansions by rivals, with the same upward effect on price.

The view that a reduction in the number of firms facilitates coordinated use of assets among the incumbent firms is a rock upon which much of industrial economics has been built. Consistent with this view is the economic theory underlying the Guidelines: that the main evil of horizontal mergers is their potential of facilitating oligopolistic cooperation, leading to elevated prices and resource misallocation.

B. *The Guidelines' Approach*

The Guidelines strike a compromise between determining market power based on bright-line rules of quantitatively measured market

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42. This analysis can be extended to oligopolistic markets with heterogeneous products and to monopolistically competitive markets. In these situations, the relevant behavioral beliefs pertain to price rather than to output responses of rivals.

concentration and market shares and more vague weighings of other important factors. According to the Guidelines, horizontal mergers are unlikely to be challenged in markets where the postmerger HHI is below 1000.[43] Where the postmerger HHI lies between 1000 and 1800, the likelihood that a merger will be challenged depends on the merging firms' market shares as indicated by the increase in the HHI, on the postmerger HHI, on the ease of entry, and on a variety of other factors that are indicative of the "ease and profitability of collusion."[44] Where the postmerger HHI exceeds 1800, mergers of significant size (causing the HHI to rise by 100 or more) are likely to be challenged, while the factors mentioned above will be considered for smaller mergers. A merger between a leading firm, one with a share of at least 35% and at least twice the size of the second largest firm in the market, and a firm with at least 1% of the market is likely to be challenged. Finally, regardless of concentration, mergers are unlikely to be challenged in a market where entry is so easy that existing competitors could not profitably raise price for a significant period of time.

In our view, these provisions of the Guidelines constitute a structure for analyzing the effects of horizontal mergers on market power that is adeptly formulated to be consistent with the lessons of economics. First, the threshold tests for market concentration and for entry barriers are in accord with both economic theory and with conservation of judicial resources. Second, the HHI, although necessarily imperfect, is the best practical measure of market concentration that economists have developed to date. Third, it is consistent with economic logic that mergers be presumed to facilitate coordination in markets above some level of concentration, regardless of the indicia of firm conduct. Fourth, economic learning makes it clear that in the midrange between a lack of concentration and near-monopolization a variety of factors other than concentration and market shares are critical in assessing the effects of horizontal mergers. Fifth, the Guidelines reflect the fact that economically meaningful market shares cannot invariably be tabulated by arithmetic alone, without consideration of ambiguities in their measurement, in the units from which they are calculated, and in their coverage. We examine these propositions in more detail in the next Section.

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43. Guidelines § III(A)(1)(a), 47 Fed. Reg. at 28,497, 71 CALIF. L. REV. at 656.

44. *Id.* § III(C), 47 Fed. Reg. at 28,498, 71 CALIF. L. REV. at 658. *See also id.* III(A)(1)(b), 47 Fed. Reg. 28,497, 71 CALIF. L. REV. at 656.

C. Factors Affecting Market Power

1. Market Concentration

Consideration of market concentration must evidently play some role in analyzing whether the merger has increased the market power of the merging firms. If the merger partners were the only actual and potential participants in the relevant market, then the merger would have the effect of forming the very cartel whose existence was postulated in the market definition process. Thus, a finding that the relevant market before the merger is a duopoly protected by entry barriers must imply that the merger could significantly raise prices.[45] Conversely, if the relevant market was highly unconcentrated after the merger, then it is implausible that the merger could diminish competition, raise price, suppress output, or have any other adverse effects.

While market concentration can be an important factor affecting market power, the extent to which concentration and noncompetitive behavior are correlated is far from settled, both empirically and theoretically. One stumbling block is the choice of the appropriate market concentration index.

a. Approaches to Choosing an Index

i. Axiomatic. There are two different approaches to the choice of an appropriate market concentration index: axiomatic and behavioral. The axiomatic approach seeks an index that satisfies certain axioms concerning the quantitative treatment of various collections of market shares. One such axiom, for example, is that the index reach its highest value when the industry is monopolized, and that it take on its lowest value when all firms in the market have equal shares. Another axiom stipulates that a merger of competitors increase the value of the index.

There are many concentration indexes, including the familiar CR4 and CR8 (the total share of the four- and eight-largest firms, respectively), as well as the HHI, which satisfy the axioms. The actual choice of the appropriate index from this group is then an empirical matter. If econometric studies were to demonstrate that the HHI better predicts noncompetitive behavior or monopoly profits than does the CR4, then the HHI would be selected to measure market concentration for the assessment of the welfare consequences of mergers. The available empirical evidence suggests, however, that both the HHI and the CR4 per-

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form equally well in this regard.[46] One obvious reason is that these two indexes are highly correlated in the available samples of interindustry data.

    ii. Behavioral. The other approach to the choice of a concentration index attempts to relate the measure to the market behavior of the incumbent firms. For example, Posner's argument that the HHI is a "more discriminating index of concentration" expressly relies on a behavioral presumption that the likelihood of collusive pricing is "enhanced if one or two firms are clearly dominant."[47] Since the CR4 is insensitive to transfers of market share among the four leading firms, it fails to capture any increased possibility of collusion when market shares become more concentrated at the top. The HHI, on the other hand, is sensitive to redistributions of market share among all firms and, in addition, is especially sensitive to transfers of shares to "top" large firms. These are desirable features of the concentration index, given the underlying behavioral hypothesis.

    In a recent article,[48] we argued that the HHI can be treated as a direct measure of industry performance, as measured by the percentage deviation of market price from average industry marginal cost, in certain well-defined but sharply circumscribed circumstances. The scenario in which the HHI has special *economic* (as opposed to arithmetic) significance is a market composed of a fixed number of noncooperative oligopolistic firms producing an identical product without increasing returns to scale. It can be shown that here the industry-wide Lerner Index, the proportional deviation of price from marginal cost, is equal to the value of the HHI scaled down by the elasticity of market demand. It is in this and in related market scenarios that the HHI's usefulness as a measure of concentration is optimal.

    In other market scenarios, however, other indexes of concentration may correlate better with market performance. From the "behavioral" vantage point, therefore, the HHI emerges as a useful tool of analysis, but as one whose ability in general pre- and postmerger situations to predict by itself industry market performance may be easily overstated. Fortunately, however, there is much to be learned from consideration of the significant factors that the HHI fails to incorporate.

b. Limitations of the HHI

    First of all, even where the HHI is the optimal concentration in-

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    46. *See* F. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 58-59 (2d ed. 1980).

    47. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach,* 21 STAN. L. REV. 1562, 1602 (1969).

    48. *See* Ordover, Sykes & Willig, *supra* note 41.

dex, it must be related to the value of the price elasticity of industry demand in order to measure the deviation of price from cost. This elasticity will be implicitly generated in the process of defining the relevant market, as described in Part I.[49] It is quite unlikely that this process will define relevant markets in which the price elasticities of demand are about the same. Given this, two mergers leading to the same increase in the HHI are likely to have quite different welfare consequences in two different markets. The merger is likely to have a more harmful effect on social welfare if demand in the market is inelastic.[50] This viewpoint is reflected in the Guidelines: "The larger the 'gap' at the edge of the product and geographic markets, the more likely the Department is to challenge the merger."[51]

The second danger in placing too much reliance on the HHI alone is that it is a good predictor of performance only if the industry's firms behave noncooperatively. Where this description of behavior is inappropriate, the value of the HHI, even when scaled down by the appropriate elasticity of demand, may overestimate or underestimate market performance. An industry with the same HHI value and demand elasticity as another industry, but with less rivalrous firms than that industry, will show a higher level of monopoly profits and poorer welfare performance. It is therefore crucial in evaluating merger effects to go beyond concentration measures and examine other factors.

2. Market Shares

Additional critical issues concerning firms' behavior are reflected in the Guidelines' treatment of market share measurement. Four specific problems are discussed in this Subsection: choice of units, long-lived commodities, capacity, and postmerger market share.

a. Choice of Units

From the very outset, the calculation of market shares poses the difficult problem of choice of units: Should shares be based on physical

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49. *See supra* Part I, §§ A & B.

50. It may be worthwhile to clarify certain confusion that may arise at this point. On the one hand, a merger is likely to cause a larger price increase the less elastic is market demand, other things being equal. On the other hand, a given price increase is likely to have a more harmful effect on social welfare the more elastic is market demand. Generally speaking, it is the former effect that predominates. This is even more the case if the sole concern is with consumers' welfare, to the exclusion of producer's welfare (or profit). But profits should not be disregarded, accruing as they might to fully valued citizens, either directly or through such intermediaries as pension funds. However, we do not wish to minimize the equity (distributional) concerns that may be factored into merger policy. *See* Comanor & Smiley, *Monopoly and the Distribution of Wealth,* 89 Q.J. ECON. 177 (1975); Kaplow, *The Accuracy of Traditional Market Power Analysis and a Direct Adjustment Alternative,* 95 HARV. L. REV. 1817, 1822-23 (1982).

51. Guidelines § III(C)(1)(b), 47 Fed. Reg. at 28,498, 71 CALIF. L. REV. at 658.

unit sales, dollar sales, capacity, or physical reserves?[52] The Guidelines are very vague on which units should be used to compute market shares.

Which units to use in calculating share depends upon the characteristics of the relevant market. When the product market consists of a relatively homogeneous universe of products, then physical unit sales and dollar unit sales will yield similar results. In many mergers, however, the relevant market contains heterogeneous products—for example, cars of different quality. Then, market shares based on physical unit sales would not reflect the relative valuations consumers placed on different types of cars. Because relative prices reflect these relative valuations, sales price appears to be a better indicator. On the other hand, dollar sales data may misestimate true market power, especially where the range of product-types included in the relevant market is wide. For example, a car manufacturer who specializes in top quality cars need not contribute more to market power than a manufacturer of average quality cars with equal unit sales but lower dollar sales. Where firms in the same market do possess differing degrees of market power, however, their relative market shares will be influenced by its exercise. For example, a seller may have a small share of physical unit sales precisely because he is restraining output in order to raise price. Then, his share of dollar sales may substantially exceed his market share based on unit sales. In this case, dollar sales would be a better indicator of his role in the market.

b.   Durable Goods

The second difficulty in measuring shares arises where commodities are long-lived. The Guidelines state that when "recycled or reconditioned products represent good substitutes for new products," they will be included in the market, leading, as a result, to lower market shares for manufacturers of *new* products.[53] This is appropriate inasmuch the ability of car manufacturers to raise prices on new models is constrained by the availability of old cars and by the ability of car owners to continue using their old cars by some additional length of time if replacement cars become more expensive. Thus, the 5% test of market definition can still be applied to durables. The only complication is that the available stock of used goods is partly determined by previous decisions of suppliers of new goods, so that suppliers are, as it were, in competition with themselves. On these grounds, some caution in the market share treatment of used products should be exercised.

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52.   *Id.* § II(D) n.26, 47 Fed. Reg. at 28,496 n.26, 71 CALIF. L. REV. at 654 n.26.
53.   *Id.* § II(B)(2), 47 Fed. Reg. at 28,495, 71 CALIF. L. REV. at 653.

This complication is even more evident where durables are leased rather than sold. Suppliers may directly control both the flow of new products and the stock of used durables—e.g., IBM holding leases on its CPU's. The question then is whether shares ought to be calculated on the basis of the stock owned by the manufacturer or on the basis of the flow of new products. The flow-based measure is more oriented toward the future and hence may be a better predictor of the future role of the merging firms. In itself, however, the flow-based measure omits consideration of the competitive restraint on the pricing of the flow that is offered by the stock's availability. Again, creative application of the 5% test would seem to provide an appropriate escape from this thicket.

c. Capacity

The third complication in market share calculations arises in the treatment of capacity. There are a number of difficulties in measuring capacity.[54] For one thing, capacity is not a fixed datum: every factory is surely capable of working beyond its rated capacity, if the price of the product is sufficiently high to warrant it. Furthermore, not all capacity is of equal quality. Because the investment process goes on continuously, different firms will have different portfolios of vintages of capital equipment. These different vintages should not be treated similarly in assessing merger effects. For example, the shortrun consequences of a merger between two manufacturers who own state-of-the-art productive capacity may be quite different from those resulting from a merger of two manufacturers whose capital stock is outmoded.

Two approaches seem plausible for dealing with these difficulties. First, information on capacity can be treated as an additional factor to be taken into account in assessing the importance of traditionally calculated market shares. Alternatively, an analogue of the 5% test could be applied to existing unutilized capacity. Under this approach, currently unutilized capacity would be included in the relevant market for the purpose of calculating market shares if and only if it would be put into operation in response to a price rise of specified magnitude—for instance 5% for at least six months or a year. The rationale for this position is clear: it is only this capacity that would serve as a competitive check on the pricing of the output of the currently utilized capacity.[55]

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54. Professor Stigler defines four different methods of measuring capacity, each of which has some merit for assessing market power and merger effects. G. STIGLER, THE THEORY OF PRICE 156-58 (3d ed. 1966). For additional discussion, see Schmalensee, *Another Look at Market Power*, 95 HARV. L. REV. 1789, 1801 (1982). This diversity of possible methods might create undue complexity and unpredictability in calculating capacity-based market shares.

55. This issue is most likely to arise when capacity is underutilized—an endemic condition nowadays in some industries. If capacity is fully utilized, shares based on physical output should be equivalent to those based directly on capacity.

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Nevertheless, one convincing reason why all capacity should be counted in market shares stems from our view of mergers as a means for coordinating the use of assets. If productive capacity is one of the assets to which market power attaches, then the total capacity controlled by the merging firms may be a good index of their market power now and in the future. Even unutilized capacity can be a valuable asset if it supplies credible threats of output expansion that succeed in curtailing rivals' output and driving up industry prices. Yet here, too, the 5% test would, in principle, capture this effect and yield an appropriate market share partially based on capacity.

d. Postmerger Market Share

The Guidelines rely on measurement of values of postmerger HHI[56] and on measurement of the increase in the HHI caused by a merger.[57] It is clear from the context and from the details provided that in effecting these calculations, the Department will assume that the merger will leave the shares of the nonmerging firms unaltered and that the merged firm will have a share equal to the combined shares of the merger partners.[58] This assumption, however, is unwarranted and implausible as a prediction of the merger's actual effects. Our recent theoretical research on the subject of merger incentives suggests that if a merger does not produce any efficiency gains, it is likely to reduce the market share of the merged company below the combined premerger shares of the merging firms.[59]

In the simplest example, two firms in a symmetric three-firm oligopoly merge, and the industry becomes a symmetric duopoly. Then, the merged company has a market share of 50%, in contrast to the merger partners' 67% premerger share. Here, the merger increases the HHI by 1667, from 3333 before the merger to 5000 after the merger. In contrast, the Guidelines' method for calculating the increase in HHI[60] yields a figure of 2178 (2 x 33 x 33).

Although insight can be gained from manipulation of theoretical examples of this kind (and more complex ones, as well), the fact is that accurate prediction of actual postmerger market shares from data on

56. Guidelines § III(A)(1), 47 Fed. Reg. at 28,497, 71 CALIF. L. REV. at 656-57.
57. *Id.*
58. *Id.* § III(A)(1) nn.30-31, 47 Fed. Reg. at 28,497 nn.30-31, 71 CALIF. L. REV. at 656 nn.30-31.
59. This point was already noticed by Landes and Posner, *supra* note 24, at 973 & n.57. They even argue that from the effect of a merger on market share, one could deduce the rationale for the merger. *Id.* at 973. Inasmuch as the needed information becomes available only well after the merger is consummated, it may be of little value for enforcement of the merger statute. Furthermore, the merged company may artificially maintain a high level of market share for some period of time in order to avoid a challenge.
60. Guidelines § III(A)(1) n.30, 47 Fed. Reg. at 28,497 n.30, 71 CALIF. L. REV. at 656 n.30.

premerger shares and other factors remains well beyond the capabilities of social science. Consequently, it is not our intention to take the Guidelines to task for its bright-line methods of calculation. Rather, in the interests of avoiding misunderstanding and fruitless debate, we suggest only that the Guidelines' measure be accurately relabelled as "postmerger HHI based on premerger shares."

3. Entry Barriers

We have thus far couched our analysis of market shares (and market power) in fairly static terms: that is, we have not yet discussed implications of entry for analyzing the merger's economic effects. In this Subsection, we focus on entry barriers and expose what we feel are the weakest links in the chain of analytical steps inherent in the Guidelines.

The Guidelines take the proper attitude that "if entry into a market is so easy that existing competitors could not succeed in raising price for any significant period of time," challenge of mergers is unlikely.[61] This view squares with a generally accepted notion that in a market unprotected by entry barriers, incumbent firms cannot exercise market power. In such markets, which we term contestable markets,[62] the threat of entry is an absolute constraint on incumbents' market power, there being no meaningful difference between incumbents and prospective entrants. It is for this very reason that contestable markets (much like perfectly competitive markets in more traditional approaches) serve as a useful benchmark to which actual markets can be compared for purposes of assessing merger effects. Indeed, we would argue that a market which is contestable cannot be a relevant market for merger evaluation precisely because in such a market, price increases are impossible and the incumbent firms cannot earn supracompetitive profits.

But most markets are not *perfectly* contestable, and neither are they protected by insurmountable entry barriers. Thus, the analysis of merger effects must deal with partial or limited entry. The Guidelines contain various suggestions on how to incorporate entry into merger analysis.[63]

a. Potential Entrants

The Guidelines deal with entry by assigning market shares to

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61. *Id.* § III(B), 47 Fed. Reg. at 28,498, 71 CALIF. L. REV. at 657.

62. For a discussion of contestable markets, see W. BAUMOL, J. PANZAR & R. WILLIG, CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE (1982).

63. Guidelines §§ II(B)(1), III(B), IV(A)(1)(b), 47 Fed. Reg. at 28,495, 28,498, 28,499, 71 CALIF. L. REV. at 652, 657, 660.

those potential entrants whose existing facilities are currently utilized to produce other goods but can be converted cheaply and quickly. This approach, although superficially appealing, is methodologically questionable for several reasons.

i. Difficulty of Prediction. First, assigning the market shares and determining the consequences of various methods of assignment on the market shares of the merging firms and the overall value of the HHl may be speculative. In particular, an analyst must predict the scale of entry that will occur and the resulting alterations in incumbents' market shares. Thus, an analyst must ascertain whether all incumbents will shrink uniformly, or whether those firms that are actively trying to elevate their prices will be the primary losers.

ii. Divertibility. Second, the issue of divertibility becomes critical in determining the size of possible entry through the conversion of facilities. Economists say that productive capacity is divertible when its use can be easily transformed from one product to another. For example, the barrel capacity of a Los Angeles beer brewer can be costlessly diverted from producing beer for sale in California to producing beer for shipment to Oregon. Similiarly, the productive capacity of a chemical plant can be easily shifted from one product to another. In contrast, an assembly line at G.M. designed for Cadillacs cannot be easily diverted to the assembly of Chevy Vegas.

The fact that productive capacity is technically divertible at low cost, however, does not imply that *all* of the divertible capacity will actually be diverted from product A to product B if B's price rises. The decision of how much to divert is governed by the opportunity cost of capacity diversion. This cost can rise with the quantity diverted, and can vary from situation to situation. These matters can be best explained with the help of a simple example.

Assnme that Stinko Chemical Products, Inc. (Stinko) has capacity to produce amiually 1 million tons of acid A at a cost of $10 per ton. This capacity can alternatively be used to produce acid B. The cost of conversion is $1 per unit of capacity, which is measured in units of output, i.e., tons. Let the current price of both A and B be $15 per ton. Hence, Stinko currently maximizes its profits by manufacturing only acid A, and avoiding all costs of conversion.

Assume now that as a result of an anticompetitive merger, the price of B goes up to $17 per ton. Stinko is likely to convert some or all of its capacity to the manufacture of acid B. The opportunity cost of converting the first unit is the net revenue (or profit) forgone by diversion, e.g., $15 (sale price of A) - $10 (cost of producing A) = $5. The gross profit from conversion is $17 (sale price of B) - $10 (cost of producing B) - $1 (conversion cost) = $6. Hence, Stinko will be willing to

convert one unit of capacity. Whether Stinko would be willing to convert more depends on what happens to the prices of A and B as Stinko shifts from manufacture of A to manufacture of B. It is likely that (1) the price of A will rise as the diversion becomes greater, so that the opportunity cost of diverting capacity will increase, and (2) the price of B will fall as the diversion becomes greater, so that the profits from conversion will be falling. Consequently, it is unlikely that all of Stinko's capacity will be converted to the manufacture of acid B.[64]

This example demonstrates that it is the opportunity cost associated with diversion of capacity or of sales, together with the profits that can be made on the diverted sales, that determine the extent to which diversion will actually occur. Without such data, it may be difficult to determine the share of the market going to the entrants. Furthermore, the problem of how to readjust the incumbents' market shares still remains.

iii. Overestimation of Incumbents' Market Power. Third, the Guidelines' approach of assigning market share to potential entrants based on their existing facilities may lead to underestimation of the constraint that potential entrants exert on the pricing power of the incumbent firms. This issue, too, is easily illustrated by a simple example. Assume that the incumbent producers of burial casket knockdown parts (KD's)[65] have some slight competitive advantage over possible entrants into the manufacture of KD's. Assume also that at the existing prices for casket knockdown parts, the possible entrants—for instance, firms that manufacture refrigerator doors—are essentially indifferent between entering the KD market and staying out. Thus, at the prevailing price, the incumbent firms face substantial (if not infinite) price elasticity of demand with respect to price increases.[66] In other words, the incumbents' sales would decline drastically if they were to elevate prices after the merger. Where price increases are deterred in this manner, prospective entrants significantly constrain market power.

Assume now that the analyst proceeds on the Guidelines' suggested assumption that the divertible capacity of prospective entrants is already in the market. It is now plausible to argue that the KD market participants (which now include stampers of refrigerator doors) have already reached some oligopolistic equilibrium that is unconstrained by potential entry and that merely reflects whatever concentration is

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64. For a more formal discussion of this issue, see Landes & Posner, *supra* note 24, and Ordover & Willig, *supra* note 24.

65. A KD is a disassembled burial casket. See Pre-Trial Brief, Gulf & W. Indus., No. 9153 (FTC filed Aug. 27, 1982), for some additional information about this industry.

66. Given that the total demand for KD's is rather inelastic, being dependent on the mortality rate, the elasticity of demand with respect to *price decreases* is probably close to zero.

inherent in their market shares. Therefore, under this assumption, the resulting market power and price are likely to be higher than in the previous instance.

This example demonstrates that incumbents' market power is overestimated by the Guidelines' approach of calculating market shares and the value of the HHI on the assumption that truly prospective entry has already occurred. The effectiveness of potential entry in constraining market power lies in the threat perceived by incumbents that a significant portion of their business might be diverted to those prospective entrants that choose to enter. As a result, incumbents would tend to keep prices relatively low in order to keep potential entrants out and to avoid loss of sales to actual entrants. This key effect of potential entry is essentially assumed away in the Guidelines' approach.

4. Other Factors

Besides market concentration, market share, and entry barriers, other factors can be crucial in evaluating whether a merger has anticompetitive effects. These other factors focus on more direct indicia of competitive or noncompetitive behavior.[67] The Guidelines provide an extensive list of factors that "relate to the ease and profitability of collusion. Where relevant, the factors are most likely to be important where the Department's decision whether to challenge the merger is otherwise close."[68]

But what is to be made of these factors? Is it really known whether the presence of these factors signifies that a merger has more harmful effects than if the factors were not present? Consider two possible market scenarios. Market A, with concentration approaching 1600, is already performing badly because incumbent firms are tacitly colluding and the price exceeds the relevant marginal cost by a substantial margin. In market B, competition is strong even though the HHI stands close to 1600 there as well.

It is certainly plausible that a horizontal merger will not significantly enhance the ability of firms in market A to collude, because they are already doing so. Because the merging firms cannot anticipate additional profits resulting from a better coordination of assets, it might be inferred that the merger is motivated by some *efficiency* considera-

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67. An interesting approach along those lines is in Joskow, *Structural Indicia: Rank-Shift Analysis as a Supplement to Concentration Ratios*, 42 REV. ECON. & STAT. 113 (1960). *See also* Markovits, *Predicting the Competitive Impact of Horizontal Mergers in a Monopolistically Competitive World: A Non-Market-Oriented Proposal and Critique of the Market Definition-Market Share-Market Concentration Approach*, 56 TEX. L. REV. 587 (1978).

68. *See* Guidelines § III(C), 47 Fed. Reg. at 28,498, 71 CALIF. L. REV. at 658.

tions.[69] Conversely, in market B, where tacit collusion is difficult, a merger can facilitate new coordination by combining the merging firms' assets and by reducing the number of firms. Thus, a merger in a rivalrous market can have more adverse consequences than a merger in a collusive market if the former merger effects a significant change in firms' market behavior.

The issue, then, is determining the circumstances under which a horizontal merger would be likely to alter significantly firms' behavior in the direction of more coordination and less competition. Of course, entry barriers and some degree of concentration are necessary conditions for such behavioral effects. But other factors usually thought to be conducive of coordination (e.g., product homogeneity, availability of transaction information, and price protection clauses) may only indicate that behavior is noncompetitive both before and after a merger, while proving little about a merger's effects. Unfortunately, economics has shed virtually no light on this issue to date, in part because the issue has heretofore not been recognized as important.[70] Consequently, we can only uneasily support the Guidelines' policy of stricter enforcement of merger policy in markets that are more prone to collusive behavior. Of course, strict enforcement is justified when the merger makes the market noncompetitive. But even if the market was noncompetitive to begin with, it can at least be argued that a merger in a collusive market ratifies existing coordination and reduces the chance that the market discipline will break down in the future.

IV
VERTICAL MERGERS

The vertical merger section of the 1982 Guidelines differs significantly from its 1968 predecessor. The underlying reason is that, since 1968 at least, the "new learning" in the area of vertical integration has firmly established that in a variety of realistic market situations, vertical integration is more likely to enhance rather than to diminish allocative efficiency. In light of this new economics, the 1982 Guidelines do not directly address concerns about the consequences of vertical mergers previously mentioned in the cases, such as "foreclosing of the com-

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69. It will also be recalled that, if a group of firms is already colluding, it is likely that the relevant market will be broadly defined by the application of a 5% test. Therefore, market shares will be lower than they would have been if the incumbent firms were *not* colluding prior to the merger.

70. However, in Ordover, Sykes & Willig, *supra* note 41, and in Dansby & Willig, *Industry Performance Gradient Indexes,* 69 AM. ECON. REV. 249 (1979), we showed that an industry's welfare performance can be far more sensitive to alterations in firms' behavioral modes than to alterations in concentration alone. Also, as already mentioned, a price increase of a given size will be more injurious to social welfare the larger the preexisting margin between price and marginal cost.

petitors of either party from a segment of the market otherwise open to them; . . . actual and reasonable likely adverse effects upon local industries and small businesses; . . . the existence of a trend towards vertical integration . . . in previously independent industries."[71] Instead, the new Guidelines focus squarely on the horizontal effects of vertical mergers. This Part analyzes the strategic reasons for vertical mergers, and examines the situations in which horizontal effects result.

A. *Horizontal Effects of Vertical Mergers*

Although the Guidelines never explicitly state what is meant by horizontal effects of vertical mergers, these could be easily identified with adverse effects on the strength of competition that may either prevent prices from falling or ultimately cause an increase in prices of the "downstream" products.[72] Stated differently, vertical integration may have adverse horizontal consequences if its primary effect is either to: (1) facilitate tacit collusion among manufacturers; or (2) place at a competitive disadvantage present or future competitors of the vertically integrated firm.[73]

1. *Facilitating Collusion*

The most obvious instance of a horizontal effect arises when vertical integration is merely a means for facilitating tacit collusion, as it might be in the case of integration into the distribution stage.[74] In assessing this motive for vertical integration, it is necessary to determine: (1) whether and why, in the industry in which the merger occurs, collu-

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71. These concerns and others are listed in United States Steel Corp. v. FTC, 426 F.2d 592, 599 (6th Cir. 1970).

72. In the parlance of economics, industries can be classified into upstream and downstream industries. Upstream industries supply inputs to the downstream industries. Obviously, in most instances, a price increase in an upstream industry translates soon after into a price increase of the downstream product.

73. We must raise three caveats regarding this definition of the horizontal effects of vertical mergers: first, the initial impact of a vertical merger may be on the price of the "upstream" product and may not be reflected in the final price for some time. Ultimately, however, input price increases will be passed on to consumers. Second, an increase in price to final consumers following a vertical merger cannot be regarded as an unambiguous signal that a merger restrained trade. For example, a price increase could be attributed to a postmerger improvement in the quality of customer services, which might have been the main rationale for the merger. Third, a vertical merger may lead to a price increase for some classes of customers and to a price decrease for other classes of customers. In this case vertical integration is employed in order to facilitate price discrimination. Whether one should condone this effect of vertical integration is difficult to say in general. One's attitudes will depend significantly on whether one believes that, on the average, price discrimination by profit-maximizing firms leads to aggregate improvements in social welfare. The theoretical analyses of price discrimination are ambiguous in their assessment of welfare effects. Schmalensee, *Output and Welfare Implications of Monopolistic Third Degree Price Discrimination*, 71 AM. ECON. REV. 242 (1981).

74. Guidelines § IV(B)(2), 47 Fed. Reg. at 28,501, 71 CALIF. L. REV. at 664.

sion is easier at the distribution stage than at the manufacturing stage; (2) whether the same goal could not have been accomplished more cheaply and less obviously through some form of vertical restraints on dealers; and (3) whether detection of cheating is facilitated through vertical integration into distribution. For example, it is unlikely that cartelization is the predominant motive for vertical integration unless there already exists a comprehensive pattern of vertical integration by the dominant firms in the industry. Indeed, if only one firm in a highly concentrated industry integrates into distribution, this firm may be able more easily to chisel on the tacitly established cartel price.

2. *Disadvantaging Rivals*

It is somewhat less obvious how vertical integration might be used to disadvantage the existing and prospective rivals of the vertically integrated firm and thereby adversely affect buyers of the final product. In a sense, vertical integration disadvantages rivals because it *forecloses* "the number of opportunities for market transactions"[75] that prior to the merger were open to both the existing and potential rivals of the incumbent. The Guidelines perceive, correctly in our assessment, no anticompetitive effect merely from market foreclosure, if the part of the market that is thereby removed or foreclosed is inconsequential.[76] Such a vertical merger, while conceivably disadvantaging a competitor (or competitors), is unlikely to harm the competitive process. The Guidelines, however, are sensitive to the possibility that if productive assets are concentrated in the primary or secondary markets, then a vertical merger can disadvantage rivals, weaken the strengths of competitive constraints, and adversely affect social welfare.

When vertical foreclosure has undesirable horizontal effects, it can be viewed as an example of the input-price manipulation strategies that can be employed by incumbent firms to disadvantage rivals and harm competition. Other forms of these strategies include restraints on vertical distribution, manipulation of prices of complementary products needed by rivals to compete actively in the marketplace, and overpurchasing of inputs for the purpose of artificially elevating their prices.[77] The hallmark of these vertical strategies is that they would not be profitable to an incumbent who engages in them but for their ad-

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75. Brown Shoe Co. v. United States, 370 U.S. 294, 323-24 (1962).

76. Guidelines § IV(B)(2), 47 Fed. Reg. at 28,501, 71 CALIF. L. REV. at 664.

77. *See* S. Salop & D. Scheffman, Raising Rivals' Costs (unpublished manuscript) (forthcoming in 73 AMER. ECON. REV. —, May 1983). *See also* Ordover & Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8 (1981); J. Ordover & R. Willig, Notes on Non-Price Anticompetitive Practices by Dominant Firms (unpublished paper presented at 9th Annual Telecommunications Policy Research Conference, Annapolis Md., April 27-30, 1981). *See also* Schwartz & Eisenstadt, Vertical Restraints, Economic Policy Office Discussion

verse effect on rivals—present and future—leading ultimately to the enhancement of market power, and elevated prices to consumers.[78] The remainder of this Subsection relates this strategic approach to the effect on prospective and existing rivals of vertical mergers.

a. Prospective Rivals

In general, a vertical merger may adversely affect prospective rivals if it elevates entry barriers[79]—for example, by increasing the sunk portion of the requisite investment. Entry barriers may also be raised if a vertical merger removes an efficient source of supply of the needed input or an efficient distributor. The adverse effects of a vertical merger are not likely to materialize, however, unless the secondary market is concentrated, the vertically integrating firm already has market power over the products in the primary market, and the merger removes a substantial share of the other product from the independent market. Indeed, the Guidelines proceed on the assumption that if after the merger "unintegrated firms in the secondary market" could serve "two minimum-efficient-scale plants in the primary market," the need for two-level entry by firms wishing to enter the primary market is not enhanced by a merger.[80]

b. Existing Rivals

It is somewhat less clear, perhaps, how a vertical merger can disadvantage the existing rivals of the integrating firm. One possible market scenario involves a merger that removes from the market an amount of an input that exceeds internal needs of the merger partner who buys what the other partner makes. This will disadvantage the rivals if their cost of replacing the lost quantity of the input is greater than the buyer's cost of withholding the excess quantity of the input.[81] Concededly, this scenario is not likely to arise, unless perhaps the merging

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Paper No. 82-8, Antitrust Division, U.S. Department of Justice (December 2, 1982), which came to our attention after this Article was completed.

78. See Ordover & Willig, *supra* note 77, for an extensive discussion of the "but for" clause.

79. Guidelines § IV(B)(1), 47 Fed. Reg. at 28,500, 71 CALIF. L. REV. at 662.

80. *Id.* § IV(B)(1)(a), 47 Fed. Reg. at 28,500, 71 CALIF. L. REV. at 662. We should note that the empirical and theoretical grounds for this proposition are somewhat unclear, at least to us. Indeed, even with that much of a market remaining open, prospective entrants may become discouraged by a vertical merger, if for example, the removed suppliers were more efficient or were perceived to be more willing to break informal supplier arrangements with the incumbent firms and to serve the entrants. On the other hand, even if the unintegrated market is thinned by a merger, this is not likely to have adverse effects on the probability of entry if new capacity can be installed quickly and efficiently. *See id.* ("sufficient unintegrated capacity").

81. An early formulation of this scenario is in Williamson, *Wage Rates as a Barrier to Entry: The Pennington Case in Perspective,* 82 Q.J. ECON. 85 (1968). *See also* S. Salop & D. Scheffman, *supra* note 77, at 3-4.

partners' market shares are changing. In most instances, the merger partners' "agreement" to withhold the input would be illegal, detectable, and punishable without interference with the vertical merger itself.

An additional adverse effect that a vertical merger may have on unintegrated incumbents may arise when the merger substantially reduces the number of firms in the open market, i.e., the number of independent firms. In a perfectly competitive input market, the price effect of such market thinning is likely to be nil. This is because the effect of a merger is merely to shift the input supply and demand curves by the same amount.

When the upstream market is not perfectly competitive, however, market thinning accompanied by an equivalent constriction in demand may result in an increase in the input price. This price increase will have two consequences: first, the price of the final product will increase; and second, the vertically integrated firm will obtain a cost advantage over its unintegrated rivals. This cost advantage can be related to the excess of input price over its marginal cost (which equals the input's transfer price in an integrated firm). The integrated firm may be able to exploit its cost advantage over its unintegrated rivals and, in the long run, enhance its downstream market power. In either case, the efficiency gains on the cost side may be outweighed by welfare losses due to increased market power.

The dynamic effect of vertical integration that disadvantages incumbent rivals of a merging firm may be to induce a "wave" of vertical mergers, with unintegrated firms attempting to acquire input suppliers to reduce the competitive disadvantage vis-a-vis their integrated rivals. The Guidelines do not speak of this effect, and instead take a more static or piecemeal approach to the evaluation of mergers. Although a static approach may be warranted by various enforcement considerations, it nevertheless may fall short of an ideal.[82] For example, in some situations, the cumulative effect of a sequence of vertical mergers may be to raise entry barriers significantly through market foreclosure. In other situations, firms that did not consummate vertical mergers when markets were relatively unconcentrated may find themselves unable to consummate efficiency-enhancing vertical mergers, while they would pass muster if the markets were less concentrated. These firms may find themselves at a competitive disadvantage vis-a-vis their rivals.

B. Complications of the Strategic Analysis Approach

There is no agreement yet in the economic literature on the likeli-

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82. For a stimulating discussion of these dynamic considerations in enforcement policy, see 4 P. AREEDA & D. TURNER, ANTITRUST LAW ¶ 1014 (1980).

hood that vertical mergers can be used as sophisticated nonprice an-
ticompetitive strategies to raise the costs of the necessary products to
existing and prospective rivals of a vertically integrating firm. Further-
more, the analysis of the effects of such strategies is further confounded
because these strategies, including vertical mergers, may be simultane-
ously motivated by procompetitive (efficiency-enhancing) and anticom-
petitive considerations. For example, when a dominant firm in one
market acquires its supplier, the result may be improved resource allo-
cation if the supplier has been charging supracompetitive prices. Yet,
the same acquisition may elevate entry barriers into the acquiring mar-
kets. Paradoxically, this tension may be most pronounced when both
primary and secondary markets are highly concentrated, each with,
say, an HHI in excess of 1800. Consequently, structural criteria for
assessing merger effects, such as the concentration ratios and the mar-
ket shares pertinent to the merging firms, are even less adequate as
predictors of the anticompetitive effects of vertical mergers than they
are in the case of horizontal mergers.

The difficulty in fashioning vertical merger guidelines thus stems
from the fact that unlike horizontal mergers, the anticompetitive ratio-
nales for vertical mergers are elusive and not yet fully understood. On
the other hand, the procompetitive (or efficiency enhancing) motives
frequently appear to be not only obvious but also compelling. Conse-
quently, a liberal posture towards vertical mergers as reflected in the
current Guidelines may seem on balance to be warranted.

Nevertheless, the literature noted in the footnotes of this Part leads
to some challenging conclusions that conform with some of the conclu-
sions reached by the "old" learning in industrial organization and anti-
trust. In particular, the new research generally agrees on one principle:
that vertical conduct by a firm with a protected dominant market posi-
tion cannot rationally be presumed to be in the public interest. Rather,
such prevalent elements of economic structure as inferior sources of
supply (of complementary products), diverse consumer tastes, price in-
flexibilities, and rate of return constraints can lead to incentives for an-
ticompetitive vertical conduct, such as exclusionary vertical mergers.
Vertical mergers that have the effect of substantially raising the "cost of
doing business" to the existing or potential rivals of the vertically in-
tegrating firm are likely to have adverse consequences for social
welfare.

The 1982 Merger Guidelines do not explicitly treat vertical merg-
ers as possible instances of exclusionary strategies with such effects. As
we have seen, the Guidelines' drafters seem to work from a theoretical
model that explained why and when horizontal mergers may harm
competition and lower social welfare. The vertical Merger Guidelines

seem to be less firmly based on equivalent theoretical foundations. We have argued that some vertical mergers can best be analyzed as instances of strategic interactions among firms in interdependent markets.[83] This analysis explains the motives for anticompetitive strategic behavior and relates the investigation into market structure to its theoretical underpinnings.

CONCLUSION

We have surveyed the new Guidelines from the perspective of the economic theory of industrial organization, focusing on the question whether scrutiny of mergers that follows the Guidelines will reliably identify those mergers with anticompetitive effects. For horizontal mergers, our short answer is yes, although inevitably a few caveats are necessary.

The key to the Guidelines is its conceptual framework for market definition. We find this framework to be significantly consistent with economic learning and helpful for logically resolving otherwise difficult issues involved in delineating relevant product and geographic markets. Indeed, the Guidelines solve previously unsolved problems of geographic market definition by unifying their treatment, at the conceptual level, with that of product market definition. Our principal caveat here relates to the Guidelines' conscious exclusion of entry considerations in defining markets, although entry effects are considered in other stages of the prescribed analysis.

The Guidelines lay out methods for answering whether conditions of concentration, supply response, and firm conduct are likely to render benign the effects of a horizontal merger. While necessarily imperfect, these methods are consistent with known lessons of economic theory. Further, it seems that most of these methods could not be obviously and generally improved upon, except with detailed economic analysis that is specific to the case at hand and that requires substantially more data than presumed available by the Guidelines. Here too, however, we think that the Guidelines somewhat understate the possible restraining effects of potential entry. And, like state of the art economic theory, the Guidelines remain too silent on the interactive effects of concentration and firm behavior.

In the area of vertical mergers, the new Guidelines are much superior on balance to their predecessors, and their focus on horizontal effects is an appropriate analytic framework. However, the Guidelines suffer from the absence of an underlying set of principles for vertical mergers that is as incisive as that which informs the prescribed analysis

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83. *See supra* note 77.

of horizontal mergers. Although the economic literature on vertical mergers also remains unsettled on these matters, one useful general principle seems to be emerging: vertical mergers that have the primary effect of substantially raising rivals' costs of doing business are likely to harm social welfare. Thus, we think there is room for improving the Guidelines by incorporating methods of vertical merger analysis based on this principle.

We feel that the new Guidelines take a highly significant step towards an effective merger policy that protects competition and promotes social welfare. In addition, because the Guidelines define a rational policy, they will stimulate further developments in their evolution that can only improve the social productivity of the United States antitrust efforts.