

these being based upon explicit modelling. So the upshot is that markets are concentrated when technological factors impose significant scale relative to market size, when behaviour is relatively competitive (paradoxically), when firms find it straightforward to add to sunk costs profitably, and when firm sizes are very unequal. This last element, determining what affects the inequality, is probably the most unsatisfactory part, since here economics plays a rather small role. However it could be argued that this is more properly the concern of policymakers, to determine why it is that some players dominate an industry, or what are the likely impacts of two large players merging. Markets may also become concentrated through deliberate attempts to monopolize, but it is important to test this proposition against the alternatives discussed above before reaching that conclusion.

Chapter 3

MARKET DEFINITION

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This chapter addresses the reasons for undertaking market definition in antitrust analysis and methods of doing so. It also discusses how the process of market definition should be conducted, with attention to the practical difficulties of doing so. Among other things, it explains why markets should be defined based solely with reference to demand substitution, leaving supply substitution considerations for other steps of competitive effects analysis, and identifies five types of evidence as to demand substitution.¹ The chapter also discusses the (appropriate) scope of markets (including submarkets), and explains why four approaches, sometimes employed for market definition (price correlations, shipment flows, critical loss analysis, and cluster markets), should be avoided. In addition, it analyzes how market definition differs depending on whether the alleged harm is prospective or retrospective, and depending on whether the anticompetitive theory involves exclusion or exclusion.

1. Why define markets?

Throughout the history of U.S. antitrust litigation, the outcome of most cases has surely turned on market definition than on any other substantive issue.² Market definition is often the most critical step in evaluating market power and determining whether business conduct has or likely will have anticompetitive effects.³

In antitrust analysis, a market is a collection of products and geographic locations, delineated as part of an inquiry aimed at making inferences about market power and anticompetitive effects.⁴ A market defined for this purpose is often termed a "relevant

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10. The focus of this chapter is on the use of market definition to evaluate the possibility of anticompetitive conduct. One of the parallel market definition issues that arise when evaluating the possibility of anticompetitive conduct by buyers (the exercise of monopsony power) is addressed briefly in a footnote.²⁶ Special issues arising in the definition of innovation markets are not considered.

2. Eastman Kodak Co. v. Image Tech. Servs., 504 U.S. 461, 469 n.15 (1992). (Because market power is often inferred from market share, market definition generally determines the result of the case.) Robert Pitofsky, *Market Definition in Antitrust: The Assault on Antitrust*, 90 COLUM. L. REV. 805, 806 (1999). (Knownledgeable antitrust practitioners have long known that the most important single issue in most enforcement actions is because so much depends on it—is market definition.)

3. For an excellent survey of the extensive case law on market definition, see A.B.A. SECTION OF ANTITRUST & COMPETITION, *ANTITRUST & COMPETITION* 525-602 (5th ed. 2002) [hereinafter ANTITRUST & COMPETITION].

market" or "relevant market" in order to distinguish these markets from what has been described as "the constraints that might define for other purposes."⁴

The output of the process of market definition—a collection of products and geographic locations—is commonly used to identify the firms that participate in the market so that information is commonly used, among other things, to compute statistics about the size distribution of firms, usually in the form of market shares, from which inferences about market power and likely anticompetitive effects may be drawn.⁵ In assessing the reasonableness of horizontal and vertical restraints, high market shares are often thought to suggest market power, and low market shares its absence.⁶ Moreover, horizontal merger analysis is commonly thought to rely on a relationship between increased market concentration and higher prices.⁷ Some government guidelines specify safe harbors for various types of business conduct based on the market shares of the firms involved.⁸ Courts evaluating business conduct under the antitrust laws in settings in which the precise rule does not apply compare by approach that task by defining markets and calculating market shares.⁹ But market definition may not be required when market power or anticompetitive effects can be demonstrated directly, through means other than inference from the number, size distribution, and other characteristics of firms.¹¹

Market definition is least useful when market shares would not be strongly probative as to market power or anticompetitive effects, while direct evidence as to market power or anticompetitive effects is available and demanding.¹² Market definition may make little contribution to antitrust analysis, for example, when market boundaries are difficult to draw, making the resulting market concentration statistics close to arbitrary.¹³ This may occur in industries in which firms are differentiated in product or geographic space, particularly when those spaces are densely packed with a large number of sellers differentiated by small degrees.¹⁴ Market definition also may not be useful when market concentration bears little relation to the economic theory by which competition would allegedly be harmed. This may occur with the loss of localized competition through merger among sellers of differentiated products.¹⁵ Yet direct evidence of anticompetitive effects or market power may be available when market definition is difficult.¹⁵

2. Conceptual approaches to market definition

A number of conceptual approaches to market definition have been discussed in cases and commentary.¹⁶ The primary dispute emphasized in this section, has concerned whether to focus solely on demand (buyer) substitution, or whether supply substitution should also be considered.

4. The use of business documents to define antitrust markets is criticized in *Cooffroy v. Atlantic E. Marine, Inc.*, 477 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
5. Although markets are sometimes described casually by naming the firms that participate in them, they are defined by their products and locations (and targeted buyers for a price discrimination market), not by their participants. *Ag. & Food Products v. United States of America*, 10 F.3d 1001, 1004 (9th Cir. 1993), *cert. denied*, 510 U.S. 1001 (1993).
6. The identification of market participants—a task that generally requires market definition—may be important to the analysis of the competitive effects of firm conduct even when market shares are not important. For example, in evaluating possible coordinated effects of merger, market participants must be identified in order to identify a market, firm and analyze the effects of merger on its incentives, but market shares need not invariably play a role in that undertaking.
7. ANTITRUST LAW DEVELOPMENTS, *supra* note 3 at 68.
8. See generally Jonathan Baker, *Markets, Monopolies, and the Limits of Competition: A Critical Review of the Economic Literature Relating Price to Market Concentration*, 42 ANTITRUST BULL. 177, 185-90 (1997).
9. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
10. The standard for defining a market is a product and geographic market, respectively, in *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
11. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
12. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
13. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
14. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
15. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).

- evidence to prove adverse competitive effects in *Sherman Act* litigation, particularly in cases involving allegedly naked horizontal restraints, but they appear most inclined to do so when the direct evidence is consistent with what could be inferred about market power from an informal estimate of market concentration based upon a rough market definition, *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
12. Even when market shares, one output of the market definition process, are not strongly probative as to market power or anticompetitive effects, however, another output, the identity of the sellers of close substitutes, may remain important. For example, if competitive effects are inferred from estimates of elasticities of demand, it is important to account for substitution to all close rivals but it need not be important to know market shares.
13. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
14. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).
15. *See* *United States v. Brown*, 476 F.2d 1001 (1st Cir. 1973), *cert. denied*, 414 U.S. 1141 (1973), 47 ARIZ. L. REV. 609, 633-46 (2005).

Suppose that a court is considering a prospective merger between sellers of insulated copper conductor and insulated aluminum conductor. Suppose further that insulated aluminum conductor can also carry electric current, but that the physical properties of these alternatives and their prices dictate that copper conductor is the clear choice for underground wiring, while aluminum conductor is the clear choice for above-ground wiring. Under such circumstances, buyers of copper conductor would not substitute to aluminum conductor even if the price of copper conductor were to increase substantially. From a demand-side perspective, therefore, insulated copper conductor constitutes an antitrust product market.

Now suppose further that many producers of insulated aluminum conductor could quickly and inexpensively switch their production capacity to the manufacture of copper conductor and would profitably do so in large amounts if the price of copper conductor were to rise slightly. If so much capacity would be diverted in this way as to prevent the price of copper conductor from increasing for long, a merger among producers of copper conductor would likely not harm competition. This conclusion is readily reached when the product market is defined solely on demand substitution: under the *Merger Guidelines*, the market of products to be considered is limited to copper conductors, but the aluminum conductor producers would be recognized as participants in that market and assigned market shares reflecting the capacity they would profitably divert into the copper conductor market (even though they are not presently producing copper conductor). When supply substitution is accounted for in this way, the merging firms' market shares will be small, demonstrating that the merger would likely not harm competition.

A similar conclusion as to competitive effects could also be reached by accounting for supply substitution in market definition: expanding the market to include aluminum conductor as well as copper conductor in this expanded market, the merging firms' market shares will again be small. But a number of conceptual and practical pitfalls must be avoided before it would be appropriate to reach the conclusion that the merger would not likely harm competition if demand-side supply substitution are incorporated into the market definition step of the analysis.

To see the first problem, suppose that there are two types of firms producing aluminum conductor, employing different production processes. Only type 1 aluminum conductor firms could quickly and inexpensively shift to producing copper conductor. If there are many type 1 aluminum conductor firms, which cannot readily switch to copper conductor, but relatively few type 2 aluminum conductor firms which can, and if the market is broadened to include all conductors, the resulting low market shares may mislead by improperly suggesting that the merger of copper conductor firms would be unlikely to create a competitive problem. This problem is readily avoided when markets are defined with respect to demand substitution only, as only the divertible capacity of aluminum conductor producers with production flexibility would then be viewed as devoted to the copper conductor market.

31. Any reasonable method of analyzing the competitive effects of this hypothetical merger would need to account for the extent to which aluminum conductor capacity would profitably be diverted to copper conductor production in the event that the price of copper conductor were to rise. Under the 1992 *Merger Guidelines*, that analysis would take place in assigning market shares rather than in market definition.

Second, suppose that all aluminum conductor firms could rapidly switch to copper conductor production but some would not find it profitable to do so because they would have to break long-term high-margin contracts with buyers of aluminum conductor. Under the demand substitution approach of the *Merger Guidelines*, this problem would also sensibly be addressed by assigning low market shares to firms that lack substantial divertible capacity. But under the supply substitution approach, all current sales or capacity of aluminum conductor firms would be included in computing market shares, leading to market shares for the merging copper conductor producers that would likely understate the competitive significance of that merger.³²

Third, suppose that another product, insulated nickel conductor, is a close demand substitute for aluminum conductor but not a close substitute for copper conductor. If so, it could be difficult in practice to defend a product market that includes aluminum conductor but excludes nickel conductor. A conscientious court expanding the product market beyond copper conductor on the ground that aluminum conductor is a good supply substitute may be hard-pressed to define anything short of an all-conductor market, including copper, aluminum and nickel conductor. The result again would be to reduce market shares for the merging copper producers relative to what they would have been in the copper conductor market, defined based solely on demand substitution, and thus lead to shares that likely understate the competitive significance of the merger.

Fourth, suppose that aluminum conductor is a supply substitute for copper conductor and the market is expanded in consequence to include all conductors. Let copper conductor be a larger market segment than aluminum conductor so that the market shares of the merging firms remain high in the broader market. Suppose further that entry is easy into the aluminum conductor segment using a technology different from that of the incumbent aluminum conductor firms, and that any resulting entrants would be unable to shift easily into the production of copper conductor. Easy entry into the aluminum conductor segment may well fail to solve the competitive problem arising from a merger of copper conductor producers.³³ If the market is defined as all conductors, it would be easy to miss this point, and improperly conclude that there is no competitive problem from a merger of copper conductor firms.

Fifth, suppose that the aluminum conductor production process is identical to the copper conductor process. As a result, copper conductor made by aluminum conductor producers is not a perfect substitute for copper conductor made by firms specializing in that product. Suppose further that the difference is not important for one group of copper conductor buyers—they would be happy to substitute copper conductor made by the aluminum conductor firms—but that the difference matters greatly to a second group of copper conductor buyers, which would not switch to the

32. The possible effect of a competitive constraint from a merging copper conductor producer unable to expand output inexpensively would be addressed in the analysis of competitive effects, regardless of whether markets are defined from a pure demand-side perspective or whether supply substitution is incorporated into that process.

33. Incumbent aluminum conductor producers may switch into copper conductor production, and new entrants may begin to produce aluminum conductor. But this supply response may not be sufficient to prevent an increase in copper conductor prices, because of the relatively small increase in copper conductor output.

conductor produced by those aluminum conductor firms that have shifted production to copper conductor. Under these circumstances, the ability of supply substitutes to prevent a copper conductor price increase after merger turns on whether most customers are in the first group, happy substitutes (copper conductor made by aluminum producers), or whether most are in the second group, unwilling to do so. A demand-side market definition limited to copper conductor facilitates close analysis of this question. But if markets are defined according to supply substitution, it is too easy to presume without analysis that all customers would be willing to accept copper conductor manufactured by aluminum conductor firms. Doing so could again reduce market shares for the merging copper producers relative to what they would have been in a copper conductor market defined solely based on demand substitution, and thus lead to shares that likely understate the competitive significance of the merger.³⁴

These problems could in theory be addressed within a broad product market defined according to both supply and demand substitution, with careful analysis. But in some of the examples involving copper and aluminum conductor discussed above, one step of that analysis would necessarily involve understanding buyer substitution—the very analysis that must be conducted to define a market based purely on demand substitution. In the remaining examples defining markets based solely on demand substitution is not necessary to address the issue, but it facilitates careful analysis of the scope and profitability of supply substitution.

In practice, courts rarely employ supply substitution to help define markets in the context of merger analysis.³⁵ Deviation from an exclusive demand-side focus is more likely to occur when courts define markets under the Sherman Act. One reason may be that outside of merger reviews, courts historically have been reluctant to undertake the balancing of procompetitive and anticompetitive effects required by the unstructured rule of reason in horizontal agreement cases, arguably a required step to identify exclusionary conduct in monopolization cases.³⁶ Adjusting the definition of the market allows courts to account for supply substitution without opening the door to a wide-ranging competitive inquiry. For example, in analyzing an agreement among rivals, expanding the market to show lack of market power may be a tempting analytical

approach when rivals would readily undermine the exercise of that power by increasing supply as it may allow a court to dismiss a case using a "quick look to exonerate."³⁷ But the better approach, as described above, is to account for only one economic force, demand substitution, in the market definition stage of the competitive effects analysis, and to account for supply substitution in one or more of the steps of the analysis (identifying market participants, analyzing competitive effects, and evaluating entry conditions). This alternative would help avoid analytical errors, and still permit a court to dismiss the case with dispatch if that outcome is appropriate.

3. Evaluating demand substitution in practice

Market definition for antitrust purposes requires, first and foremost, an assessment of the magnitude of the economic force of buyer substitution. This is an economic question shaped by the demands of the legal framework for competition policy. Accordingly, there is no reason to expect that the concept of a market employed by business executives when discussing issues of business strategy or marketing, which in testimony or documents prepared for business purposes would be the same as the concept of an antitrust "relevant market" defined for the purpose of antitrust analysis. The informed views of business executives as to the nature and magnitude of likely buyer substitution are relevant to antitrust market delineation as discussed below, but the specifications of markets they adopt for business purposes unrelated to antitrust analysis should not control the definition of the market for antitrust purposes.

3.1 Types of evidence as to buyer substitution

Evidence as to likely buyer substitution patterns in the event of an increase in price—the central economic issue at stake in market definition—can be grouped into five categories: past buyer responses, buyer surveys, product characteristics, seller conduct, and views of industry experts. Within each category, evidence may be quantitative or qualitative.

The first category involves the response of buyers to changes in relative prices in the past. Such evidence can be quantitative and systematic, as with econometric estimates of demand elasticities,³⁸ and econometric analyses of natural experiments involving a change in market structure.³⁹ Evidence as to buyer responses can also be anecdotal. A firm's marketing executives may be able to report on the results of an experiment with a price increase or recall that price rose following an increase in marginal cost. The

37. ANDREW G. LAW, JAMES K. MCDONALD, KENNETH B. LITVACK, ANTON B. RAMPAERT, & LARRY B. ROSENTHAL, EXCLUSIONS AND PROBLEMS IN COMPETITION POLICY 198-99 (2002).

38. The demand elasticity is a measure of market definition, and is an important elasticity, and is used in notes 49-54. Gross price elasticities of demand are relevant because they can be used to identify the next best substitutes that should be included if the candidate market is expanded, and because of the mathematical relationship between own and cross-elasticities set forth below. See note 34.

39. Los Methods of inferring the magnitude of buyer substitution from natural experiments involving a change in market structure have been used to analyze the unilateral competitive effects of mergers among sellers of differentiated products. For example, see *United States v. Microsoft Corp.*, 2001 WL 100000 (S.D. Cal. 1999), 2001 WL 100000 (S.D. Cal. 1999). These methods are equally appropriate for the analysis of market definition, as buyer substitution is the central economic force at issue in both inquiries.

34. This kind of problem is more than a theoretical one: a similar analytical step appears to have been skinned improperly by an expert antitrust tribunal evaluating such an issue in *United States v. Microsoft Corp.*, 2001 WL 100000 (S.D. Cal. 1999), 2001 WL 100000 (S.D. Cal. 1999). The principal question in the *Microsoft* case was whether the product market should be limited to at-shelf coupon dispensers (attached to grocery store shelves) giving the defendants a large market share. The circuit court expanded the market to reflect supply expansion by providers of signs and placards, end caps (product racks at the end of aisles), sales, coupons included on (or in) the product's package, coupons distributed at the checkout counter, and . . . the traditional coupons distributed by mail or newspaper. In the resulting broader market, the defendants apparently had a low market share. But the court never asked whether buyers (product manufacturers) would in fact substitute these forms of promotion for at-shelf dispensers in response to higher dispenser prices, and would do so in sufficient numbers to prevent any exercise of market power among sellers of at-shelf dispensers.

35. The influence of the demand side of a market in 1999 *in Microsoft v. United States* is described in *United States v. Microsoft Corp.*, 2001 WL 100000 (S.D. Cal. 1999), 2001 WL 100000 (S.D. Cal. 1999).

36. ANTITRUST LAW DEVELOPMENTS, *supra* note 37 at 77.

executives may have an understanding of which rival firms also raised price effectively (ejecutivos pueden tener comprensión de qué empresas rivales también aumentaron el precio efectivamente) or participants in a candidate market), whether those firms collectively lost share following a price increase, and if so, which rivals not increasing price benefited the most from buyer substitution. If there is good reason to believe that the price or cost changes did not result from a shift in demand, anecdotal values such as these could provide valuable informal evidence as to the extent of buyer substitution and the identity of next-best substitutes that should be included in the market if the candidate market is expanded.

Second, buyer surveys may provide evidence as to the likely response of buyers to price changes. Retail customers could be sampled using a carefully constructed survey instrument or expanded, for example.⁴¹ Surveys could also be informal, based on customer interviews.⁴² If there is some basis for concluding that the customer views are informed and representative, and that they account for a reasonable fraction of the relevant business, even an informal survey may provide a reliable guide to likely buyer substitution patterns.⁴³ Under some circumstances, moreover, bidding records could similarly be treated as a type of customer survey, and relied upon to identify how buyers would likely respond to a price increase.

Third, likely buyer substitution patterns in response to a price increase may be inferred from information about the characteristics of products and geographic locations known to matter to buyers (including the distribution of switching costs across buyers). Quantitative methods of inferring the distribution of the valuations buyers place on unobservable product characteristics can be employed for this purpose.⁴⁴ On market shares and buyer characteristics can be employed for this purpose. But less formal inferences may also be useful. For example, information about the geographic distribution of customers and shipping costs can help assess the likelihood of buyer substitution to more distant locations from those in a candidate market, and so bear on geographic market definition.⁴⁴

The remaining two categories of evidence as to demand substitution are derivative of the first three, but they rely on informed actors other than buyers to assess and integrate the direct evidence as to buyer substitution patterns. The fourth type of evidence infers buyer substitution patterns from the conduct of industry participants, or more precisely uncovers how buyer substitution is understood by sellers. For example, evidence about the extent to which firms monitor and respond to the price changes and new product introductions of rival sellers, and about the products and locations of the rivals that have their greatest attention, is commonly employed as a guide to the products and locations where buyer substitution is most likely.⁴⁵ If the sellers are in a position to learn about buyer substitution patterns through the methods previously described and based on their observation of buyer responses to past price changes, discussions with customers, and familiarity with buyer and product characteristics—and if they are willing to base business decisions on that information, this evidence may be probative with respect to antitrust market definition.⁴⁶

Fifth, the views of industry experts—including, for example, industry consultants, trade press reporters, trade association executives, former industry executives, or sellers of complementary products—may be useful in judging likely buyer substitution responses to prices. The reliability of this evidence can be assessed by examining, among other things, whether the experts are in a position to gather direct information about buyers and what they have costly business decisions on that information.

Which of these types of evidence as to the extent of buyer substitution is the most probative will vary from case to case.⁴⁷ Direct evidence from buyers and pass-on by more or less reliable or persuasive than inference from seller conduct or the distribution of buyer characteristics.

3.2. *How much buyer substitution is enough?*

In principle, the magnitude of likely buyer substitution in the event of a price increase must be compared with the magnitude of price-cost margins in order to determine whether that price increase would be profitable were firms to act collectively as a single seller, and thus whether to define a market. The conceptual issues involved in making this comparison are set forth first, after which some practical implications are discussed.

The profitability of a small price increase by a hypothetical monopolist turns on a trade-off: price-cost margins increase to those buyers who continue to purchase

40. This is an example of what is termed in econometrics the problem of identification. See generally Jonathan B. Baker & Timothy F. Bresnahan, *Economic Evidence in Antitrust: Defining Markets and Measuring Market Power* (Stanford Law and Economics Online Working Paper No. 328, Sept. 2006), <http://ssrn.com/abstract=931225>.

41. E.g., Jonathan B. Baker & Daniel L. Rubinfeld, *Empirical Methods in Antitrust Litigation: Review and Critique*, 1 J. L. & Econ. Rev. 286, 47-52 (1999) (discussing conjoint survey methods).

42. When investigating a merger involving producers of an intermediate good sold to a limited number of industrial buyers, the enforcement agencies frequently seek to interview all the buyers about their willingness to substitute away from the product in the event of a price increase.

43. The reliability of customer statements unsupported by analysis as to buyer inability to substitute away from the products in a candidate market in response to a price increase was questioned in *United States v. Oracle Corp.*, 331 F.2d 1098, 1131 (N.D. Cal. 2004) (The court refused to consider the affidavits of the markets and the evidence of the unilateral effects of merger on the ground that those views were not based on an expensive new analysis that would not routinely be undertaken in the ordinary course of business. This conclusion takes an overly narrow view of the possible evidentiary bases for crediting customer views as informed and reliable).

44. Similarly, informal analysis of switching costs may bear on product market definition. E.g., *Complaint 16, Bayer AG No. C-4049, 2002 WL 1151015* (F.T.C. 2002) (defining a market for "new generation" insecticides based in part on an informal switching costs analysis of the advantages to buyers of new generation products relative to older insecticides).

45. The probative value of inferences about the extent of buyer substitution from another aspect of seller behavior, the way sellers set prices relative to costs, is discussed in connection with critical loss analysis *infra* Section 4.3.

46. But seller documents can raise issues of interpretation. For example, if competitors are numerous, sellers may find it cost-effective to sample representative rivals rather than monitoring all of the rivals that matter to them. Similarly, sellers may devote more attention to monitoring actual rivals than potential rivals, even if the latter also help constrain seller pricing. Also, references in seller documents to the "market" may not be useful for antitrust market definitions when executives or consultants define markets for non-antitrust purposes using criteria that differ from those that apply to antitrust market definition.

47. For additional discussion, see Baker & Bresnahan, *supra* note 40.

market constitutes a relevant antitrust market if a hypothetical monopolist pursuing maximum profits would raise the price of some or all products, at some or all locations, by a small but significant and non-transitory (SSNIP) amount.⁵⁷ (holding constant the terms of sale of all other products), relative to the prices that would prevail but for the merger under review. If the hypothetical monopolist would find a SSNIP profitable, the candidate market is expanded by adding the next best substitute, the new candidate market is tested to determine whether it constitutes a relevant antitrust market, and so on.⁵⁸ Each starting point (each initial candidate market) could in principle lead to a different relevant market in which the possibility of anticompetitive effects could be analyzed, though the same outcome could in practice arise from multiple starting points. Three implementation issues raised by this theoretical algorithm are discussed below. Special problems in the application of the algorithm to retrospective harm cases and to exclusion cases are deferred to Sections 5 and 6, respectively.

3.3.1. Specifying the initial production region

Where should the process of market definition begin? Suppose a product market must be defined in order to analyze the competitive effects of conduct undertaken by Coca-Cola. Perhaps Coke is acquiring another firm, is accused of harming competition by excluding some rivals, or has introduced a practice (on its own or by agreement with other firms) said to facilitate coordination among rivals. Cola (among other brands) Coca-Cola sells regular Coca-Cola (a cola-flavored soft drink), Diet Coke (a sugar-free, caffeine-free Coca-Cola), caffeine-free Diet Coke, Sprite (a lemon-lime flavored soft drink), and Dasani (bottled water). Moreover, these products are sold in a variety of package types, including bottles and cans in a range of sizes. In principle, one might specify each finely distinguished product—for example, caffeine-free Diet Coke in 12 oz. cans—as a candidate market, thus beginning the analysis with a large number of candidate markets. If a caffeine-free Diet Coke in 12 oz. cans were not a market, the candidate market would be expanded to the next best substitute—perhaps caffeine-free Diet Coke in bottles, perhaps caffeine-free Coca-Cola, perhaps Diet Coke (caffeinated), or perhaps caffeine-free Diet Pepsi (sold by a competitor)—and the hypothetical monopolist test applied again.

57. The 1992 *Merger Guidelines* suggest considering a price increase of 5% as a guide for the foreseeable future. 1992 MERGER GUIDELINES § 1.61. The enforcement agencies frequently instead employ a 1% figure in their analysis. Robert Pitofsky, *Has the time come for the use of the higher figure as an encouraging, over-inclusive market definition?*, Pitofsky *supra* note 2, at 1823-24. In defining markets in order to analyze petroleum industry mergers, the FTC frequently employs a much smaller SSNIP, such as \$0.01 per gallon.

58. Cf. *McCormack & Co. v. Continental Oil Corp.*, 1992 *Merger Guidelines* (Hypothetical Monopolist Test for Market Definition 5-6 (Potomac Papers in Development and Economics 660), Oct. 2006), <http://ssrn.com/abstract=940667> ("If the hypothetical price increase is profitable, then the gap [in the chain of substitutes] is material and a relevant market is defined. If not, simply find another gap and test again.")

59. Other aspects of the approach to market definition may differ across these settings, particularly depending on whether the alleged harmful conduct was prospective or retrospective, as discussed *infra* Sections 5 and 6.

In practice, market definition would likely begin with a larger aggregate—all colas, all soft drinks, or all beverages, for example.⁶⁰ If this aggregated information about buyer substitution patterns is available and the outcome turns out the starting point, a more finely defined product might be an appropriate place to begin the analysis. But it would almost never be appropriate to begin by disaggregating more narrowly than the specific products that are purchased by the buyers alleged to have been harmed by the conduct under review.⁶²

3.3.2. SSNIP with other terms of sale held constant

The conceptual experiment that identifies buyer substitution patterns presumes that the price for products and locations in the candidate market would increase by a small amount, while prices of all products and locations outside that candidate market would not increase in price. This small price increase is commonly taken to be one percent (the figure suggested in the *Merger Guidelines*), or 10 percent (an alternative frequently adopted by the enforcement agencies), though it could be higher or lower.⁶³ This figure

60. El. The 1992 *Merger Guidelines'* approach of starting with finely defined candidate markets and expanding them is often difficult to apply in practice, in part because it is often impossible to understand buyer substitution patterns (including the elasticity of candidate product demand and the identification of next-best substitutes) for finely defined products with sufficient precision to make the necessary judgments.

61. In principle, the starting point could be disaggregated more finely than, for example, regular Coke's soft drink 2.0L can. One could view a regular Coke as the combination of a flavored syrup manufactured by the Coca-Cola company, along with complementary products purchased by Coca-Cola, including bottling services, distribution services, and marketing. Similarly, one might ask why begin market definition in a case involving automobiles with a specific brand and model of car? After all, the car purchased by a retail customer can be disaggregated further: it combines a chassis, tires, an engine, and a radio, among other things, along with the distribution and marketing services provided by a dealer. Should a market definition begin with each of these? Viewed this way, virtually all products can be thought of as combinations of demand complements (which have presumably been bundled or assembled because sellers can do so more cheaply than can buyers). Hence this perspective would require that market definition commence with numerous candidate markets (e.g., the chassis, tires, engine, etc.) in any individual case. This perspective is not appropriate to antitrust market definition, however, because it is not tied to the buyers who would be harmed by the alleged antitrust violation and so conflicts with the demand substitution focus of market definition.

62. Products should generally not be disaggregated more finely than what is purchased by the particular buyers alleged to have been harmed by the conduct under review. Cf. *Wesleyan v. Wynn*, 56 F.3d 26 (observing that market delineation algorithms can be applied to bundles of products that arise as a result of "technological integration, combined packaging, or contractual tying"). An exception might arise if a plaintiff alleged that the conduct under review harmed competition by leading the defendants to alter the attributes of the products they sell (for example, in order to raise entry barriers or discriminate in price in a manner that harms consumers). Other examples of the importance of relating market definition to the allegations in the case are considered *infra* Sections 5 and 6.

63. Some of the five types of evidence as to buyer substitution discussed *supra* Section 3.1 can be used to calibrate the magnitude of the likely buyer response to a specific percentage price increase more closely than can others. For example, evidence as to which rival products are monitored and responded to by sellers may not correspond readily to a particular percentage price increase or suggest a precise percentage for the buyer response, yet this evidence could nevertheless be strongly probative as to market definition. The quantitative aspects of the market definition approach of the 1992 *Merger*

is not a tolerance level for anticompetitive price increases; it is merely an arbitrary benchmark for assessing buyer substitution.⁶⁴ The conceptual experiment presumes that the hypothetical monopolist would reduce competition on the price dimension; this assumption is commonly useful to frame the process of market definition even if market power would be exercised on multiple dimensions, but there is no bar in principle to basing the market definition algorithm on a small reduction in competition on some nonprice dimension if that alternative is more convenient.⁶⁵

The assumption that the price of only the products and locations and the candidate market is being introduced is also consistent with the *Merger Guidelines* recommendation to focus the market definition exercise on the economic force of buyer substitutions. (The possible response of sellers of products or at locations outside the candidate market, whether those outside firms compete more or less aggressively in response to a small price increase, and whether they would find it profitable or feasible to increase their own output, is left for other steps of competitive effects analysis.⁶⁶

Guidelines proposed to be used to identify a market, namely, demand substitution evidence for quantitative evidence.

64. The scope of the market defined using this algorithm could vary with the size of the SSNIP chosen. Other reasons multiple markets could be defined from a starting point are discussed below in the next footnote, and in the text later in this section. Moreover, the actual price increase through likely to occur as a result of a challenged conduct could be greater than or less than the benchmark SSNIP used for market definition. In theory, damage to competition could be found even if only a small price increase is brought about. In practice, the difficulty of distinguishing a small number from zero with the usual statistical evidence is a problem. *See* 1992 *Guidelines* for competition analysis, particularly the discussion of the "small number" problem. In practice, the difficulty of distinguishing a small number from zero with the usual statistical evidence is a problem. *See* 1992 *Guidelines* for competition analysis, particularly the discussion of the "small number" problem. In practice, the difficulty of distinguishing a small number from zero with the usual statistical evidence is a problem. *See* 1992 *Guidelines* for competition analysis, particularly the discussion of the "small number" problem.

65. In the context of implementing the conceptual experiment for market definition, a price increase is simply a measurable proxy for any small change (whether on a price or nonprice dimension) that makes what is sold in the candidate market less attractive to buyers. *See* 66, Michael A. Katz & Howard A. Shelanski, *Mergers and Innovation*, 74 ANTITRUST L.J. 1 (2002) ("What is needed is a careful analysis of what constitutes a real price increase in the face of cost and product changes."). If market definition is based on a small reduction on a nonprice quality dimension, the resulting market could in theory differ from what would result if the conceptual experiment involves a small increase in price. This could happen if buyers respond differently to small changes in product attributes than to small changes in price, or if the product or location constituting the next-best substitute (the basis for expanding a candidate market) differs as the conceptual experiment changes. This observation provides another reason why the process of market definition could result in multiple markets within which the possibility of anticompetitive effects could be analyzed.

66. Hence market definition turns on the own-price elasticity of structural demand. Before 1992, market definition was generally thought to turn on the own-price elasticity of residual demand. The residual demand elasticity, which incorporates supply responses as well as demand responses, remains relevant to the assessment of competitive effects of the conduct under review (possibly making market definition and evidence involving the structural demand elasticity unnecessary). For a recent effort to define markets using an approach that accounts for both demand and supply responses, see Mark Ivaldi & Stefano L. Lavezzi, *An Equilibrium Relevant Market Test for Applications to Computer Servers* (Working Paper, June 2005), <http://ssrn.com/abstract=743144>.

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3.3.3. Size of markets (including submarkets)

If one set of products and locations constitutes a relevant antitrust market, it is likely that one or more larger sets of products and locations that encompass the initial market would also be an antitrust market. After all, if a hypothetical monopolist of cola-flavored soft drinks (for example) could profitably raise prices, it is likely that a hypothetical monopolist of all soft drinks can also do so. Moreover, markets can overlap. If a hypothetical monopolist of cola-flavored soft drinks can profitably raise price, making cola soft drinks a product market, that does not exclude the possibility that a hypothetical monopolist of Coca-Cola soft drink and Dr Pepper (a noncola soft drink flavor), but not including Pepsi's cola soft drink, could profitably raise price.⁶⁷

Recognizing the possibility of multiple markets in which the competitive effects of firm conduct could be evaluated allows for more accurate targeting of the competitive effects analysis in each case.⁶⁸ It is appropriate to analyze firm conduct in any or all relevant markets in which a plausible antitrust claim may be made.⁶⁹ Indeed, the *Guidelines* adopt the contrary view that the smallest possible market satisfying the hypothetical monopolist test conditional on a given starting point be delineated (as suggested in the *Merger Guidelines*) and that degree of concentration at this time is more premised on the theory of competitive effects and on the product market definition than is necessary or appropriate.⁷¹ If there are clear breaks in the chain of substitutes—for example, the distinction between soft drinks and other beverages was once more clear

67. This example presumes that the smaller market is expanded through the addition of demand substitutes. At a minimum, the hypothetical monopolist of all soft drinks can profitably raise price for the cola-flavored drinks alone.

68. Moreover, markets could be nested. Suppose product markets must be defined to analyze Coke's acquisition of Pepsi. It is conceivable that starting from Coke, one would define a product market including Coke and Dr Pepper only, while starting with Pepsi, one would need to add first Coke and then Dr Pepper before the market definition algorithm generates a product market. Under such circumstances, competitive effects should be analyzed in both a Coke/Dr Pepper product market and a Pepsi/Coke/Dr Pepper product market. Similarly, to provide another example, in analyzing an allegation of exclusionary conduct involving computer monitors, it is possible that competitive effects should be analyzed in both a monitors market and a broader market for personal computers.

69. *See* 1992 *Guidelines*, at ¶ 1.2.1.2.1.3. (The tendency to see relevant market definition as an "either-or" proposition rather than as an array of estimates with no market description being exactly right has led to the most serious errors in antitrust enforcement.").

70. *See* 66, Michael A. Katz & Howard A. Shelanski, *Mergers and Innovation*, 74 ANTITRUST L.J. 1 (2002) (recommending that the competitive effects of mergers be analyzed within multiple markets in order to address uncertainty about the magnitude of demand substitution).

71. This problem is only imperfectly addressed by the discussion in the 1992 *Merger Guidelines* of the "smallest market" principle. The SSNIP is a useful measure of market power, but it is not a perfect one. The Agencies may act conservatively and focus on a market definition that might not be the smallest possible relevant market. . . . If the answer for a broader market is likely to be the same for any plausible smaller relevant market, there is no need to pinpoint the smallest market as the precise line drawn does not affect the determination of whether a merger is anticompetitive." For further discussion of the shortcomings of the "smallest market" principle and related issues, see Jonathan B. Baker & Steven A. Salop, *Should Concentration Be Dropped from the Merger Guidelines?*, in AMERICAN BAR ASSOCIATION SECTION OF ANTITRUST & TRADE PRACTICE REPORT, PERSPECTIVES ON FUNDAMENTAL ANTITRUST REFORMS 339 (2001).

than it appears today—that breakaway provides a reasonable basis for specifying a candidate market (which must then be analyzed to determine whether demand substitution would likely make a price increase unprofitable for a hypothetical monopolist). But the existence of a market defined by such a clear break does not preclude the possibility of smaller markets delineated by boundaries that seem more arbitrary and difficult to draw.⁷² Those smaller markets would be defined as markets using the same demand-side criteria as applies to the larger market within which they may be nested. In practice, the federal enforcement agencies “frequently conclude that a relatively narrow range of products or geographic space within a larger group describes the competitive arena within which significant anticompetitive effects are possible.”⁷³

The term “submarkets” must be used with care to avoid suggesting that there are circumstances under which the usual demand-side criteria for market definition may be discarded. In 1962, *Brown Shoe*,⁷⁴ a Supreme Court decision, indicated that submarkets could be defined within a broad market, and listed seven “practical indicia” which could be used to do so. Although many of the *Brown Shoe* indicia are related to the identification of buyer and seller substitution patterns, some are not. In the past, the practical indicia sometimes have been applied blindly, without reference to the goals of identifying demand- or supply-side substitutability. This has led to confusion and error: courts have sometimes defined improperly narrow submarkets, and, consequently, likely identified market power in settings in which firms were competing vigorously. For this reason, modern courts and commentators are hostile to the concept of submarkets.⁷⁵ Notwithstanding this caution, submarkets do play a useful role under some circumstances by providing a doctrinal basis for recognizing price discrimination markets,⁷⁶ and for addressing the unilateral competitive effects of mergers among sellers of differentiated products.⁷⁸ Otherwise, the submarket terminology is more confusing than helpful and should be avoided.

72. For a similar reason, it is often reasonable in practice to expand a candidate market to include a good substitute, regardless of whether the substitute is literally a “close” substitute, the criterion suggested by the 1992 Merger Guidelines. 1992 MERGER GUIDELINES, § 1.11.

73. MERGER GUIDELINES COMMENTARY (supra note 2) at 6 (citing examples markets defined as “superpremium ice cream,” paper label stock used for “variable information printing,” paper label stock used for “prime” labels, and services provided by full-service hospitals in Slidell, Louisiana).

74. *Brown Shoe Co. v. United States*, 370 U.S. 294, 325 (1962).

75. See generally *United States v. Baker*, 677 F.2d 1001, 1006 (2d Cir. 1982); *In Qualified Praise of Submarkets*, 67 ANTITRUST 206 (2000); P. Areeda, *Submarkets: A Critique*, 15 J. L. & Econ. 1 (1992). The “practical indicia” listed in *Brown Shoe* are: (1) the degree of product differentiation; (2) the degree of interchangeability of the products; (3) the degree of uniqueness of the products; (4) the degree of similarity of the products; (5) the degree of similarity of the products; (6) the degree of similarity of the products; (7) the degree of similarity of the products.

76. Narrow markets that cannot be described absent multiple adjectives are often ridiculed as gerrymandered. Carefully crafted in order to make concentration appear high, rather than defined on a principled basis. E.g., *United States v. Corning Corp.*, 588 F.2d 666, 693 (2d Cir. 1978) (Fortas, J., dissenting) (highlighting “unreality” of the “central station protective services which are ‘accredited’ by insurance companies” market found by the majority by calling it a “strange red-haired bearded, one-eyed man with a limp classification”). But the number of adjectives is beside the point: the issue is whether the market definition is consistent with the evidence as to demand substitution.

77. See *infra* Section 3.4.

78. The economic force of buyer substitution underlies the analysis of unilateral competitive effects among mergers among sellers of differentiated products, as much as it underlies the analysis of market

The scope of the product and geographic markets that would be defined to analyze any particular alleged antitrust violation could differ over time as industry conditions change. For example, a particular merger proposed during one year might be analyzed within local or regional geographic markets. But if the same merger were proposed a few years later, after transportation costs had declined, buyer substitution in response to a small price increase might routinely extend to sellers producing in a larger region, thus calling for a broader geographic market, perhaps national or global. Geographic markets defined in brewing industry merger cases have expanded since the 1960s, for example, perhaps for this reason.⁷⁹

A related issue may arise in high-technology markets when later generation products are introduced (as with computer applications software or video games). Whether earlier as well as later generations should be included in the antitrust product market depends on whether a hypothetical increase in the price of later generation products would be made unprofitable as a result of buyer substitution to earlier generation products (or buyers declining to upgrade). This issue is similar to the question of whether a market for new cars should be expanded to include used cars, or a market for new aluminum should be expanded to include recycled products. There is no general answer whether to include earlier product generations could differ from one industry to the next, depending on the facts as to demand substitution.⁸⁰

3.4 Price discrimination markets

Many firms engage in economic price discrimination—charging different price-cost margins to different buyers of the same product. The *Merger Guidelines* recognize this

definition. The advantages and disadvantages for a seller of price discrimination are explored in Baker, *supra* note 75, at 209–17.

79. *Compare United States v. Ball's Brewing Co.*, 138 F.2d 546, 552 (1946) (three-state market including Wisconsin, Illinois, and Michigan) with *United States v. Christian Schmidt Brewing Co.*, 677 F.2d 1001, 1006 (2d Cir. 1982) (twelve-state upper Midwest market not clearly erroneous, defense would be entitled to prove a broader national market in a later trial on the merits). Moreover, the scope of a market may change over time as buyer demand alters. Suppose, for example, that widgets were originally sold primarily to hobbyists, whose purchases are largely insensitive to price. Widgets would then likely constitute an antitrust product market for analyzing a merger between widget producers. Over time, assume that widget sellers improve the product and lower its cost and price, attracting a large group of new buyers away from some other product, gadgets. If most of the new buyers would substitute back to gadgets in response to a small widget price increase, the product market for analyzing a similar merger may now expand beyond widgets also to include gadgets.

80. *See United States v. Aluminum Co. of America*, 148 F.2d 416 (2d Cir. 1946), a famous monopolization case. Learned Hand defined a primary aluminum product market, excluding secondary (recycled) aluminum. Hand's analysis spawned an economics literature pointing out that a substantial market in used products could, in principle, constrain the price of a new durable good, but that a new product monopolist could offset this competitive constraint as a significant degree by reducing new production in order to limit the future supply of the used product. See generally ANDREW I. GAVIL ET AL., *supra* note 3, at 578–79 (reviewing economic literature). Whether or not this supply-side force is important (and later empirical economic research concluded that it was not in the *Alcoa* case because secondary aluminum was only an imperfect substitute to buyers of virgin aluminum), this dynamic is more appropriately evaluated in competitive effects analysis than in market definition, which focuses on buyer substitution and not seller behavior.

from outside) and few shipments go outside (a little out from inside).⁹² But shipment patterns at current prices may provide little information about whether buyer substitution would prevent the firms within the region from exercising market power were they to act collectively as though they were a single firm.⁹³

In practice, geographic markets defined based on the Elzinga-Hogarty approach can either understate or overstate the regions that would be defined based on the buyer substitution approach of the *Merger Guidelines*. For example, Elzinga-Hogarty markets may understate the geographic market because the locations buyers patronize at current prices and on which the Elzinga-Hogarty test is based do not account for the possibility that buyers would substitute more distant locations in the event of a rise in price. If sellers at distant locations would ship more into the region in the event prices were to rise, and consequently would constrain the exercise of market power within the region, their distant locations should be included in the geographic market. Moreover, Elzinga-Hogarty markets can overstate the geographic market when the product market includes goods that are not perfect substitutes. Shipments of some goods from outside the candidate region may then incorrectly be taken to suggest that all products in the market could profitably be shipped from outside. In theory, additional information about the way shipment flows would change in response to variation in prices and about product differentiation could be incorporated into the shipments analysis to avoid these problems, but if this adjustment is made properly the resulting geographic market would be defined based upon buyer substitution, and should no longer be described as based upon the Elzinga-Hogarty approach.⁹⁴

4.3 *Antitrust loss analysis*

Critical loss analysis is a simple form of simulation modeling based on an calibrated relationship between estimates of demand elasticities and price-cost margins.⁹⁵ This approach seeks to determine whether the test sales from a small rise in price instituted by a hypothetical monopolist would exceed a specified fraction of the market, the benchmark "critical loss" beyond which the price increase would not be profitable.⁹⁶

92. Elzinga and Hogarty variously proposed that 75% and 90% of shipments satisfy these tests in order to define a geographic market. In principle, an analogous approach could be employed to define product markets—as a group of products for which buyers purchasing in the product category rarely go outside the set—but in application the approach has been limited to geographic market definition.

93. For criticisms, see e.g., Gregory, *What Do We Know About the Use of Shipments to Define Geographic Markets?* 36 ANTITRUST & TRADE REGULATION 19 (1984); and, more recently, *The 1992 Department of Justice Merger Guidelines: A Critical Analysis*, 71 CAL. L. REV. 535, 551-52 (1983); Baker, *supra* note 27, at 143-48.

94. In terms of the classification scheme for types of evidence set forth in Section 3, this adjustment can be understood as using information about the characteristics of products and locations known to matter to buyers in order to assess likely buyer substitution in response to an increase in price.

95. See e.g., generally Elzinga, *supra* note 8, for a discussion of the Elzinga-Hogarty approach to market definition. Substitution is, however, not always sufficient. See e.g., *RESEARCH IN LAW AND ECONOMICS* 207 (Richard O. Zerbe, Jr. ed., 1989). For criticisms of the Elzinga-Hogarty approach, see e.g., *RESEARCH IN LAW AND ECONOMICS* 235 (Richard O. Zerbe, Jr. ed., 1989).

96. Alternatively, using the same information in a different way, one might ask whether the demand facing a hypothetical monopolist was so responsive to price—whether the demand elasticity exceeds a

Critical loss analysis is sometimes used as a basis for broadening markets when markups are high. The inference of broad markets from high margins is most commonly based on the following intuition: if the accounting price-cost margin is high, it does not take many lost sales to make a price increase unprofitable, and each lost sale is very costly. Demand would have to be relatively less elastic (relatively unresponsive to price) for that to occur, but that is implausible in a narrow market, so the market is likely broad. As recent economic commentators on the subject of critical loss analysis have emphasized, however, this logic is at odds with a competing intuition: if the accounting price-cost margin is high, the reason may well be that firms have learned that buyers do not readily substitute in response to price increases (demand is relatively inelastic), so the properly defined market is likely to be narrow.⁹⁷

To clarify the issue, suppose that two firms, A and B, are the only producers of prescription sleeping pills. They each charge \$1 per pill and each has a marginal cost of production and distribution estimated at \$1.50, so the accounting price-cost margin is high.⁹⁸ The industry receives antitrust scrutiny because A and B propose to merge. The antitrust decision maker seeks to determine whether prescription sleeping pills are an antitrust product market as a step in evaluating the likely competitive effects of the transaction.

Assume that there are two possibilities for how the market works and that in this case, the success of antitrust rules and institutions depends on distinguishing between the two. The first is that competition between A and B (perhaps imperfect competition, perhaps oligopoly conduct) keeps price below the monopoly level of \$1.50. If so, the merger would permit a price to rise to \$1.50 and would harm competition. The second is that A and B are already able to price as a monopolist though they were a sleeping pill monopolist. The merger over the loss of a constraint on charging more than \$1 by competition from nonprescription sleeping pills, prescription muscle relaxants, allergy medicine, and other alternatives. And on such circumstances, a merger between A and B would not make any difference to the price of prescription sleeping pills.

The central economic issue in this example on which the antitrust analysis turns is the magnitude of buyer substitution as the price of prescription drugs rises above its premerger price. The high price-cost margin implies that there was little buyer substitution away from sleeping pills as the price of that product rose to \$1.50. If buyer substitution would continue to be limited in the event the price of prescription sleeping pills rose further by a small but significant amount, then prescription sleeping pills should be considered an antitrust product market and the merger found to harm

benchmark "critical elasticity" level—as to make a price increase unprofitable given accounting price-cost margins.

97. Daniel B. Breyer & Abraham D. Wickelmaier, *A Critical Analysis of Critical Loss Analysis*, 71 ANTITRUST & TRADE REGULATION 1261 (2003); Michael Katz & Richard Schapiro, *Critical Losses Don't Tell the Whole Story*, ANTITRUST & TRADE REGULATION 202 (2003), at 48; James J. Langdon, *When Critical Loss Analysis in Evaluating a Merger*, 46 ANTITRUST & TRADE REGULATION 200 (2001); Dennis J. Coenen, *Using Economics to Improve Antitrust Policy*, 2004 COLUM. BUS. L. REV. 283 (2004).

98. The Lerner Index equals 3/4. Under the assumptions that these are single product producers and that prices today do not affect demand tomorrow, each firm acts as though its elasticity of current period residual demand is 4/3.

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individual component.¹⁰⁶ But if the suite buyers correspond to a high-cost unit price by purchasing instead some components individually, thereby making unit unprofitable for a hypothetical suite monopolist to raise prices, then the competitive effect of the merger would not be captured by defining a suite market and the transaction should be analyzed in individual component markets only.¹⁰⁷ Here a competitive effects analysis limited to a suite market could mislead by ignoring the competitive constraint imposed by sellers of individual components, particularly if some sellers offer only some components and not suites.

5. Retrospective cases

In some antitrust cases, including most merger reviews as well as agreements or exclusionary conduct evaluated before the conduct has been implemented for long, the alleged harm to competition is prospective. The problem for the enforcement agency or court is to evaluate likely competitive effects in the future after the conduct under review has taken place.¹⁰⁸ But in other cases, including many monopolization and agreement matters, the alleged harm has already occurred, so the review is retrospective. This section addresses special issues that arise in market definition in retrospective harm cases, with particular attention to the *Cellophane* fallacy.

Retrospective harm cases highlight the importance for market definition of identifying the but-for price.¹⁰⁹ That is, the 10 percent price increase in the conceptual experiment for market definition must be measured relative to the price that would have prevailed but for the conduct. Making this comparison requires careful attention to the allegations in the antitrust case in which market definition is performed.¹⁰⁸

When the alleged harm is prospective, the price in the but-for world often is taken to equal the currently prevailing price (which, because harm is prospective, is also the price that prevailed before the conduct under review took place).¹⁰⁹ But it is not unreasonable to believe that the price would decline absent the conduct under review, for example, if production costs are falling rapidly, or if entry would have likely occurred absent the

exclusionary conduct under challenge, or the but-for price in the but-for world would be lower than the currently prevailing price.¹¹⁰

The need to define markets with reference to the but-for price can create difficulties for market definition in retrospective cases, where the but-for price is typically disputed. For example, the plaintiff may claim that absent the alleged anticompetitive conduct, the price would be below the level currently prevailing, while the defendant may argue that the conduct under review made no difference to prices so the but-for price is identical to the current price. To isolate the significance of retrospective review for market definition, and distinguish it from the separate market definition problems raised by exclusion allegations, this section is concerned solely with market definition when retrospective collusion is alleged. Market definition when retrospective exclusion is alleged (as with many monopolization cases) is discussed in Section 6.

5.1. Prospective collusion versus retrospective collusion

To begin, consider a case in which the alleged harm to competition is prospective. Suppose the plaintiff buyers allege that firms A and B have just reached an agreement on a practice that facilitates collusion and further allege that the conduct will lead to higher prices in the future.¹¹¹ Each firm is assumed to sell a single product, which may be differentiated, and not to discriminate in price. Firms A and B defend by claiming that they could not successfully coordinate pricing, because of competition from firm C. The market definition issue in this hypothetical case is whether products A and B (produced by firms A and B, respectively) are collectively an antitrust product market, as the plaintiffs contend, or whether that candidate product market must be expanded to include product C (produced by firm C), as the defendants argue. This is a familiar market definition question. Here the task is simply using the hypothetical monopolist approach to test whether the candidate market is a market, as required of the profitability of a small price increase among the sellers of products A and B relative to the current price, which the plaintiff claims would have prevailed absent the alleged conspiracy.

Now consider the corresponding retrospective case. The prices that firms A and B charge for their products has increased. Plaintiff buyers allege that collusion between the two is the cause, and that prices would be lower but for the alleged agreement. The defendants, firms A and B, explain the price increase as benign, not reflecting an unlawful collusive agreement.

106. A market definition would begin with the products each group of buyers, corporate and mass market, purchases (suites for one group, components for the other), and would expand each of those multiple candidate product markets only if a higher price would lead to substantial buyer substitution.

107. The fact that some multiple product sellers produce demand complements (the other programs in the suite) would then be taken into account in the analysis of competitive effects within the individual component markets.

108. Cf. *MERGER GUIDELINES COMMENTARY*, *supra* note 29, at 6 (the market definition process "is not isolated from the other analytic components in the Guidelines"). See generally *Stewart v. Procter & Gamble*, 68 ANTITRUST L.J. 187 (2000).

109. The merger analysis at the enforcement agencies thus generally grandfathered in any prior exercise of market power. However, the 1992 *Merger Guidelines* allow the premerger prices to reflect the competitive price, if there is evidence of coordination premerger. 1992 MERGER GUIDELINES, *supra* note 5, § 1.1. This provision can be understood as adopting an implicit presumption that the premerger coordination would break down soon, at least with probability, so that the appropriate but-for price is less than the premerger price.

110. Under such circumstances, a mere continuation of the prevailing price by a hypothetical monopolist would defeat the exercise of market power, and a candidate market should not be expanded, even if prices would likely not rise further. See *Spilary*, *supra* note 108, at 107 (citing the failure to recognize this limitation to the "price test" as a "Market definition error" in cases cited in *Spilary*, *supra* note 108, at 107). Market definition in rapidly innovating industries is discussed in Katz & Shelanski, *supra* note 65 (recommending use of projected quality-adjusted prices as baseline for market definition).

111. The agreement might involve standardizing product definitions or posting prices, for example. This example is framed as an agreement on a facilitating practice rather than as an agreement concerning price in order to make it plausible that a court would analyze the conduct under the rule of reason (rather than a per se rule), and thus that the court would define a market as part of its analysis.

Firms A and B could offer a variety of more specific explanations for the rise in price, some of which would implicitly accept the same product market alleged by the plaintiffs, limited to products A and B. Explanations that do not contest the product market might include: marginal costs increased for firms A and B, leading both to raise price.¹¹² Firm A's marginal costs increased, leading it to raise price, and firm B followed, not competing that price increase away, either because it lacked the ability to expand output inexpensively (e.g. because of capacity constraints) or because it lacked the incentive to do so; or firms A and B raised price through a leader-follower interaction that did not constitute an unlawful agreement, notwithstanding that they may have exercised market power collectively by doing so. None of these "defenses" turns on the economic force of the market definition, buyer substitution, so none requires detailed analysis here.¹¹³

Market definition is a central issue if firms A and B instead argue in their defense that competition from firm C would have kept prices from rising had firm C's marginal costs not increased.¹¹⁴ Once the constraint to firm C is removed, firms A and B say they were able to raise price—not through an agreement, but either of necessity, because their costs increased, or as a result of an oligopoly interaction like leader-follower conduct that did not constitute a lawful agreement. The market definition argument here is whether to limit the market to products A and B as the plaintiffs allege, or to expand that candidate market as proposed by the defense, to include product C. To evaluate this allegation, a court should in the economic force of buyer substitution at a price that would have prevailed absent the alleged conspiracy. How to do so is not obvious in a retrospective case, where identifying the but-for price is at the essence of the dispute.

To clarify this market definition difficulty, suppose that the correct price for the products sold by firms A and B, one year after the allegedly anticompetitive conduct has occurred, is 10, and that a year ago, just before that conduct took place, and thus before any possible collusion, the price was 8. Assume that a court now seeks to define a product market in order to analyze whether buyer substitution would have prevented the exercise of market power by the sellers of products A and B over the past year, were the price throughout that year at a non-collusive level.

To analyze the significance of buyer substitution for the allegations, the court cannot simply evaluate how buyers in fact responded to the increase in price from 8 to 10, because that issue is tied to the ultimate question in dispute, which market definition is intended to help analyze. The plaintiffs may observe that the price increase is consistent with their view that buyers were unable to prevent higher prices by substituting to

product C. But the defendants may respond by pointing out that the price increase, for products A and B, is equally consistent with their view that substitution to product C would have constrained price to stay at 8 had firm C's costs not increased, and that buyer substitution to product C continues to constrain the price charged by firms A and B not to rise above the now higher non-collusive price level of 9. If the court could determine directly whether the current price of 10 is a competitive or a collusive price, given the way costs have changed over the past year, it could resolve the dispute without need for market definition, using direct evidence. But if direct evidence is unavailable or not strongly probative, making market definition necessary or useful, the court will likely need to define the market through undertaking a hypothetical prospective market definition analysis (albeit relying importantly on retrospective evidence).

5.2. Retrospective collusion and the Cellophane fallacy

In particular, if market definition is undertaken in the above example, the court must find some way to obtain information about buyer substitution at the unknown but-for price. One approach would evaluate how buyers would have responded to a hypothetical higher price of products A and B one year ago, just before the conduct under review took place, and where the prices of S was and is known not to be affected by the alleged collusion. Additionally, the price of S one year ago, is the last noncollusive starting point acknowledged by both parties. Accordingly, the court could conduct a retrospective market definition inquiry, looking to what was known about likely buyer behavior at that earlier time. Products A and B would be defined as a market if a hypothetical monopolist of those products then would have found it profitable to raise price above 8, after accounting for buyer substitution to all sources, including product C. This approach would be appropriate conceptually to the extent it is plausible that buyer substitution patterns at the last price both sides accept as precollusive would be similar to buyer substitution patterns at the but-for price today (regardless of whether the plaintiff or defendant is correct as to their view of the level of the but-for price relative to the currently prevailing price).¹¹⁵ Moreover, this approach may be practical, if it is possible to learn about buyer substitution patterns at the precollusive time and price.¹¹⁶

More commonly, perhaps, courts and enforcers attempt to evaluate how buyers respond to a hypothetical price change for products A and B today when the price is at the higher level of 10. In order for this approach to make sense when the but-for price is unknown, it can be thought of as an attempt to recreate the previous approach using different information. That is, this approach seeks to determine how buyers would have

112. The firms may have experienced increased input prices, or higher costs of operating at the greater scale that was required to meet an increase in industry demand, for example.

113. These are defenses that because of a sense of explanation and a technical allegation of justifications for what would otherwise constitute a violation.

114. It is useful to separate out these defenses, although they are not mutually exclusive. There is no reason to expect that a court must analyze all claims made for reasons relevant to the same market, as discussed *supra* Section 3.3. Accordingly, if a broader market is adopted for the purpose of analyzing some issues, that does not preclude the possibility that a more narrow market would be more appropriate for analyzing other questions and vice versa.

115. This inference would be less plausible to the extent that buyer substitution patterns have changed, for example because of changes in the available mix of products, changes in buyer income, or changes in entry or exit patterns such that the pattern of substitution would be different about buyer substitution patterns at the price of 8 one year ago would need to be modified to account for those changes in order to make inferences about buyer substitution patterns at the but-for price today.

116. Some types of evidence about buyer substitution then may be available for a court to consider now. For example, it may be possible to obtain information about how buyers responded to even earlier price changes or sell-side documents from one year ago may be available identifying which rivals they moved and responded to at that time. But the longer ago the alleged conspiracy began, the more difficult it may be to obtain such evidence.

responded to a hypothetical higher price for products A and B one year ago, when the price was \$10. Using information about the response of buyers to price changes since that time may be misleading if the price has increased and reasons for the factors determining price may have changed. Although buyer substitution may be measured at the current price of 10, therefore, doing so may be understood as developing evidence from which the magnitude of buyer substitution at the previous price of 8 could be inferred. Knowledge of the magnitude of buyer substitution at the last acknowledged preclusive price and time, it bears repeating, is relevant not for resolving the antitrust dispute today for its own sake, but rather because it is often plausible that it is a reasonable guide to buyer substitution now, at the unknown price that would have been obtained but for the alleged anticompetitive practice.

It is necessary to engage in these mental gymnastics rather than taking evidence about buyer substitution at the price of 10 at face value, because the plaintiff claims that the current price is not a monopolistic but-for price, but instead reflects the operation of the alleged unlawful agreement. If the plaintiff is correct, the analysis of buyer substitution at the price of 10 may mislead as to whether the economic force of demand substitution would have prevailed and buyer substitution by firms A and B. This possibility is termed the *Cellophane* fallacy.¹¹⁷ The problem arises because firms exercising market power may raise prices to a point at which further price increases are made unprofitable, constrained by the threat of demand substitution. Bizarre such circumstances, an approach to market definition that infers buyer substitution from a small hypothetical price increase over the currently prevailing price—the usual practice in market definition analysis when the alleged character of competition is prospective—may make buyer substitution appear to be greater than it was when the price was set at the nonpreclusive (but-for) price level, and on the plaintiff's view that the but-for price was lower.

As previously noted, one would in principle like to start the market definition at the lower price that would have been obtained today absent any anticompetitive conduct and ask whether a hypothetical rise in price would be profitable. But this idea cannot be implemented directly, as the question of what the price would be is far too open about the conduct challenged by the plaintiff is a central issue in dispute.¹¹⁸ Instead, the most practical alternative, as suggested above, may be to use what is known about buyer substitution at the current price to make inferences about the magnitude of likely buyer substitution had a hypothetical monopolist of products A and B raised price a year ago, when the price was at the last acknowledged preclusive price level. This approach may be understood as working from today's prices, while reducing the potential for a *Cellophane* fallacy, as it asks whether a small price reduction from the prevailing price level would or would not lead buyers to substitute away from outside products and locations to the products and locations in the candidate market in

substantial numbers.¹¹⁹ But this is a good suggestion, and a substantial buyer substitution consistent with the defendant's view of the market, it is still open for the plaintiff to argue that buyers would not have become so willing to substitute away from products A and B had the price been lower, as the plaintiff claims would have occurred but for the alleged conspiracy.¹²⁰

The idea that the magnitude of buyer substitution at the currently prevailing price can be understood as an estimator of the magnitude of buyer substitution that would have occurred in the past at the price observed before the allegedly anticompetitive conduct took place, helps clarify how to calibrate that magnitude to determine how much buyer substitution is consistent with a market limited to products A and B, and how much more would suggest broadening the market to include product C. When buyer substitution is assessed at the currently prevailing price in a retrospective case, it cannot be calibrated with reference to profitability today, for example by asking whether the hypothesized price reduction would increase current profits. Given that current prices are set by profit-maximizing firms, any price reduction would cause the profit of the firms selling in that market to decrease. But it does make sense to ask whether a hypothetical monopolist of products A and B, created when all would agree that the price did not reflect the effect of the practices under review (that is, last year, when the price was 8) would have found it profitable to raise price a small amount. Although this question may sound difficult to answer, the task may at times be easy. In some markets, it may be reasonable to conclude simply from observing relatively elastic demand for products A and B that the market should be expanded to include the products sold by firm C, and in others it may be reasonable to conclude simply from observing relatively less elastic demand for products A and B that the market should not be expanded this way.

5.3 *Collusive conduct alleged to prevent price from declining*

In some cases, the alleged collusive conduct is said to have prevented price from declining, rather than to have led to a price increase. To clarify the resulting market definition issue, assume that the currently prevailing price is 10, as was the price one year ago, when the conduct under review occurred. (The plaintiff's argument is that price would have fallen to 8 (for example, to reflect a decrease in marginal costs) but that collusion between firms A and B kept price at 10.) Again, the price but for the allegedly anticompetitive conduct is in dispute: the plaintiff says 8 while the defendant

¹¹⁹ In an earlier manuscript in preparation, Philip A. Norman of the American Antitrust Institute and the Identification of Market Power in Monopolization Cases: A Critique and a Proposal (NYU Center for Law & Business Working Paper No. 03-B-03-022, Nov. 2003), <http://w4.stern.nyu.edu/emplibray/03-022.pdf>. This approach is equivalent to starting with the current output and asking whether a substantial increase in supply within the candidate market would not or would lead to only a small reduction in price.

¹²⁰ That is, it is still open for the plaintiff to argue that demand would have been relatively inelastic at the lower price that allegedly would have obtained absent anticompetitive conduct, making the alleged exercise of market power profitable, notwithstanding that demand is somewhat more elastic at a price near but slightly lower than the current price. If so, the price reduction approach may reduce the *Cellophane* fallacy problem without avoiding it entirely.

¹¹⁷ This well-known difficulty is named for a conceptual barrier made by the Supreme Court in defining the product market in *United States v. Grain Processing Co.*, 351 U.S. 377 (1956).

¹¹⁸ In any case, independent knowledge of the competitive price would likely permit proof or disproof of harm to competition by direct evidence, making market definition unnecessary.

says 10. If the best evidence about the magnitude of buyer substitution in this case involves buyer substitution today at the current price of 10, that information can be understood as evidence of buyer substitution patterns both at the generally acknowledged precompetitive price of 10 and at the unknown, potentially lower, but-for price today.¹²¹ On an analysis of the probability of a hypothetical price increase one year ago, given costs then (before costs fell according to the plaintiff) could then be used to make an inference about the profitability of a hypothetical price increase from the unknown but-for price today.

The problem of proof for market definition may be more difficult when the claim is that the defendant's conduct prevented price from declining.¹²² But in concept, following the chain of logic set forth above, market definition should proceed similarly to the approach that would be used when the plaintiff claims that the defendant's conduct led to an anticompetitive rise in price.

6. Exclusion: prospective and retrospective

Allegations of anticompetitive exclusion raise special issues for market definition, some of which are particularly difficult when the alleged harm is also retrospective. To think about defining markets in retrospective exclusionary conduct cases, it is again useful to contrast with the corresponding prospective harm case.

6.1 *Prospective exclusion*

Consider the following hypothetical example, similar to the hypothetical example discussed in Section 5. Firm A competes with firm B and possibly with firm C. All firms produce single products (product A is by firm A, etc.) and do not discriminate in price. Products may be differentiated. Firm A has just engaged in conduct that firm B believes will exclude firm B by forcing firm B to compete less aggressively (reducing output) or even to exit the market.¹²³ The case is prospective, because the harm to firm B has not yet occurred. To simplify the exposition, the discussion below will presume that exclusion would be complete, not partial, and that firm B would be forced to exit.

Firm B contends that firm A's exclusionary conduct will harm competition by allowing firm A to raise price.¹²⁴ Firm A offers two "defenses" to explain why price increased.¹²⁵ First, firm A claims that the exit of firm B would not lead firm A to raise

price because firm B does not significantly constrain firm A's pricing. For example, firm A may argue that firm B is a small, high-cost producer unable to expand output inexpensively, or that most buyers do not view product B as a close demand substitute for product A. Second, firm A claims that the exit of firm B would not lead to a price increase because firm C has the ability and incentive to expand output to replace any competition that would be lost. (Firm A also may provide a procompetitive justification for the alleged exclusionary conduct, such as explaining, for example, why its action reduced firm A's costs or increased product quality, but that aspect of the litigation is not explored further here.)

The market definition issue in evaluating this prospective exclusion case depends on the details of the allegations and defenses, because those specifics clarify the appropriate but-for world. The dispute implicated by firm A's first defense, concerning the importance of the constraint posted by firm B on firm A's pricing, may raise a buyer substitution issue appropriate for analysis through market definition—if firm A argues more specifically that firm B is unimportant competitively because product B is not a close demand substitute for product A for most buyers. To evaluate this claim, a court should begin by asking whether product A constitutes a relevant antitrust market, excluding product B, or whether the candidate market should instead be expanded to include product B.¹²⁶ This is a familiar question, which a court should address by asking whether a hypothetical monopolist of product A would find it profitable to raise price above the prevailing level. If instead firm A argues that firm B is an unimportant competitor because firm B is a small, high-cost producer unable to expand output inexpensively,¹²⁷ firm A is effectively conceding that product B is in the market, and is raising a supply-side issue that would be analyzed within the market consisting of products A and B.¹²⁷

The market definition issue and the dispute over the ability and incentive of firm C to replace any lost competition, the question raised by firm A's second defense, turns on what the plaintiff, firm B, argues in response. One possibility is that firm B contends that firm C lacks the ability to constrain firm A's pricing because product C is not a close enough substitute in demand. This is a market definition issue, which a court should evaluate by asking whether a hypothetical monopolist of products A and B would

121. Again, buyer substitution today at the current price of 10 may be used to infer a likely hypothetical price reduction, to reduce the exclusion problem's difficulty.

122. Perhaps firm A's conduct in practice would restrict the ability of firm B to obtain key inputs or obtain access to customers or they would find the destruction of firm B to be a monopolization.

123. Firm B might claim that firm A had harmed competition through monopsonization (exclusive dealing, tying, group boycott, or agreement, possibly a vertical one), or a violation of the Sherman Act (e.g., a violation alleged would depend upon whether the necessary legal elements are met. It is assumed that firm B alleges that it was harmed by the conduct that allegedly harmed competition, leading to higher prices, and thus that the injury alleged by firm B would be a violation of the Sherman Act).

124. Again, these are defenses in the casual sense of explanations, not in a technical legal sense of justifications for a violation. It is not mutually exclusive. Firms A and B may also be related in a significant competitive

constraint firm B poses, the easier it may be for firm C to replace the lost competition. As previously noted, there is no reason that a court must analyze all claims and defenses in the same market.

125. If firm A also points in defense to the ability and incentive of firm C to replace any competition lost from the exit of firm B, a court may also analyze whether a candidate product market consisting of products A and C should be expanded to include product B.

126. The implication for market definition is similar if firm A argues that firm B had the ability but not the incentive to compete aggressively with it, as the nature of the oligopoly interaction is also a supply-side issue. If this claim about firm B's incentive may be an attractive argument in the context of the hypothetical example, however, as it is tantamount to suggesting that firm A should be allowed to exclude firm B from the ground that the two were already colluding tacitly, so that there would be no loss of competition if firm B were to exit.

127. This question may also be analyzed within a market consisting of products A, B, and C, if competition from firm C represents an important constraint on firm A's pricing.

find it profitable to raise price above the prevailing level, or whether instead the market should be expanded for the product C.¹²⁸

Other possible responses by firm B—that firm C cannot inexpensively expand output, or that firm C lacks the incentive to constrain firm A's pricing and in the absence of firm B, firm C would instead tacitly collude with firm A—are supply-side questions that presume that the relevant market includes product A, B, and C.¹²⁹ As with respect to analyzing these defenses, a court should accept the market assumed by both parties—there is no dispute as to market definition—and move on to consider the supply-side question on which these defenses turn.¹³⁰

6.2. Retrospective exclusion and the Gilephane fallacy

Now consider the corresponding retrospective exclusion cases. Firm B has exited the market. It alleges that firm A's exclusionary conduct forced it to exit, and that the effect was either to raise price and/or prevent a price decline that otherwise would have occurred. Firm A's possible defenses are analogous to those it would have offered were the case prospective: (1) the exit of firm B made no difference to firm A's pricing because firm B did not pose a significant competitive constraint, and (2) any loss of competition from the exit of firm B was replaced by an increase in competition by firm C. Because this is a retrospective case, firm A presumably also argues that if price increased since the time of the challenged conduct, the increase in price resulted from a benign cause, most likely an increase in industry marginal cost or an outward shift in demand (if marginal costs increase as output rises), and was not related to a loss of competition.¹³¹ (Again, firm A may also provide a procompetitive justification for the

128. Similarly, suppose A is a joint venture rather than a single firm, and the plaintiff is a group of potential members of B who claim that the joint venture will harm competition by excluding them. Suppose further that the venture defends by arguing that the alleged exclusionary conduct could not matter because the joint venture was constrained not to raise price by firms selling product C (if the market definition question relevant to evaluating the allegation and defense is whether the relevant antitrust market includes the products and locations of both the members of the joint venture and the other members to be excluded, the products of *Knashy* and *Bjorn* which the firms seek expanded for itself, also include the product of firms C). Dennis W. Carlton & Steven C. Salop, *You Keep on Knocking but You Can't Come In: Evaluating Restrictions on Access to Input Joint Ventures*, 9 HARV. J.L. & TAB 31 343-46 (2006).

129. If firm B defends by claiming that firm C would replace any lost competition, the magnitude of buyer substitution from product A and B to product C is a relevant consideration because it affects the size of the competitive response by firm C that would be necessary. This buyer substitution issue would be treated as part of the competitive effects analysis along with the supply-side question of the extent to which firm C expanded output in much the way that the buyer substitution issue's unilateral effects of merger among sellers of differentiated products is treated as a competitive effects issue rather than a market definition question.

130. Again, these defenses are not mutually exclusive, and the fact that a court adopts a market for the purpose of analyzing some issues does not preclude the possibility that a different market, possibly broader or more narrow, would be appropriate for analyzing other questions, *explica completamente por los*

131. Accordingly, direct evidence on whether price changes are fully explained by shifts in cost and demand, without need to postulate an increase in market power, could in principle discriminate between the plaintiff's theory of the case and the defense theory. In an appropriate case, therefore, direct evidence of this nature could resolve the case without need for market definition. The

alleged exclusionary conduct, but this aspect of the litigation may be more fully discussed further.)

Market definition again depends on the details of the allegations and defenses. The parties make¹³² the choice of market definition in addressing firm A's first defense depends on why, according to firm A, firm B did not pose a significant competitive constraint.

Suppose first that firm A contends that firm B could not have constrained firm A because few buyers of firm A's product would have responded to a higher price by switching to firm B's products at the time of the exclusionary conduct. This claim raises a market definition problem. Here, firm A is arguing in its defense that product B was not part of the antitrust market at the time of the exclusionary conduct when price was at the preexclusion level. Firm A is claiming either that the market was limited to product A, excluding product B, or that it included products A and C, but not product B. In principle, therefore, a court should evaluate this allegation by analyzing whether, at the time of the alleged exclusionary conduct, the product market was limited as alleged by firm A, and did not include product B.

The relevant price at which demand substitution is assessed, again in principle, would be the price in the but-for world, which is disputed by the parties. But again it is undisputed that the preexclusion price did not reflect the alleged loss of competition. In theory, therefore, a court or enforcer could attempt to gauge the extent of buyer substitution and determine whether the market should be limited to product A (or products A and C) to the exclusion of product B, at the price prevailing just before the alleged exclusionary conduct occurred, and under the other conditions (particularly costs and demand) prevailing at that time. This analysis, again in principle, could identify the extent to which buyer substitution would have prevented a hypothetical monopolist of product A (or products A and C), charging the unknown but-for price after the alleged exclusionary conduct has occurred, from exercising market power.

In practice, a court or enforcer may instead analyze buyer substitution after the exit of firm B and at the currently prevailing (postexclusion) price. Although this would technically be evidence of demand substitution at the wrong time and wrong price, it may still be probative of the magnitude of demand substitution at the right time and price unless there is reason to think that demand substitution patterns have changed since the preexclusion period, or unless there is reason to think that demand substitution

discussion in the text presumes that the available direct evidence is not strongly probative in the case at issue, and that it is also worth analyzing the evidence concerning market structure.

132. Courts should be evident, a complete economic analysis of the exclusion allegation would not be limited to market definition (because market definition and the market shares that result do not necessarily determine fully whether the alleged conduct harms competition). Regardless of the scope of the market and the market shares of the firms, a range of other economic considerations not involving demand substitution would likely be relevant to identifying the competitive effects of the challenged conduct. These may include whether firm B actually was excluded; whether firm A's conduct was responsible; whether the exclusion of firm B harmed competition by conferring additional market power on firm A; whether benefits to competition from the exclusionary conduct outweigh the harms; and whether more aggressive conduct competition from firm C replaced any competition lost from the exclusion of firm A. This essay does not address the legal question of whether truncated doctrinal rules, possibly based on market shares, should or do limit consideration of some or all of these issues in the courts.

In particular, the *Cellophane* fallacy issues can be understood as suggesting the latter possibility, that is, as a claim that demand is more responsive to price at the current price than it would be at the lower price for price, with which market definition should be concerned. One way to address this problem to some extent, as discussed above in Section 2.2, is to potentially allow buyers to respond to a price reduction from the currently prevailing price.¹³³

As with the retrospective collusion example of Section 5, the idea that the magnitude of buyer substitution at the currently prevailing price can be understood as an estimator of the magnitude of buyer substitution that would have occurred in the past, at the price observed before the allegedly anticompetitive conduct took place, helps clarify how to determine how much substitution is enough and how much is too much to maintain a candidate market. In the ratio spread hypothesis, a large substitution ratio is discussed in the neighborhood of the prevailing price, its magnitude cannot be calibrated with reference to current profitability.¹³⁴ Instead, a court can determine whether product A (or products

IB3. In the exclusion context, this methodology could also be used to challenge a firm's claim that the corresponding questionnaires in cases of differentiated products are not homogeneous (rather than homogeneous) products and if firm B wants to prove it may do so by demonstrating the effects of buyer decision making of two simultaneously hypothetical changes in the economic environment, including one (the exit of firm A) that involves a marginal change in supply which does not affect prices and product offerings and the second (the entry of firm B) that involves a marginal change in supply which does affect prices and product offerings currently available. If firm A has changed its product offerings or features in response to the entry of firm B, then a purchaser necessarily will consider the effect of a marginal change in the offer of firm B, as well as the effect of a marginal change in the economic environment.

[illegible][illegible]

A and C collectively has a market, excluding product B, by asking whether a hypothetical monopolist of the product(s) is above the candidate market before the alleged exclusionary conduct took place would have found it profitable to raise price a small amount, considering costs, products, and demand as they were then.¹³⁵

Alternatively, firm A may defend by arguing that any loss of competition from the exit of firm B would be replaced by an increase in competition by firm C. Now the market definition dispute between the parties is, even whether the product market consists solely of products A and B (as the plaintiff presumes) or whether it should be expanded to include product C as well.

The analysis here is similar to that of the previous case. A court would like to measure buyer substitution at the unknown price that would have prevailed but for the alleged exclusionary conduct and determine whether a hypothetical monopolist of the products A and B could profitably raise their price. Because the out-of-market price is in dispute, the court may instead seek to determine whether a hypothetical monopolist of those products would have found it profitable to raise price in the past at the time of the exclusionary conduct, given the demand of buyers (substitution) and cost conditions prevailing then. This alternative monopolist experiment is a useful reason to justify the (a) appropriate conceptual experiment that is impossible to implement (because of the but-for price unknown), is done as a hypothetical experiment to think either what demand and cost conditions would have arisen between the dates of the alleged exclusionary conduct (when price was at the observed price level) and the present time (where price at the unknown but-for level) or that if and if as varied those changes can be accounted for. If information about the probability in the past of a price increase before the alleged exclusionary conduct is unavailable or not strongly probative, it may be estimated using information about buyer substitution at the currently prevailing price, based on a hypothetical price reduction to reduce the impact of the Cellophane fallacy problem and making any additional adjustments that might be found appropriate.

Careful calibration may not be necessary in practice in defining markets in retrospective exclusion cases. For example, it may be reasonable to conclude simply from observing relatively elastic demand for products A and B that the market should be expanded to include the products sold by firm C. In other cases, it may be reasonable to conclude simply from observing relatively less elastic demand for products A and B that the market should not be expanded this way. In all cases, retrospective and prospective exclusion and inclusion, the focus of market definition should be on the magnitude of buyer substitution.

category (of the three products as a group). (This equation is derived by differentiating total expenditures with respect to the price of product A, holding expenditures constant. Expenditure shares are based on price times quantity, not simply quantity.)

1135. Continuing in an attempt to derive the pre-exclusion elasticities from the postexclusion data, the authors used a demand curve estimated from the postexclusion data (notwithstanding the *Callaghan* problem), then used that demand curve to estimate the pre-exclusion elasticities. This procedure is flawed because the demand curve estimated from the postexclusion data would be biased if the demand curve is downward sloping and the postexclusion data are biased upward. The authors also used the postexclusion data to estimate the pre-exclusion elasticities, which is also flawed because the postexclusion data are biased upward. The authors also used the postexclusion data to estimate the pre-exclusion elasticities, which is also flawed because the postexclusion data are biased upward. The authors also used the postexclusion data to estimate the pre-exclusion elasticities, which is also flawed because the postexclusion data are biased upward.

7. Conclusion

Market definition is the primary methodology which antitrust analysis accounts for the economic force of demand substitution in evaluating the competitive effects of firm conduct. To avoid confusion and clarify the inquiry, market definition should be limited to the consideration of demand substitution; other economic forces such as supply substitution can readily and appropriately be accounted for in other steps of antitrust analysis. Moreover, market definition does not take place in a vacuum: in any particular case demand substitution must be evaluated with reference to the specific allegations of anticompetitive effect in the matter under review. These principles help identify the types of evidence relevant to defining markets. They are also useful in analyzing a number of conceptual and practical issues in market definition, and in explaining the difficulty with several problematic approaches to market definition that are sometimes employed.

Chapter 4

DETECTING MARKET POWER

Franklin M. Fisher*

The role and detection of market power are central to antitrust analyses. Substantial market power is the ability to escape the constraints of the competitive market and thus the ability to charge significantly supranormal prices or offer significantly subnormal product quality for a nontrivial time period without losing so much business to competitors as to make such actions unprofitable. In attempting to detect the existence of substantial market power (in the highest degree, monopoly power) in a firm or group of firms, the standard mode of analysis is to define a relevant market and then calculate market shares; but this is at best only a rough guide. A second method is to infer market power from high profit rates, but the profit rate calculation is often wrong and the exercise is often based on a serious misunderstanding of the propositions of microeconomic analysis. Other methods consist of looking for the direct effects of an alleged anticompetitive act or at so-called natural experiments, but there can be complicating factors with these methods, as well. In short, there is no quick, bright-line method that will do the job. Rather, the detection of market power requires the analysis of barriers to entry and expansion of competitors, of choices open to customers and, generally, of how the business in question operates.

1. Introduction

In the economist's paradigmatic model of "perfect competition," there are a very large number of extremely small firms, each with the same costs.¹ Each firm is such a small player in the market that it believes its own actions cannot influence the price for the good it produces.² Further, information as to prices charged and the quality of the offered goods is instantaneously available to all buyers and sellers. Entry and exit of new firms and expansion and contraction of old ones is extremely easy and rapid.

In this situation, firms are forced to offer customers the lowest prices and the best quality of goods possible or find their businesses taken by others. If they do so, then while profits may be earned by those better able to respond rapidly to changes in demand or in technology, in long-run equilibrium, economic profits properly defined to include in costs the return on capital just necessary to keep the firm's owners content with their investment—are zero. Firms that do not keep up disappear. There are various

* Massachusetts Institute of Technology. I am indebted to Wayne Dale Collins, Stephen D. Kletter, James Langenfeld, R. Craig Romaine, and Mary Beth Savoie for comments and assistance, but retain responsibility for error and for the views here expressed.

10. For convenience, this chapter generally describes firms as "sellers," although similar propositions apply to the other side of the market. The assumption that all firms have the same costs requires some care as to how costs are defined, but that need not be addressed here.

2. For a discussion of how prices can even change in such circumstances, see FRANKLIN M. FISHER, *DIS-EQUILIBRIUM FOUNDATIONS OF EQUILIBRIUM ECONOMICS* (1983).