

DOCUMENTO DE REFERENCIA SOBRE DEFINICIÓN DE MERCADO RELEVANTE*



COMISIÓN FEDERAL DE COMPETENCIA
MÉXICO

Marzo de 2011

* Este documento es resultado de una consultoría que busca describir las mejores prácticas en el análisis y definición del mercado relevante.

La responsabilidad del documento es exclusiva de los autores; no implica posición normativa alguna de la CFC, ni debe interpretarse como un lineamiento formal, o como un requisito o recomendación para los agentes económicos.

La consultoría pudo realizarse gracias al generoso apoyo de la Agencia de los Estados Unidos para el Desarrollo Internacional (USAID). El contenido y conclusiones son responsabilidad de los autores y no necesariamente representan los puntos de vista o las opiniones de USAID ni del Gobierno de los Estados Unidos de América.

Market Definition*

Assessment of the Relevant Market in Competition Matters

Prepared for the
Federal Competition Commission of Mexico

Howard H. Chang, David S. Evans, and
Richard Schmalensee¹

March 30, 2011

* The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

¹ Chang is a Principal at Global Economics Group; Evans is the Chairman of Global Economics Group, Executive Director of the Jevons Institute and Visiting Professor at the University College London; and Schmalensee is a Director at Global Economics Group and the Howard W. Johnson Professor of Economics and Management at MIT.

1. Introduction

This report was commissioned as a reference paper by the Federal Competition Commission (CFC or Commission) for the purposes of describing best international practices, international cases and investigations, and the current and prevailing technical approaches used in the analysis and assessment of market definition.²

This report provides a framework for evaluating evidence for assessing the relevant market, describes some of the tools that can be used for collecting and analyzing evidence on the relevant market, and discusses practical issues that arise in applying the framework and tools to actual cases. A broad consensus has emerged among the world's major competition authorities, as well as the community of antitrust scholars and practitioners, on how to approach market definition.³ This report largely reflects that consensus while highlighting some remaining sources of disagreement. Importantly, there is general agreement that market definition is not an end in itself but rather a process that is helpful for assessing whether business practices harm consumers or the competitive process or whether proposed concentrations involve a risk of such harm. There is also a consensus that mechanical approaches to market definition can lead to significant error. It is better to take a flexible approach that rigorously weighs the available evidence in the context of the case at hand.

This report is designed to serve two purposes. It is intended to provide the Federal Competition Commission (CFC or Commission) with a description of the prevailing international practices for assessing the relevant market. It is also

² This report presents our survey of the current prevailing international approaches for market definition. We do not necessarily agree with every approach and technique discussed in this report. We also note that a complete analysis of any particular competition policy issue (of which market definition is a part) may often depend on the type of practice at issue and the relevant facts. This report gives a general overview of market definition and there are likely particular competition policy cases that raise issues that are beyond the scope of this report.

³ See Elhauge and Geradin, *Global Competition Law and Economics* (Portland, OR: Hart Publishing, 2007), 254. The United States and the European Union describe similar approaches for evaluating market definition in their respective merger guidelines. See U.S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines* (19 August 2010):Section 4 [hereinafter "US Horizontal Merger Guidelines"]; Office of Fair Trading, *Market Definition: Understanding Competition Law* (2004):Section 2 [hereinafter "UK Market Definition"]; European Commission, "Commission Notice on the Definition of Relevant Market for the Purposes of Community Competition Law" (9 December 1997) [hereinafter "EC Notice on Market Definition"].

intended to provide businesses (and their legal advisors) guidance on how competition authorities analyze the relevant market for the purposes of assessing the legality of practices or mergers that businesses might be engaged in or contemplating.

2. Market Definition: Basic Principles

2.1 The Purpose of Market Definition

The purpose of market definition is to identify the competitive constraints on the supplier of the product under consideration – the market forces that reduce the profitability of raising prices above competitive levels or lowering quality.⁴ If the buyers of a particular product from firm A can realistically only turn to firm B if firm A raises its prices substantially, for instance, then B provides the only competitive constraint on A. In general, the strength of the competitive constraints determines whether practices engaged in by the supplier of the product under consideration, or the combination of two or more suppliers, could harm competition and consumers. For example, it is unlikely that the merger of two firms could harm competition if consumers could turn to many alternative, comparable suppliers. Those firms would not be able to raise prices because consumers would simply buy elsewhere.

Market definition is closely related to the assessment of market power.⁵ Market power concerns the ability of a supplier of a product to charge prices that are higher than those that would occur under perfect (i.e., very intense) competition. Most businesses have some market power; business practices are anticompetitive only when engaged in by those with substantial market power. A particular business practice, such as entering into exclusive contracts, could harm competition if the supplier has substantial market power but could be benign if the supplier does not have such power. Likewise, a merger of two firms could only result in higher prices if the concentration results in the merged firm having significantly greater market power than either firm had alone. Market definition is the first step in assessing market power; it identifies the sources of competitive constraints that determine the degree of power that a supplier (or a combination of suppliers) likely has. The weaker the competitive constraints a firm faces, the greater its market power.

4 It should be understood that throughout this report the term “product” refers to products or services supplied by businesses.

5 For further discussion, see Howard Chang, David Evans, and Richard Schmalensee, Assessment of Market Power in Competition Matters, Prepared for the Federal Competition Commission of Mexico, March 2010 [hereinafter “Market Power Report”].

Market definition is therefore not an end in itself. It is useful only to the extent that it assists in assessing the competitive constraints that are relevant for the matter under consideration. In fact, the assessment of the relevant market could lead to significant error if it resulted in ignoring competitive constraints, as this could lead to the false conclusion that practices are harmful to competition, or if it resulted in exaggerating competitive constraints, as this could lead to the false conclusion that the practices are lawful.

2.2 Relevant Market Assessment for Prioritizing Cases

Leading competition authorities commonly use market definition as a screening tool that enables them to close down unpromising investigations at an early stage and focus resources on other investigations that raise more significant concerns. For example, after considering the relevant market the authority may conclude that an agreement between two firms poses no risk to competition and therefore not consider the matter further. Alternatively, the authority may conclude that a contractual tie of two products by a supplier could harm competition because the relevant market is not so broad as to rule out this possibility. Similarly, the assessment of the relevant market often determines in practice whether the competition authority will proceed to the second phase of a merger investigation.

Market definition can also provide a level of comfort for businesses when competition authorities take a predictable approach to assessing the relevant market and using those assessments to make decisions on whether to proceed with particular matters, even in the absence of pre-established safe harbors. To take the previous examples, two companies may be comfortable entering an agreement because they clearly comprise a small part of a larger market, while another company may avoid a contractual tie because it recognizes that the competition authority would likely find that it is a large player in the relevant market.

2.3 Key Concepts of Market definition

The remainder of this report describes practical approaches for assessing market definition. Here we introduce some of the key concepts.

A) Product and geographic markets

Competitive constraints are the set of market forces that tend to make suppliers keep their prices at or near competitive levels and thus to keep their profits just

high enough to yield a normal rate of return. The product market refers to the set of products that serve to constrain the behavior of the supplier of the product under consideration. The geographic market refers to the location of suppliers of those products that serve to do so. For example, if the matter involved shoes, the product market question might concern whether the supply of men's loafers constrains the pricing of men's tie shoes, while the geographic market question might be whether the supply of loafers from China constrains the behavior of Mexican suppliers of loafers.

B) Demand and Supply-Side Substitution

The most direct way in which pricing behavior is constrained is demand-side substitution: the ability of consumers to turn to other products if the supplier of interest increases its prices. The more good alternatives consumers have available, the harder it will be for the supplier of interest to raise prices above competitive levels. Demand-side substitution normally extends beyond physically identical products to include similar products to which buyers would turn if prices changed. If consumers would switch to light beer in response to a small increase in the price of dark beer, the product market would generally include them both.

In some settings, supply-side substitution can be important. This arises when firms not currently selling a product (or operating in a geographic area) to which buyers would turn in response to an increase in price by a firm of interest could rapidly do so in response to a price increase. A recent EU case, for instance, involved paper used in publishing.⁶ Buyers will not generally switch between different grades of paper in response to small price changes, so these products are not linked by demand-side substitution. But the Commission found that suppliers could change their output mixes easily and rapidly when prices changed, and this possibility served as a general competitive constraint, so they found the relevant product market to consist of all grades of paper used in publications. In general, the EU competition authority includes in the relevant market products that can be rapidly (in less than a year) and easily (without incurring appreciable sunk costs) substituted in supply for products connected to the product of interest by demand-side substitution.⁷ As we discuss below, the US authorities take an approach to supply-side substitution that is formally somewhat different but functionally very similar.

6 UK Market Definition, Section 3.14.

7 UK Market Definition, Sections 3.12-3.18; EC Notice on Market Definition, Section 20.

Additional factors can affect the constraints on a supplier, including the ability of large buyers to resist price increases and entry barriers that prevent new suppliers from entering the market even if prices are above competitive levels for a long time. It is analytically more sound to consider such additional factors in a second stage, after the relevant product and geographic market have been defined.

C) Product Differentiation

Suppliers seldom offer products that are perfect substitutes for each other. That is, their products are generally differentiated. They may have different features and attributes, for example, be provided in different locations, or vary in quality. Most of the practical difficulties of market definition arise from the fact that one needs to make judgments on whether consumers view products as close enough substitutes to constrain each other's prices. In the analysis of a matter involving beer one would have to address whether light beer competes with dark beer, for instance, as well as whether mass-market beer competes with premium imported beer, whether wine substitutes for beer, and whether soft drinks substitute for beer.

D) Hypothetical Monopolist Test

The hypothetical monopoly test is a conceptual framework that many competition authorities use to assess the relevant market.⁸ It draws the market boundary such that a "hypothetical monopolist" over all the products in that market could increase profits by a small but significant and non-transitory increase in price – hence this is sometimes called the SSNIP test, as we discuss below. The idea is that, if a monopolist cannot raise price over any given set of products, it must be because there are substitutes that have not been included among these products. Therefore the set of products should be expanded to include all the significant substitutes. Once this set of products reaches the point where the monopolist could increase profits by raising price by a small but significant amount, the products outside of the market must not provide a significant constraint and can therefore be ignored.

⁸ See US Horizontal Merger Guidelines, Section 4.1.1; United Kingdom Competition Commission and Office of Fair Trading, Merger Assessment Guidelines (September 2010), Section 5.2; Australian Competition & Consumer Commission, Merger Guidelines (November 2008), Section 4.19-4.22; Chinese Ministry of Commerce: Anti-Monopoly Bureau, Guidelines on Relevant Market Definition (July 2007), Chapter 4.

While the hypothetical monopolist test has analytical appeal, it has some drawbacks in practice. One often lacks good information about buyers' response to price increases, for instance, so the results of the test may depend critically on how poor information is interpreted. The test focuses on price competition only, though advertising, service, innovation, product variety, and other dimensions of competition may be more important in some businesses. Finally, the test usually considers only output increases from firms already in the market and, in some cases, those able to enter quickly, while in many situations it is at least as important to consider entry that could take longer time but have a major competitive impact substantial. Therefore, it should not be the only tool that is used for the analysis of the relevant market and it should be used with care.

E) Error Costs

The modern approach to antitrust policy design recognizes that competition analysis can result in two sorts of mistakes.⁹ It can result in decisions that mistakenly allow practices that harm competition and consumers. It can also result in decisions that mistakenly condemn practices that benefit consumers and competition. The assessment of the relevant market can mistakenly draw boundaries too broadly, making it seem as if there is extensive competition when in fact there is not. In that case there will be a tendency to allow mergers and business practices that harm competition to continue. The assessment can also mistakenly draw boundaries too narrowly, excluding significant competitive constraints that can make the exercise of market power unlikely. In that case there will be a tendency to prohibit business practices that could result in efficiencies and otherwise benefit consumers.

The likelihood of either error depends on the context in which market definition is used. For example, a competition authority might consider whether other competitive constraints not considered in market definition could prevent the unilateral increase in price. That would tend to mitigate errors resulting from drawing the market too narrowly. As a general matter, it is bad practice to let market definition by itself determine the outcome of a case. Market definition is only one of several tools available to competition authorities and courts that are useful in assessing impacts on competition and consumers. For example, in a merger what we ultimately care about is whether the consolidation harms consumers. If a competition authority has defined a broad market in which the merging parties have small shares, evidence that the merger would in fact result

⁹ David Evans, "Why Different Jurisdictions Do Not (and Should Not) Adopt the Same Antitrust Rules" *Chicago Journal of International Law* 10, no. 1 (2009): 161-188.

in substantial harm to consumers should make the authority rethink that definition or reduce its reliance on that definition. Likewise, if a competition authority has defined a narrow market in which the merger results in a significant increase in concentration evidence that the merging parties would lack the ability to increase prices should also make the authority rethink its definition or reduce its reliance on that definition.

3. Demand-Side Substitution and the Product Market

The assessment of the relevant market always begins with the products of the suppliers that are the focus of the inquiry. For anticompetitive business practices that includes the products of the firm or firms that may have been involved in such practices. Suppose Acme Corporation has entered into market share rebates based on the purchase of its three products: A, B, and C. The relevant market assessment for the analysis of the competitive effects of this conduct begins with each of these products. That may lead to three relevant markets if the products are distinct or a single relevant market if they are not. Starting with each product, the assessment on the demand-side considers what other products offered by other suppliers consumers could turn to. For a merger involving Acme and, say, Beta Co., the analysis needs to consider the products that “overlap” between the two firms. If Beta produces a substitute for Acme’s product A, for instance, market definition would start with these two products and ask what other products consumers could turn to. Depending on Beta’s product line, similar inquiries might involve product B and product C.

The relevant market on the demand side consists of all of those products that could constrain the ability of the suppliers at issue to cause harm to consumers. Suppliers can cause harm in several dimensions of competition: by raising prices, reducing the quality of the product, lowering service, decreasing investment in innovation, and other ways. Likewise consumers could turn to other products for any of these reasons.

It is often convenient in the analysis of relevant markets to act as if the only relevant dimension of competition is price. Then one asks what other products consumers would turn to if the suppliers at issue increased their prices by a small but significant amount. This focus on price is helpful but is not inconsequential. As a practical matter these other dimensions of competition may be important

and examining all of them under the rubric of price may obscure the actual dynamics of competition and lead to errors in either direction. For simplicity, though, much of the discussion below focuses on price.

3.1 The Role of Substitutes

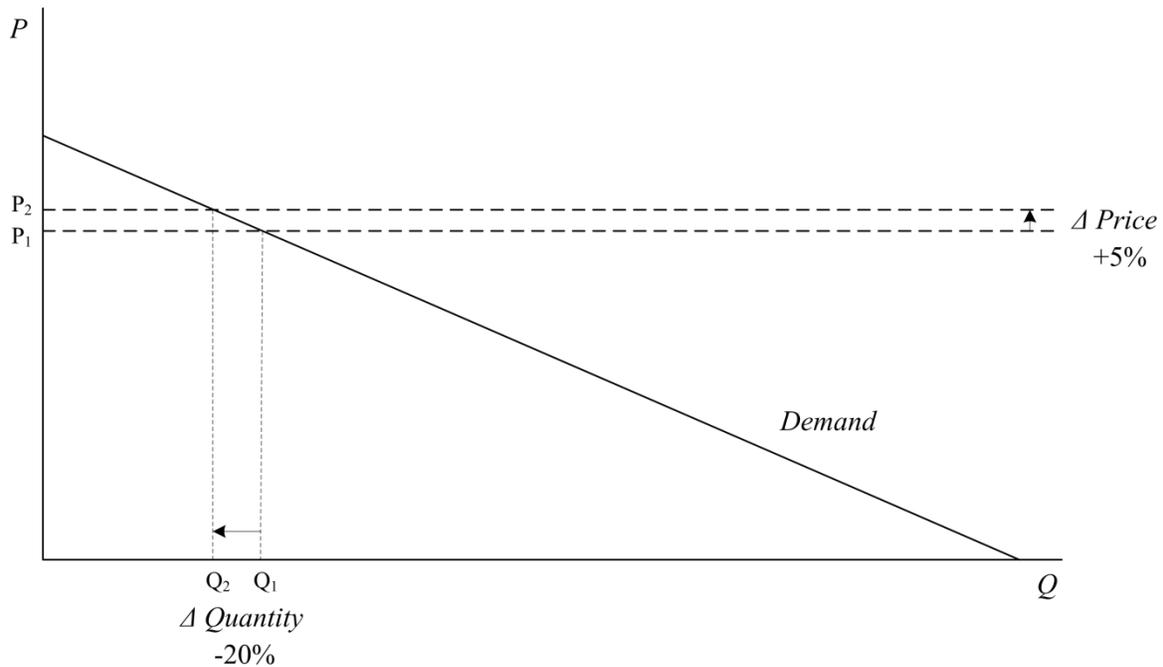
Two products are substitutes when an increase in the price of one product results in consumers switching their demand to the other product. Generally the ability of any firm to increase the price of its product is less when there are more and better substitutes to which consumers can turn.

A) Price Elasticity of Demand

For a particular product, the overall degree of substitution facing a firm is reflected in the “price elasticity of demand” that the firm faces. The elasticity of demand measures the percentage reduction in quantity demanded that would result from a 1 percent increase in price. An elasticity of demand of 2, for example, means that if price increases by 1 percent the quantity sold decreases by 2 percent. As we discuss below, this elasticity can be measured by conducting statistical studies or inferred from other actions of the firm.

Figure 1 shows the demand schedule facing a specific product from a particular firm. The vertical axis shows the prices that could be charged. The horizontal axis shows the quantities that could be sold. The schedule itself shows the amount that consumers in total would purchase at each price. The line slopes downward because at lower prices consumers purchase more. At any point, the slope of the line roughly measures the elasticity of demand—the flatter the line is, the more consumers would switch as price goes up.

Figure 1



B) Cross-Price Elasticity of Demand

The degree of substitution between two products is measured by the “cross-price elasticity of demand”. The cross price elasticity of demand of product A with respect to the price of product B measures the percentage increase in the purchase of product A as a result of a 1% price increase in product B. (Cross-price elasticities are positive for substitutes and negative for complements.) A cross-price elasticity of 0.5 means that a 1% increase in the price of product B results in half a percent increase in the sales of product A. The price elasticity of demand for any particular product depends on cross-elasticities of demand with respect to the prices of all the other products consumers could consider. It is possible to measure these cross-elasticities from statistical studies as discussed below.

C) Marginal Consumer

The basic question that motivates the assessment of the relevant market is whether enough consumers would switch to substitute products in response to a price increase by a supplier of the product under consideration to make the price increase unprofitable. The consumers who are most likely to switch are “marginal consumers” who were already predisposed to consider other products

because they view them as good substitutes. If there are enough of these consumers who would switch then the price increase would not be profitable.

Figure 1 above illustrates this point by considering the case where every consumer buys at most one unit, a reasonable approximation for some durable-goods markets (e.g., central air conditioners or washing machines). Consumers are, in effect, listed on the demand schedule at the point corresponding to the most they would be willing to pay for the good. The diagram shows the case where a 5 percent price increase results in a 20 percent decrease in the quantity demanded, as a result of there being a significant number of consumers at the margin between wanting to buy the product in question rather than substitute products. Once the price goes up, they switch.

A common mistake in the analysis of market definition is to focus on what the “typical” or “average” consumer would do. The typical or average consumer may not in fact switch to substitute products when a supplier increases its price. That is the case shown in Figure 1. But it usually is not the average consumer who determines whether a supplier can profit from a price increase. So long as there are enough consumers “at the margin” between the supplier’s product and alternatives the price increase cannot result in greater profits. Suppose, for example, that a firm has variable cost per unit of \$5 and would sell 100 units at a price of \$10 for a profit, before fixed costs, of \$500. (This may or may not be enough to cover fixed costs, of course.) Suppose 80 percent of consumers would buy from this supplier even with a small price increase of say \$1, so that the “typical” consumer will not switch in response to this price change. But suppose that 20 percent are extremely price sensitive, so that if this firm raised its price to \$11, all would switch to another product. That would reduce sales to 80 units and reduce profit before fixed costs to \$480, making the price increase unprofitable.

When there is product differentiation, which is present in most real-world markets, there may be discrete categories of consumers that will switch from a product in question at various price points or based on particular product attributes. Depending on what the price is, and how much it is changing, many or a few consumers might switch in response to a price change. Understanding how the market is segmented is important in these cases. For example, premium beer lovers may be more inclined to switch to premium whisky than mass-market beer if the price of premium beer increases.

3.2 Practical Assessment of Substitution Possibilities

As discussed above, there is a precise definition of a substitute in economics. Defining a relevant market depends critically on the cross-elasticities of demand among products. Although we discuss ways to obtain these estimates below, in many situations it is not possible to obtain numerical estimates of the cross-elasticities because the necessary data are not available, there is not enough time to collect and analyze these data, or for a multitude of reasons estimates based on available data are imprecise or subject to serious biases. Identifying demand-side substitutes and assessing their strength, in practice, generally requires considering many different sources of information, some of which will be available and relevant in some matters but not in others.

A) Interchangeability and functional equivalence

Products are substitutes for each other when buyers can swap them out and obtain almost the same benefits. Although that may seem like a circular definition, in practice one can observe whether products do the almost same things, whether people use them interchangeably, and whether they obtain similar benefits when they do so. We know that different brands of laptop computers perform similar functions, that people switch between brands depending on price, and that they obtain similar benefits.

This intuitive and judgmental approach is an obvious place to start and one that courts in the US and the EU have adopted.¹⁰ An important caveat is that such an approach must take care not to identify products as substitutes when they are not substitutes at competitive prices but only become so at elevated prices that reflect market power. This is commonly referred to as the “Cellophane Fallacy” after a US Supreme Court case in which Du Pont, by far the leading producer of cellophane in the US, was found not to have market power because there was substitution with other products at the prevailing monopoly prices.¹¹

The interchangeability approach can accurately identify the relevant market when products are more or less perfect substitutes for each other and no other

10 See *United States v. du Pont & Co.*, 351 U.S. 377 (1956); *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962) (“The outer boundaries of a product market are determined by the reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it”). See also Case 27/76, *United Brands Company and United Brands Continental BV v. European Commission*, 1978 E.C.R.

11 *United States v. du Pont & Co.*, 351 U.S. 377 (1956).

product is a close substitute that would attract a sufficient number of marginal consumers if price increased. In practice, consumers often perceive differences—and make their buying decisions based on these differences—among products that seem outwardly similar. There are many brands of chemically identical bottled waters yet some people are loyal to one kind or another. Beer drinkers are often very loyal to their favorite brand, even though many cannot identify their brand in a blind tasting. As a result, interchangeability analysis can lead to defining markets either too narrowly or too broadly. On the one hand, people may not find two products that appear functionally equivalent to be substitutes, often because they care about differences that may not seem important to an analyst but are to a consumer. On the other hand, people may find that two products that do not appear interchangeable are in fact substitutes, perhaps because one can do less than another but consumers do not care about the extra functionality. Whether interchangeability analysis is reliable in any particular case is an empirical question but, to take an earlier example, it is at least possible that premium beer drinkers would see premium whiskey as a much better substitute than cheap beer.

B) Company records

Companies often track their competition and therefore collect and report data on substitutes from their standpoint. There are several kinds of company documents.

Competitor analyses. These analyses describe who the company perceives as competition overall or for particular products. They can range from very simple memoranda or emails on competitors to elaborate studies of the marketplace performed internally or by consultants.

Won-loss reports. Management sometimes requires those responsible for business-to-business sales to report the competitor to which it lost a sale and the primary competition for sales that it won. These reports can range from very comprehensive to quite incomplete in practice. In some cases buyers have a formal bidding process. In that case either the company itself or the customers have information on all of the firms who bid on contracts and which of them won. These won-loss reports provide the basis of “diversion ratios” which can be used for critical-loss analysis, a formal approach to market definition that we discuss below.

Market research studies. Especially for consumer markets, companies may commission studies of individual purchasing behavior. These can range from informal interviews with consumers (such as “focus groups” where potential

buyers are interviewed in a group setting) to sophisticated statistical analyses. The company, or the consultancy that prepared these studies, may present conclusions on competitive products.

Other company information. In the normal course of business, executives comment in internal memoranda, emails, and presentations on the competition. These can provide insights on the company's own view of the marketplace.

Competition authorities are able to obtain these sorts of information from companies they are investigating as well as from third parties through information requests, formal and informal interviews, on-premise visits, and through public sources. Companies involved in investigations are generally not allowed to see confidential information obtained from competitors or information obtained from third parties.

Although information from company files can be extremely valuable, users need to be mindful of two concerns. One is the data may not be reliable in some cases. The business of business is to make money, not to compile helpful data for relevant market analyses. Salespeople may not fill in won-loss reports or may not do so accurately; the executives who write reports and emails may not be broadly knowledgeable about the competition; and the company may not commit the nuances of competition to writing. Another issue is that companies do not necessarily define "substitutes" and "market" in the same way that competition authorities and courts do. As a result their definition may be under-inclusive (they may focus only on the most serious competitors even though other firms may constrain their ability to raise price) or over-inclusive (they may identify many firms they worry about even those who in the near future may not constrain price). Just because a company regularly refers in documents to, say, "the premium dark beer market" or "the alcoholic beverage market" does not mean that either is a relevant market for competition policy purposes. That is not to say that how businesses perceive competition should be ignored and competition authorities and courts should be cautious about defining markets that are very different from how competitors, who are in the day-for-day battle for businesses, perceive the market.

C) Customer surveys

Competition authorities can conduct surveys of the customers of the parties they are investigating as well as the customers of other firms that it conjectures (perhaps based on an interchangeability analysis) produce substitute products. In these surveys, which can be conducted via questionnaires or personal interviews, those customers can be asked about what products substitute for

those that are the subject of the investigation and what firms compete with the subject or subjects of the investigation. These sorts of surveys are particularly useful in business-to-business markets where there are often a small number of sophisticated buyers. In consumer markets surveys that are designed to be the basis for statistical analysis are preferred, as discussed below.

D) Elasticity estimation

We noted above that both the own-price elasticity of demand and the cross-elasticities of demand are useful for assessing the relevant market.

It is possible to obtain a rough estimate of the own-price elasticity of demand facing a firm, which can provide at least some indication of whether it faces many or few significant substitutes. There is a well-known economic formula that says that, under some assumptions, the elasticity of demand facing a profit maximizing firm is equal to one divided by the incremental profit margin.¹² The incremental profit margin is the additional profit that the firm would receive from selling an additional unit of output, expressed as a fraction of the price of that unit.

The incremental profit margin is often estimated in practice by using the operating margin of the company (revenue minus operating cost, all divided by revenue) from its profit and loss statement.¹³ If the average incremental profit margin is 20% then the price elasticity of demand is 5. The higher the own price elasticity of demand, the greater are the substitution possibilities for consumers. This relationship between the elasticity of demand and the price-cost margin is used in the analysis of critical loss described below.

Estimates of the cross-elasticities of demand can be very informative because they measure the degree of substitution among various products. One can use these estimates to get a sense of which products are close substitutes and which are more distant ones. These estimates can also be used to implement the hypothetical monopolist test, as discussed below.

12 The price-cost margin is also known as the Lerner Index after Abba Lerner, the economist who first proposed it. See Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization*, 4th ed. (Boston: Addison-Wesley, 2005), 93.

13 A more accurate estimate considers which costs would increase if there were an increase in output and determines the incremental cost for a small increase in output. The incremental profit margin is then the additional revenue from a small increase in output minus the corresponding incremental cost, all divided by the additional revenue.

Numerical estimates of cross-elasticities of demand can only be obtained in practice from statistical analysis of consumer decision making among various products. Such an analysis can employ data on historical purchasing behavior. In some consumer markets it may be possible, for example, to obtain historical information on purchases made from “scanner data” that is captured by cash registers and other point-of-sale technology. It is also possible to estimate demand elasticities using data obtained by asking consumers well-designed hypothetical questions about their product choices.¹⁴ Some companies may have hired market research firms to conduct these studies, which may be available in the company files as noted above.

Although these studies can be very informative, they are usually subject to some challenges that may make them unreliable in practice. To obtain the estimates it is generally necessary for the statistical analysts to make a variety of assumptions. It is important to verify that the results do not depend on arbitrary or unsupported assumptions. For example, results may differ dramatically based on the assumption about the mathematical shape of the demand schedule facing consumers. In addition, statistical results are valid only insofar as the data they are based on is valid; that is sometimes referred to as the “garbage in, garbage out” problem. For example, consumers may not be able fully to understand some hypothetical questions about purchasing behavior, so their answers may not predict how they would act in real situations. As another example, historical data on purchasing behavior (such as that obtained from scanners) may not account for the use of vouchers or coupons by consumers, which affects the different prices they face in fact.

E) Natural Experiments

In competition analysis the term “natural experiment” refers loosely to situations in which analysts can learn something about some key economic feature, such as the unilateral effects of a merger, from a significant change that has taken place in the marketplace or from significant differences across different locations. For example, suppose the supplier that is the subject of the

¹⁴ Residual demand models, discrete choice models and conjoint analysis are among the leading techniques for analyzing such data. See Steven Berry, James Levinsohn, and Ariel Pakes, “Automobile Prices in Market Equilibrium,” *Econometrica* 63, no. 4 (1995): 841-890; Luke M. Froeb and Gregory J. Werden, “Residual Demand Estimation for Market Delineation: Complications and Limitations,” *Review of Industrial Organization* 6, no. 1 (1991): 33-48; Aviv Nevo, “Logit Models of Demand,” *Journal of Economics & Management Strategy* 9, no. 4 (2000): 513-548; Jonathan B. Baker and Daniel L. Rubinfeld, “Empirical Methods in Antitrust Litigation: Review and Critique,” *American Law and Economics Review* 1, no. 1 (1999): 386-435.

investigation had to shut the production on one plant from some period of time because of a natural disaster that did not affect other suppliers in the marketplace. It might be possible to see which firms picked up sales as a result of this loss of output and determine which ones therefore provided close substitutes. This natural experiment could also provide estimates of the diversion ratios which we discuss in more detail below.

One of the most famous uses of an almost-natural experiment in merger analysis concerned the proposed merger of Office Depot and Staples in the United States.¹⁵ The competition authority used evidence that prices were higher in local markets that had only one of these “superstores” than in local markets where they both operated, all else equal. It used this comparison to conclude that local retail stores were not an important constraint on prices and therefore should not be included in the relevant market.

F) Price Correlation analysis

One approach that has been used to assess whether two products are substitutes is to analyze the degree to which their prices move together, using price correlation and related analyses.¹⁶ This approach can also be used for geographic market analyses. Evidence that the prices for the two products tend to move together suggests that the products are in the same market. For example, if a cost increase raised the price of one product, if the second product were a good substitute, we would expect to see a shift in demand from the first product to the second product, and a corresponding increase in price of the second product. Proponents of price correlation analyses argue that while this approach is not definitive in identifying whether two products are close substitutes, the analyses are feasible to conduct using relatively limited data and provide useful information that is incremental to other analyses.

¹⁵ We refer to this as “almost-natural,” since store locations were controlled by the firms involved, not some entity outside the market. By controlling for the characteristics of the various geographic areas, however, analysts were able to come close to the results of a truly natural experiment. See *Federal Trade Commission v. Staples, Inc. and Office Depot, Inc.*, 970 F. Supp. 1066 (1997).

¹⁶ Granger causality tests, unit root tests, cointegration tests, and other techniques are also used in addition to or instead of simple price correlation tests. See Lars-Hendrik Roeller and Oliver Stehmann, “The Year 2005 at DG Competition: The Trend towards a More Effects-Based Approach,” *Review of Industrial Organization* 29: no. 4 (2006) 281-304; Gregory J. Werden and Luke M. Froeb, “Correlation, Causality and All that Jazz: The Inherent Shortcomings of Price Tests for Antitrust Market Definition,” *Review of Industrial Organization* 8, no. 3 (1993):329-353.

There are some very significant caveats to consider in using price correlation and related analyses. The prices for two products may, of course, also reflect common factors such as costs of raw materials traded in world markets, even if they are not in the same geographic or product market. Without being able to control for all relevant common factors, such tests thus may reflect spurious correlations in prices. It is also difficult to relate the quantitative results of price correlation and related analyses to, for example, the SSNIP test described below. Prices may be correlated, but the question is whether they are correlated enough. In general, significant caution should be applied in using price correlation and related analyses.

G) Other Factors for Consideration

A variety of other factors can help in the assessment of the relevant market:

Switching costs. It may be costly for consumers to switch products because it takes time to learn about a new product, because they have already made investments in complementary products that will not work with a new product, because they have loyalty points that they will lose if they switch, and so forth. These “switching costs” make it harder for consumers to change their supplier when prices go up. When switching costs are low more products are likely to be substitutes, while when switching costs are high fewer products are likely to be substitutes.

Multihoming. Consumers may use several competing products at the same time. That is particularly the case for businesses that provide platforms that help connect two distinct customer groups (see the discussion of “two-sided markets” below). For example, many consumers carry several different methods of payment. If the cost of using one of them increases then it may be relatively easy to switch to another form of payment.

Regulation and Government Ownership. As a general matter, regulated firms and government-owned firms do not receive special treatment in competition policy. The only exception the sometimes arises is when a regulator or other government entity is actively monitoring and approves a particular practice the competition authority believes to be anticompetitive, Methods of resolving such conflicts vary from country to country and, often, from case to case.

3.3 Formal Methods for Assessing the Relevant Market

Economists have developed the following approach for assessing the relevant market based on the hypothetical monopolist test discussed earlier. The test begins with the products under consideration as a candidate market and expands the group of substitute products until the point is reached where a monopolist over those products could increase profit by a small but significant non-transitory increase in price (SSNIP).¹⁷ SSNIP tests are commonly used in merger investigations and less routinely used in monopolization cases. If a monopolist could not profitably raise price then there must be other substitute products that constrain its price, and these should be considered part of the market too. The hypothetical monopolist test is often called the SSNIP test after the measure of price increase used in the calculation. The amount of the SSNIP used in the test determines how narrowly the market boundaries are drawn. A higher SSNIP results in a broader market because one must consider more substitutes to defeat a higher price increase by a hypothetical monopolist.

Competition authorities tend to use relatively low SSNIPs of 5 or 10 percent in merger analysis, resulting in relatively narrow markets. The general rationale is that the costs to society of preventing a good merger tend to be lower than the costs of allowing a bad one, since preventing a good merger does not prevent the firms from realizing economies of scale or scope through internal growth, while bad mergers, once consummated, are hard to undo. In the case of monopolization, one could argue that the error costs go in the other direction: it may be difficult to replace the benefits of a pro-competitive practice that is banned, while market forces tend to erode the effects of anti-competitive practices that are allowed. Thus one could argue, based on the error-cost approach, for using larger SSNIPs and broader markets in monopolization cases – as well as paying more attention to the possibility of significant entry that might occur over time.¹⁸

17 Some approaches analyzing the competitive effects of mergers may bypass a full market definition analysis. The 2010 U.S. Horizontal Merger Guidelines note that the effect of a merger may be analyzed by assessing the extent of competition between the two merging parties, as reflected in, for example, diversion ratios between the two parties. The Guidelines also note the use of merger simulation models that do not require an explicit definition of the relevant market. See US Horizontal Merger Guidelines, Section 6.1.

18 A related point is to require a greater degree of market power in monopolization cases than in, for example, merger cases. See Louis Kaplow and Carl Shapiro, “Antitrust,” Handbook of Law and Economics, edited by A. Mitchell Polinsky and Steven Shavell (Amsterdam: North Holland, 2007) Vol. 2, Chapter 15, Section 2.5.

Critical loss analysis is a common method used to assess relevant markets using the SSNIP test. For the conjectured hypothetical monopolist the analyst calculates the loss of sales that would result in a “g” percent price increase having no net effect on profits. This critical loss CL can be calculated based on information on the profit margin for the hypothetical firm which, as we saw above, serves as a proxy for the elasticity of demand:

$$CL = g/(g+m) \quad (1)$$

In this formula, g is the small but significant price increase considered, expressed as a fraction (for example, a 5% price increase implies $g=.05$). And m is the price-cost margin over the relevant change in output resulting from the price increase. This may be difficult to measure in practice because, as we noted above, accounting margins, which are commonly the most readily available data on margins, will not generally correspond to economic margins for the change in output being considered. Moreover, margins for firms other than the one(s) being examined may not be readily available.

If the actual loss of sales that would result based on a consideration of demand-side and supply-side substitution would exceed CL then that price increase would be unprofitable and the market should be expanded. The actual loss can be assessed based on information concerning the residual demand elasticity, cross-price elasticities of demand, proxies for this based on estimates of the diversion of sales to alternative producers, or other available information, as discussed above.

A related approach that has been proposed but that remains controversial relies on the assumption discussed above that an individual firm’s own price elasticity is the inverse of its price-cost margin. Taking this assumption, and defining an aggregate diversion ratio, A, which is the fraction of sales lost by a given product when it raises price by g to other products in the candidate market, the actual loss AL for a hypothetical monopolist making such a price change would be equal to:¹⁹

$$AL = (1 - A)/(g/m) \quad (2)$$

19 See Michael L. Katz and Carl Shapiro, “Critical Loss: Let’s Tell the Whole Story,” *Antitrust Magazine* (Spring 2003); David T. Scheffman and Joseph J. Simons, “The State of Critical Loss Analysis: Let’s Make Sure We Understand the Whole Story” *The Antitrust Source* (November 2003); Michael L. Katz & Carl Shapiro, “Further Thoughts on Critical Loss,” *The Antitrust Source* (March 2004); and Daniel P. O’Brien & Abraham L. Wickelgren, “The State of Critical Loss Analysis: Reply to Scheffman and Simons,” *The Antitrust Source* (March 2004); Joseph Farrell and Carl Shapiro, “Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition,” *The B.E. Journal of Theoretical Economics* 10, no. 1 (2010).

Supporters of this approach note that while relying on estimates of margins to estimate demand elasticity is not necessarily the only approach to estimating actual loss, it is an important consideration. They contend that alternative estimates of actual loss that differ significantly from that yielded by this approach should be disregarded unless it can be shown in the case at hand that this simple approach is biased.²⁰ Other commentators who are skeptical of this approach note that available measures of profit margins may not correspond to the correct incremental margin.²¹ They also note that this approach as a practical matter results in extremely narrow markets, narrower than they argue is plausible. At the very least, this controversy reinforces the desirability of taking a flexible, non-dogmatic approach to market definition.

If for a proposed relevant market and a particular value of g , the actual loss for a hypothetical monopolist is less than the critical loss, then that price increase would be profitable. The analyst would conclude that the actual relevant market may be narrower than the proposed one but is certainly not broader. Similarly, if the actual loss exceeds the critical loss, then the market should be expanded because there must be demand substitutes not in control of the hypothetical firm. The analyst would then repeat the test by conjecturing what the next closest substitute is and asking whether the actual loss for the monopoly supplier of the new candidate market (including the additional product) is less than the critical loss. This process would be continued until the analyst has added enough products so that the hypothetical monopolist could just raise price profitably by the SSNIP of g .²²

It is often difficult in practice to implement the SSNIP test rigorously. To implement the hypothetical monopoly test rigorously it is necessary to construct a firm consisting of multiple products and measure the profit margin of that firm as well as substitution from all of the products for that firm to all of the other products that have not been consolidated into the hypothetical firm. In practice it is difficult enough to obtain accurate measures of these parameters for a single firm. Obtaining them for many firms and simulating the behavior of the hypothetical firm is a challenge. The outcome of the hypothetical monopolist test—that is the location of the market boundary—may depend on the order in

20 Joseph Farrell and Carl Shapiro, “Improving Critical Loss Analysis,” *The Antitrust Source* (February 2008): 6.

21 Malcolm B. Coate and Joseph J. Simons, “Critical Loss vs. Diversion Analysis: Clearing up the Confusion,” *Competition Policy International* (December 2009): 12.

22 We have left out many of the details here. For some additional discussion on how to apply critical loss analysis in practice see the references in fn. 19.

which additional products are added to the hypothetical firm given that the next best substitute may not be obvious. For example, if one is attempting to define a relevant market for automobiles starting with an Acura TSX, a low end luxury sedan, it may make as much sense to consider an Audi A4 or a Volkswagen Passat as the next best substitute. Choosing the Audi may then bring in sedans from luxury manufacturers such as BMW and Mercedes and lead to a luxury sedan market definition, while choosing the Volkswagen as the next best substitute may bring in sedans from Toyota and Nissan and result in a relevant market of less expensive sedans. In many cases the hypothetical monopolist test can at best provide an indication of the relevant market rather than determine a precise boundary.

3.4 Demand Side Substitution in practice

In some situations there is little doubt about the relevant market based on demand side substitution. That happens when there is a group of relatively similar products, including that being supplied by the firm under consideration, and there are not any obvious substitutes. In other situations the boundaries of the relevant market are imprecise and a matter of discretion and disagreement. That happens when there is a continuum of substitution possibilities and when the estimates of the strength of the substitutes are imprecise and open to question. As we discuss below when the evidence is ambiguous about which products to include in the relevant market the best practice is to recognize this uncertainty rather than to draw a hard boundary that could include too many substitutes or too few.

Demand-side substitution identifies the suppliers of products on the market that could constrain the exercise of market power by the firms under consideration. There are two other issues that need to be taken into account in assessing the relevant market: supply-side substitution and the geographic market.

4. Product Markets: Supply substitution

4.1 Supply side substitution

Demand-side substitution looks at the choices of consumers given the current state of supply of products by firms in the market. It ignores the possibility that a small but significant price increase would result in firms entering the market relatively quickly.²³ There are several ways this supply-side substitution could happen. The presence of such supply-side effects imposes a further competitive constraint on the firm under investigation. Likewise the absence of such supply side effects means that the competition authority can safely ignore the supply side in assessing the relevant market.

The following three sources of supply-side substitution should be considered.

Supply expansion through capacity switching. Firms may be able to produce multiple related products. When the price of one product in their portfolio increases it may be able to switch a production line, or factory, to the product whose price has increased. Left-handed and right-handed golf clubs are not substitutes in demand, but they may be in the same relevant market if golf club producers can easily produce different proportions of both.

New entry. Firms may decide to enter the market in response to an increase in price and be able to do so quickly and without incurring significant sunk costs.

Product repositioning. In a product-differentiated market firms may decide to change the attributes of their product so that their product becomes a closer substitute to the product whose price has increased.

A critical question for supply-side substitutability is how quickly these responses could take place. It may be that it takes significant time for firms to place additional capacity in service or to reposition their products. In that case the supplier of the product under consideration may be able to increase prices for a long enough time to make this profitable. As a result the supply-side substitution considerations may not be relevant.

²³ In addition, the competitive significance of smaller firms already in the relevant market defined based on demand-side substitution may increase as a result of expansion of supply. See Market Power Report.

It is, similarly, important to examine whether there are specific barriers to supply-side expansion. The most important of these are entry barriers that operate beyond the short run. There may be significant sunk costs of entering a market, regulatory constraints, intellectual property, tariffs, network work effects, and other factors that make entry or capacity switching difficult. The assessment of these barriers, when present is important, but it is not logically part of the market definition process.

4.2 Practical assessment of supply-side substitution

There are several sources of information for assessing supply-side substitution.

- Surveys of producers and customers. The competition authority can ask suppliers about the possibility of capacity expansion, new entrant, and product repositioning. These suppliers may be rivals of the firm under consideration and may engage in strategic behavior in responding to these inquiries. Customers may also have useful information on the ability of suppliers to divert capacity, enter or reposition themselves.
- Historical studies/natural experiments. The history of the industry may provide evidence. Past diversion of capacity in the past, entry, or product repositioning suggests that these are possible in the context of the industry. Likewise the absence of these historically may cast doubt on theories of supply-side substitutability. That is particularly true if there have been natural experiments. If a producer in the relevant market considered from the demand side has increased price sharply in the past and that did not elicit supply-side responses that suggests that such responses are difficult.

4.3 Supply-Side Substitution and Relevant Market Assessment

As noted above, there is a formal US/EU difference in the treatment of supply-side substitution. Suppose the only suppliers of left-handed golf clubs proposed to merge, and suppose the makers of right-handed clubs could quickly and without incurring appreciable sunk costs switch to making left-handed clubs. In the EU, the relevant product market would then be defined as golf clubs. In the US, however, only demand-side substitution is considered in defining a relevant market for merger analysis,²⁴ so the relevant product market in this case

²⁴ US Horizontal Merger Guidelines, Section 4.

would be left-handed golf clubs. But the US authorities would consider firms that had committed to enter as participants in the relevant market, as well as firms that are not producers in that market but “that would very likely provide rapid supply responses with direct competitive impact in the event of a SSNIP, without incurring significant sunk costs.”²⁵ Thus in the golf club case, producers of only right-handed golf clubs would be counted as participants in a market for left-handed clubs! The EU approach seems more conceptually natural, but both will lead to the same conclusion regarding competitive constraints.

As we noted above, longer-term supply-side substitution, which mainly involves new entry and/or product substitution involving significant sunk costs, is more appropriately considered via analysis of barriers to entry.

5. Geographic Market Definition

In many markets, the locations of suppliers affect whether they provide competitive constraints on the market power of the firm under consideration and thus should be included in the relevant market. The relevant geographic market could be worldwide. It may not matter to consumers where in the world the supplier of a website is located, for instance, since almost all consumers can access the site over the web.²⁶ Alternatively, the relevant market could be regional or local. At least from the demand side, only hospitals nearby are relevant for emergency medical care.

The same general principles apply to geographic market definition as to product market definition. Special issues do arise in assessing the scope of the geographic market. In defining the relevant geographic market, it is generally appropriate to consider both demand-side and rapid supply-side substitution.

²⁵ Ibid., Section 5.1.

²⁶ It may of course matter greatly to advertisers.

5.1 Specific Issues for Geographic Market Definition

Transportation costs are an additional consideration for geographic market definition. Related considerations for foreign suppliers are tariffs and other import barriers.

A) Consumer Transportation costs

Consumers incur costs of reaching a supplier especially for goods and services they buy at a physical location. These costs can include the time it takes for the consumer to travel to one location rather than another location, as well as any associated out-of-pocket expenses. Generally, locations that are closer to the consumer are closer substitutes because they will minimize transportation costs; locations that are very far away may not impose significant competitive constraints if transportation costs are prohibitive.

B) Supplier transportation costs

Suppliers also have to ship goods to buyers directly or to local distributors, and they incur costs for doing that. These costs are relevant for assessing demand-side substitution when buyers have to pay shipping costs. These costs are relevant for assessing supply-side substitution because the higher these costs are the less able a supplier is able to make a competitive offering in any local area.

C) Import taxes and barriers

In some cases geographic markets may include suppliers in other countries and possibly the entire world. There may be quotas or other import restrictions on various goods and services. In addition, there may be tariffs (import taxes) that, as with transportation costs, may limit the ability for a supplier to compete. In some cases, exporters from other countries may be disadvantaged by export restrictions or export taxes imposed by their domestic governments.

5.2 Practical Measurement Issues

In general, the same approaches described above for product market definition can be applied to geographic market definition. We use the hypothetical monopolist test and ask, for example, whether in response to an increase in prices of a product in a given city, consumers would switch to products sold by

suppliers in other cities.²⁷ Indeed, some have suggested that location be treated as a product characteristic.²⁸

One additional approach to geographic market definition that has not generally been used for product market definition is worth noting. This approach relies on data on trade flows across geographic regions. This approach is commonly referred to as the Elzinga-Hogarty test, after the economists who first proposed it.²⁹ The Elzinga-Hogarty test relies on two measures. The first is the proportion of sales to consumers within a candidate geographic market from suppliers within that geographic market: a relevant geographic market should have LIFO -- little in from outside. The second is the proportion of sales by suppliers within the candidate geographic market that were made to consumers within that geographic market: a relevant geographic market should have LOFI -- little out from inside. The Elzinga-Hogarty test identifies the geographic market based on the smallest region for which most sales to consumers are made by firms within the region and most sales by firms within the region are made to consumers within the region. A 90 percent threshold has commonly been used for "most", although a 75 percent threshold has been suggested.

The Elzinga-Hogarty test deserves consideration as a method for defining geographic markets, as it has been and continues to be used in practice, but there are a number of concerns regarding the Elzinga-Hogarty test that have been raised. One general concern is that the numeric threshold used for the test is not directly related to the hypothetical monopolist test. Beyond that, there are concerns that the test may understate or overstate the geographic market. First, it may understate the geographic market if consumers typically buy from firms within a given geographic area at current prices but would readily switch in response to a price increase. Second, the Elzinga-Hogarty test may overstate the geographic market. For example, if a subset of consumers in a geographic area has a distinct preference for products sold only by firms outside that area and would not buy from local suppliers in any event, the Elzinga-Hogarty test may

27 This would potentially include the use of firms that would ship the products between cities, assuming that supply-side responses by rapid entrants were considered as part of the market definition analysis.

28 Dennis W. Carlton, "Market Definition: Use and Abuse," *Competition Policy International* 3, no. 1 (Spring 2007): 15.

29 Kenneth G. Elzinga & Thomas F. Hogarty, "The Problem of Geographic Market Definition in Antimerger Suits," *Antitrust Bulletin* 18, no.45 (1973); Kenneth G. Elzinga & Thomas F. Hogarty, "The Problem of Geographic Market Definition Revisited: The Case of Coal," *Antitrust Bulletin* 23, no. 1 (1978). See also Pablo T. Spiller and Cliff J. Huang, "On the Extent of the Market: Wholesale Gasoline in the Northeastern United States," *The Journal of Industrial Economics* 35, no. 2 (1986): 131-145.

find the area not to be a geographic market, even when other consumers might be unwilling to buy outside of the geographic area. In addition, even if firms within a candidate geographic market make significant sales outside that region, firms outside that region may not be able to constrain the pricing of firms within the region to customers within the region.

6. Special Topics

Several difficult issues sometimes arise in the assessment of the relevant market. There is not a well-defined consensus on how to deal with these issues in the competition policy community at the current time.

6.1 Multi-Sided Platform Businesses

A number of businesses operate platforms that create value by enabling two or more distinct groups of customers to get together, find each other, and create value by interacting. These range from shopping malls (retailers and shoppers), mobile phone platforms (application developers, hardware maker, carriers, and users), to mass media (readers/listeners/viewers and advertisers).³⁰ The sides of these platforms are interdependent and complementary. Changes in prices and demand on one side affect prices and demand on other sides. For example, if shopping malls increase the rent to retailers there may be fewer boutique stores, which may decrease the patronage of shoppers, which will make the mall less attractive to retailers.

It may be possible to focus on one side of the business in some cases and assess the relevant market from that perspective. For example one side of the business may be “free” and it might be likely that practices that happen on the “money” side of the business will not affect consumers on the “free” side. One must be mindful here, however, that changes in the money side of the business could result in changes in the quality of the service or innovation or other dimensions of competition on the free side including eliminating the free proposition. In other cases the other side might be actually receive a subsidy and

³⁰ David S. Evans and Richard Schmalensee, “Markets with Two-Sided Platforms,” *Issues in Competition Law and Policy* 1 (2008): 667-693.

it is possible that changes on the money side could affect price by either reducing or increasing the subsidy (and thereby effectively increasing or reducing a negative price).

It may be possible to conduct the traditional analysis if the customers on the two sides are consuming a common good. For example, the US Department of Justice made this argument in a case involving payment cards.³¹ The idea was that merchants and consumers were both consuming transactions and therefore the relevant market analysis could focus on that. In cases where the two sides are consuming the same service in fixed proportions that approach may be appropriate.

More generally, multi-sided platforms compete with each other on all sides, and the relevant market should be focusing on the competition among these platforms, and interdependency between the two sides, rather than on one side of the platforms.³²

6.2 Price Discrimination

In some markets it may be possible for suppliers, including the one under examination, to engage in price discrimination: to charge a higher price to some customers than others, where the price difference is not attributable to differences in the cost of serving those customers. In such cases the supplier might be able to increase profits by raising prices to some groups but not others. The requirements for profitable price discrimination is an ability to sort customers reasonably well according to their demand elasticities (so as to charge a higher price to customers with less elastic demand) and the existence of an effective (natural or supplier-produced) barrier to arbitrage – that is, something that prevents customers who are being charged a low price from reselling in quantity (directly or through third parties) to customers targeted for high prices. If a supplier discriminates or is likely to do so, and if one can identify a target group of customers to which a separate SSNIP could be profitable, it is appropriate to treat sales to that group of customers as a relevant market. But this should be done only when there is a realistic prospect of an adverse competitive effect on such a group of customers.

31 Renata B. Hesse and Joshua H. Soven, “Defining Relevant Product Markets in Electronic Payment Network Antitrust Cases,” *Antitrust Law Journal* 73 (2006): 709.

32 David S. Evans, “Two Sided Market Definition,” ABA Section of Antitrust Law, *Market Definition in Antitrust: Theory and Case Studies*, forthcoming.

The US Horizontal Merger Guidelines provide an instructive example.³³ Suppose that in response to even a small increase in the price of glass jars, most users of those jars would switch to metal or plastic so that a price increase would not be profitable. But suppose that, for a variety of reasons, baby food manufacturers would not switch. If a hypothetical monopolist of glass jars could maintain different prices to baby food manufacturers than to other customers, baby food manufacturers would be vulnerable to an adverse competitive effect. In order to maintain different prices, the hypothetical manufacturer (a) would have to identify which of its customers were buying glass jars for use with baby food and (b) would have to be able to prevent resale of suitable jars to baby food manufacturers from other buyers of glass jars. If both those conditions were satisfied, perhaps because baby food manufacturers use a type of jar that has no other use, it would be appropriate to define a relevant market for glass jars used to package baby food.

6.3 Alternatives To Market Definition

Some competition authorities and commentators have pointed out that in many cases it is possible to assess whether a business practice harms competition or whether a proposed merger involves risks of such harm without assessing the relevant market.³⁴ A recent argument is that for differentiated-products there are superior methods for screening cases to determine whether it is worthwhile doing a detailed analysis of competitive effects. One proposal for mergers is to determine whether there is “upward pricing pressure”. The formula for assessing this relies on the same information necessary to conduct critical loss analysis.³⁵

33 US Horizontal Merger Guidelines: Section 4.1.3.

34 US Horizontal Merger Guidelines, Section 4.

35 Farrell and Shapiro, “Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition,” 1-2; Richard Schmalensee, “Should New Merger Guidelines Give UPP Market Definition?”The Antitrust Chronicle (December 2009).

7. Concluding Thoughts

The assessment of the relevant market almost always requires judgment. There is seldom a clear boundary between products that compete with each other and products that don't. In many markets products are differentiated. At some point it is necessary to decide whether additional products compete enough to be considered in the market, even though it is clear that they compete to some extent. The hypothetical monopoly test provides a rigorous way to think about these decisions, but often there is not enough data to carry out this test precisely.

The best practice is to keep in mind that any assessment that one has made of the relevant market at the beginning of an investigation may be too broad or too narrow. There is seldom a reason to draw a hard boundary. It is better to choose a relevant market but then consider whether conclusions are sensitive to including or excluding particular competitors that were almost excluded or barely included. In particular one should not draw strong inferences from market share statistics when those market shares depend strongly on an imprecise definition of the market boundary.

In the end, all competition inquiries are subject to errors. Adopting approaches that lead to narrow market definitions can lead to over-enforcement and discouraging pro-competitive practices while adopting approaches that lead to overly broad market definitions can lead to under-enforcement and too many anticompetitive practices and mergers. Balancing these possible sources of error really depends on the particulars the jurisdiction and on policy decisions regarding the tradeoff between these two types of errors.