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The Relevant Market in IP and Antitrust Litigation

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In general, competition benefits consumers. When firms compete with one another, each strives to offer better products at lower prices than other firms. A competitive market allows consumers to enjoy a greater selection of products of superior quality at lower prices than would be available in a non-competitive market. Note however, that while competition benefits consumers, it does not necessarily benefit firms. The very process of competition means that there will be “winners” and “losers” in the market, with the winners obtaining greater sales and market share and the losers losing market share and possibly going out of business.

Antitrust policy is designed to ensure that firms “win” the marketplace competition by providing lower prices, better products, and greater variety and not by eliminating competition in such a way as to harm consumers. Harm to consumers arises when competition between firms is undermined or threatened (or is likely to be undermined or threatened) if particular business practices are allowed to continue unchecked. Therefore, the core economic question posed in antitrust cases is: “Has the particular business practice or proposed merger harmed consumers by raising prices, lowering product quality, or reducing variety; or is it likely to do so in the near future?”

Determining the relevant market is the cornerstone of many antitrust cases: a finding of anticompetitive activity or a decision to block a merger or acquisition can depend on a significant extent on the market shares in a relevant market, and market shares, of course depend crucially on the boundaries of the relevant market.

The relevant market is also “relevant” in intellectual property cases when (1) an antitrust counterclaim is asserted in response to a claim of patent infringement; (2) when a technology owner is accused of using his or her IP in an anticompetitive manner; (3) when particular licensing arrangements have been challenged by the regulatory authorities; and, more generally and; (4) whenever it is necessary to consider market share in determining damages from patent infringement.

The Role of Market Power

Market power is defined as the ability of a firm to raise prices or lower product quality beyond competitive levels without losing so many sales as to make these actions unprofitable. Most antitrust inquiries come down to determining whether the post-merger firm or the defendant in an antitrust case has (or will acquire) market power by virtue of the merger or the particular actions of the firm under investigation. Hence, the litmus test faced in court is whether the actions at issue lessen competition to the extent that one or more firms may substantially raise and sustain higher prices or suppress innovation.1

Because firms almost always have some degree of market power (through product differentiation or brand loyalty), antitrust inquiries generally proceed by investigating whether the factors that constrain the firm’s market power are sufficient to do so. This is generally a simpler approach than estimating a benchmark “competitive” price to determine whether the actual price deviates from the theoretically attainable competitive price. A firm’s market power may be constrained in a number of ways. Formally, these constraining factors are known as demand substitutability, supply substitutability, and entry.

If consumers can readily turn to alternative products or suppliers to meet their needs, a firm will not be able to profit from raising its price above competitive levels. If it did so, its customers will simply choose to buy elsewhere. In this case, the firm not only fails to benefit from the attempted price increase, the resulting loss in sales means that the firm’s profits are lower than they would have been at the original lower price. This shift in sales is called
demand substitution. If consumers have sufficient substitutes for the product in question, no single firm producing only one of many alternatives will be able to exercise market power by raising price.

Second, an attempt to raise prices may be constrained by the ability of other firms to expand output or convert some of their capacity to producing the product for which the price increase was attempted. This is called supply substitution. Consider a manufacturer of basketballs attempting to restrict output of basketballs to raise their market price. If manufacturers of say, soccer balls could switch some of their productive capacity away from soccer balls and into basketballs, the attempted price increase in basketballs would be defeated.

Third, an attempt to raise price may be met by new firms entering the market. Entry can defeat an attempted price increase, because the new firms will expand output, put downward pressure on prices and create more competition in the market.

Alternatively, if there are few substitutes in demand or supply and barriers to entering a particular market are high, then the incumbent firms may enjoy sufficient market power to sustain profitably a price increase in the market or markets in which they participate. The possession of market power thus benefits the firm at the expense of its customers.

The Relevant Market

Defining the relevant market is the first stage of analyzing the competitive impact of a merger or a particular business practice under antitrust investigation. Firms with lower market shares in the relevant market are generally assumed to be unable to effect an anticompetitive price increase.

The appearance of high market share, however, may be deceiving. When company reports or analysts refer to the “market share” of a company or claim that a particular firm dominates the market, they are often referring to the share in a subset of the market and not a true relevant market for antitrust purposes.

Even when a firm has achieved a high market share, it may not have attained market power, since the market in question may have low entry barriers and thus may be easily susceptible to entry by new firms. If additional firms entering the market would likely defeat any attempted price increase, then current market shares are meaningless for determining market power.

The relevant market for antitrust purposes is the set of (actual and potential) suppliers that serve to constrain the market power of the firm that is the target of the antitrust inquiry (the merging firms or the defendant in an antitrust case).

In theory, market definition involves identifying the nontrivial constraints on the ability of firms to exercise market power and evaluating whether these constraints are sufficient to prevent consumer harm from a particular business practice or combination. In practice, market definition involves determining whether particular firms are in or out of the market and therefore involves determining a bright line that defines the boundaries of the market.

The tendency to draw a bright line results, at least in part, because the courts often use market share as a proxy for whether a firm or combination of firms has a large enough presence in the market to raise price or reduce output. For example, under the Antitrust Guidelines for the Licensing of Intellectual Property, the Antitrust Division will not challenge a restraint if the licensor and its licensees collectively account for less than 20 percent of each relevant market affected by the restraint. Because of this, adversaries often end up arguing whether certain firms, or locations of firms, provide a sufficiently strong constraint to be included in the market share calculations. This analytical shortcut ignores the potential for high market shares to be a reflection of historical happenstance rather than the potential for market power.

Market definition consists of first determining which products are effective substitutes from the standpoint of consumer demand, and then determining which firms could readily supply these substitutes. The market definition serves to focus the inquiry into whether the business practice in question would harm consumers in this market through a significant increase in price for a substantial period of time.

As a whole, the set of suppliers in the relevant market currently supply (or could readily supply) all of the products that the defendant’s customers regard as acceptable substitutes to the products supplied by the defendant. Note that if the number of customers that regard this set of products (jointly) as acceptable substitutes is large enough, the firm in question will be unable to price above competitive levels profitably. In other words, if the defendant attempted to raise price, enough of its customers would defect to one or another of these substitute products such that the lost volume would outweigh any gain from the higher price. Thus, the relevant market is relevant to the antitrust inquiry at hand, because it is the market within which the defendant’s alleged market power has to be assessed and where the effect on competition of the defendant’s actions must be weighed.

Dimensions of the Relevant Market

There are three dimensions to the relevant market. First, it consists of all of the products that the defendant’s customers view as substitutes to the defendant’s own products. This is the product dimension of the relevant market.

Second, the relevant market comprises all of the suppliers who currently supply (or readily could supply) these substitute products and who the defendant’s customers would regard as acceptable sources.
of supply. The locations of these suppliers constitute the geographic dimension of the relevant market. The relevant geographic market may be determined by the costs associated with shipping products from one geographic region to another; the cost to consumers of traveling from one geographic region to another to purchase the product, or it may be determined by some regulatory means (e.g., import or export restrictions, state-specific licensing for professional services, or patent protection restricted to a particular country).

For example, the market for dry cleaning services is likely to comprise a small geographic area. Since the cost to the customer of traveling great distances is likely to be too high relative to the cost of the dry cleaning itself, the geographic market for dry cleaning services probably encompasses a radius of only a few miles around a particular dry cleaner under investigation. Alternatively, if we consider a market for software, the relevant market could be significantly broader in geographic scope because the cost of shipping software is very low.

Finally, an often-overlooked aspect of the relevant market is the time dimension. Depending on the purpose and scope of the antitrust inquiry, the market as it exists today may or may not be relevant. For instance, in an antitrust review of a proposed merger, the analysis is intrinsically forward-looking. Under these conditions, the likely nature of the market in the future may be more important than its current state. In dynamic industries characterized by rapid technological progress, current market shares are unlikely to reflect market power. Consider for example the market for computer memory. If a new alternative to DRAM were going to be commercially available within one year (but is not currently available), the relevant market in which to analyze a merger of DRAM manufacturers may well include the new asset-unavailable technology.

The Relevant Market in an Intellectual Property Context

Intellectual Property and Antitrust

There is an inherent tension between the antitrust laws and intellectual property laws. The antitrust laws are intended to protect consumers from actions that lessen or eliminate competition. In contrast, the intellectual property laws are specifically designed to protect an inventor from facing competition in his or her invention. Antitrust laws prohibit firms from engaging in actions designed to illegally exclude competitors from the relevant market. Intellectual property laws provide an inventor a legal means for excluding others from selling his or her patented innovation.

The tension between the antitrust laws and intellectual property laws is particularly apparent when patent infringement claims call forth antitrust counterclaims: a patent owner attempting to exert her rights to protect her intellectual property is accused by a rival firm of using the patent to illegally exclude competition. Typically, in a patent infringement suit, the patent owner would prefer a narrow market, so that there are few substitutes for the product that relies upon the patent—a finding that would tend to maximize the damage claim. The alleged infringing firm has the opposite incentive. A wide market with many substitutes would tend to lower the calculated damages. These incentives are reversed in the antitrust counterclaim. The alleged infringing firm wants a narrow market definition to help establish the market power of the patent owner while the alleged infringed-upon firm wants a broader definition to help establish the opposite.

The Relevant Market in Intellectual Property Antitrust Cases vs. Intellectual Property Damages Cases

While defining the relevant market is particularly important in intellectual property cases that have an antitrust counterclaim, defining the relevant market is also important in determining the value of the patent or lost sales in the damage phase of an infringement suit. If the defendant in an infringement suit is found to have infringed the patent, then the patent owner's lost sales depend on how many of the infringer's sales the patent owner would have made and how many sales would have gone to other alternatives. As above, these alternatives define the boundaries of the relevant market.

The key market definition question in patent infringement damages cases is: to which alternatives would customers who actually purchased the infringing product have turned if the infringing product were eliminated? In antitrust analysis, we frequently need to forecast the impact of an act with potential competitive consequences. There may be little use in preventing or conditioning an act, such as a merger, on the basis of the current situation in the market if entry is easy or technological progress is rapid. Consequently, it is important to keep in mind such things as conditions of entry, changes in technology and changes in consumer tastes when determining the impact of potentially anticompetitive behavior or in assessing allegations of anticompetitive behavior.

Patent damage estimation, on the other hand, is almost always backward-looking, particularly if injunctive relief is sought. Accordingly, we define the market based on the alternatives available to an identifiable set of consumers, namely, those who purchased the infringing product.

As a consequence of these differences, the relevant market for a patent infringement damages case may
on occasion differ from the relevant market in an antitrust case.

**Patents and Copyrights Do Not Necessarily Define Relevant Markets**

A patent confers the right to exclude others from making or using the product or process that is the subject of the patent. A copyright protects a particular expression of ideas. Neither provides a sound basis for defining a relevant market.

In antitrust, relevant markets are determined by economic substitutability, both demand as well as supply. The fact that a patent allows a firm to exclude technological substitutes need not say very much about the availability of economic substitutes. Analysis of economic substitutes may reveal that relevant alternatives may not infringe the patent (or copyright). It is possible that other firms may easily enter the market with competing technologies or consumers may find products based on other technologies to be acceptable alternatives.

We rely on these intrinsically economic rather than technological ideas of substitutability so that we can answer the basic question underlying relevant market definition: what set of products effectively constrain the ability of the patent holder to harm consumers through increases in prices? Thus, a patent or copyright may well serve as the starting point of a relevant market inquiry, but it cannot stop there.

Consider as an example the market for the technology used to produce bottled water. If one producer of bottled water claimed to have a patent on the particular method of "de-ionizing" the water, would we consider the owner of the patented process as having market power? Probably not. At least, not without considering whether or not consumers of bottled water would be just as happy to consume spring water, non-de-ionized water, or even tap water as patented de-ionized water. If consumers consider the competing products made with other processes interchangeable, then bottled water producers will also consider the processes interchangeable and a patent on a single process cannot be used to exercise market power.

**Dimensions of the Relevant Market for Intellectual Property**

As described above, the relevant market for products and services consists of all of the products those buyers of the product at issue view as substitutes. The relevant market for a particular technology is defined analogously. Competition between alternative technologies can be hindered in essentially the same manner as competition between alternative sources of any input. Buying up all the key patents covering ore processing is little different from buying up all of the world's silver mines. Thus the product dimension of the relevant technology includes all other technologies or processes that users of the technology at issue can turn to as an alternative to the patented technology.

The geographic scope of technology markets is not necessarily the same as the geographic scope of the goods markets with which they overlap. For example, if heavy machinery is expensive to transport relative to its value, its geographic market may be continental, national, or regional. On the other hand, there is virtually no cost to transporting a licensing agreement. Thus, while the machinery's geographic market may be national or regional, its technology market may be international.

**Measuring Substitutability**

**How Much Is Enough?**

Economic substitutability determines the boundaries of the relevant market, but how does one know how "much" substitutability is "enough" for a product or supplier to belong in a relevant market? There is no generally accepted answer to this question.

However, the *Horizontal Merger Guidelines* published jointly by the US Department of Justice (DOJ) and the Federal Trade Commission (FTC) set forth an analytical approach to determine whether particular substitutes are sufficiently substitutable to be included in the relevant market. In essence, the Merger Guidelines state that the set of substitutes that constitutes a relevant market should be such that if their suppliers collectively imposed a "small but significant and non-transitory price increase" (often interpreted as 5 or 10 percent over a year) on all of those products, customers would not turn to other outside products in large enough quantities to make such a hypothetical price increase unprofitable. That is, there may continue to be defections, but they would be so minor as to make the added revenue from the price increase outweigh any reduced profit from reduced sales.

**Formal Measures of Substitutability**

It should be clear from the Merger Guidelines approach that two distinct questions are involved in trying to evaluate whether particular products (or suppliers) belong in the market. First, by how much will the quantity sold decline in a proposed relevant market with a small price increase? This tells us whether we have reached the limits of the relevant market or whether we need to include more products (or suppliers) in it. A large loss in sales indicates that we have not included all of the relevant substitutes. The second question raised by the Merger Guidelines approach is: by how much will the quantity sold of other potentially relevant products increase because of the price increase in the proposed relevant market?
This tells us which of the other candidates are most likely to belong in the market.

The first issue concerns what economists refer to as the (own-price) elasticity of demand. It measures the responsiveness of quantity demanded for a product to changes in its own price. Formally, it measures the percent decrease in quantity demanded in the market brought about by a 1 percent increase in price. The second issue involves what is referred to as the cross-price elasticity of demand. It measures the responsiveness of one product's quantity to a change in the price of another.

Only rarely can independent estimates of these elasticities be found. They can be estimated rigorously using statistical and econometric techniques, but doing so typically requires a fairly extensive amount of data. Sometimes these data exist in company records and in publicly available sources. On other occasions, it may be possible to gather such data via surveys of actual and potential customers, suppliers, and so on.

In many instances, however, one will not have the data or resources to mount a formal analysis of own- and cross-price elasticities of demand. In those situations, there may be little alternative but to rely on the combination of anecdotal evidence, evidence of past behavior, and industry lore to guide you to a sensible definition of the relevant market.

Evidence to Consider in Establishing the Dimensions of the Relevant Market

In practice, there are many kinds of evidence that help assess the set of products in a market to which consumers would switch in the face of a price increase for the product or technology at issue. The Merger Guidelines suggest the following:

- Evidence that buyers have shifted or have considered shifting purchases between products in response to relative changes in price or other competitive variables
- Evidence that sellers base business decisions on the prospect of buyer substitution between geographic locations in response to relative changes in price or other competitive variables
- The influence of downstream competition faced by buyers in their output markets
- The timing and cost of switching partners

It is frequently the case that intellectual property is an input to a production process. Substitutability is greater if individuals can switch from one supplier to another without having to spend large amounts of time learning how to use the new product. Substitutability is also greater if there is little investment in new equipment if one switches from one manufacturer of a product to another.

Evidence of past purchasing behavior can be very useful in defining the relevant market in intellectual property cases. Prior to purchasing the patented invention, what did consumers use? Information might be gleaned from records developed by marketing personnel or from surveys commissioned by them in the past. Customer files sometimes reveal the alternatives that customers were considering during negotiations over price. In some cases, there may be sufficient data on historic purchasing behavior that would allow economists to estimate with some rigor the change in the consumption of one good that results from a price change in some other good.

Sometimes it is possible to canvas the opinions of customers directly. Discussions with purchasing and technical personnel at firms that purchase the product could reveal what they perceive their alternatives to be. In matters involving consumer products, it may be possible to survey consumers in various ways to determine what they view as acceptable alternatives.

In addition to consumer surveys, a second source of information on the set of products or technologies in the relevant market is the sales staff of the companies that are the focus of the dispute or antitrust inquiry. Sales staff employed by the relevant parties will generally know a great deal about what their customers view as the competitive alternatives to the product or technology at issue, since they often spend much of their working day defending the virtues of their products over the alternatives.

Often, these sources can lead to robust conclusions about the scope of the relevant market. However, there are no formulaic methods that one can follow in using these sources in this way. Rather, one has to be guided by the circumstances of each industry and case.

Conclusion

Defining the relevant market is the first stage of analyzing the competitive impact of a merger or particular business practice of a firm under an antitrust investigation, or the potential for an owner of intellectual property to wield market power. Firms with lower market shares in the relevant market or markets are generally assumed to be unable to effect an anticompetitive price increase. It is important to realize though that a finding of a large market share in the current configuration of the relevant market does not necessarily indicate the possession of market power. Ease of entry, ease of expansion, and rapid technological progress limit the extent to which market share can be interpreted as a signal of market power.
1. Before the early 1980s, the delineation of markets was a relatively ad hoc affair and based primarily upon the case law. In Brown Shoe Co. v. United States the court described the relevant antitrust market as an area of effective competition. Other cases described markets as containing products that demonstrated "reasonable interchangeability." In 1982, the Antitrust Division of the U.S. Department of Justice (DOJ) issued its Horizontal Merger Guidelines (Merger Guidelines) in order to give companies that were considering a merger some indication of the manner in which their merger would be treated when reviewed by the DOJ for antitrust considerations. The most recent modification of the Merger Guidelines was issued jointly by the DOJ and the Federal Trade Commission (FTC) in 1992, and revised in April 1997 to incorporate descriptions of the manner in which merger-related efficiencies would be considered.

The Merger Guidelines and its revisions have provided a standard methodology for defining relevant antitrust markets and are used as the basis of analysis in many areas where issues of competition are analyzed. This includes the 1995 Antitrust Guidelines for the Licensing of Intellectual Property (Intellectual Property Guidelines) which state that "[i]n general, for goods markets affected by a licensing arrangement, [the DOJ and FTC] will approach the delineation of relevant market and measurement of market share in the intellectual property area as in Section 1 of the 1992 Merger Guidelines. (See Section 3.2.1 of the Intellectual Property Guidelines.)"

The Merger Guidelines state the following standard for defining a market:

Absent price discrimination, the Agency will delineate the product market to be a product or group of products such that a hypothetical profit-maximizing firm that was the only present and future seller of those products ("monopolist") likely would impose at least a "small but significant and nontransitory" increase in price. (See the first paragraph of Section 1.11.)

The Merger Guidelines state that a "small but significant and nontransitory increase in price" is defined as usually meaning a five percent price increase for the foreseeable future. (See the last paragraph of Section 1.11.)

2. An exception, of course, is in the case in which infringement may have caused a patent owner to lose some (or all) of its first-mover advantage. In such cases, the impact of the infringement could extend into the future and consequently forecasts of the state of competition and technology in the future would be important in estimating damages.

3. The Intellectual Property Guidelines describe technology markets as consisting of:

the intellectual property that is licensed (the "licensed technology") and its close substitutes—that is, the technologies or goods that are close enough substitutes significantly to constrain the exercise of market power with respect to the intellectual property that is licensed. (Section 3.2.2).

The Intellectual Property Guidelines also state that the DOJ and FTC will be examining licensing behavior and mergers on the basis of their impact on what they refer to as "innovation markets":

An innovation market consists of the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development. The close substitutes are research and development efforts, technologies, and goods that significantly constrain the exercise of market power with respect to the relevant research and development. The Agencies will delineate an innovation market only when the capabilities to engage in the relevant research and development can be associated with specialized assets or characteristics of specific firms. (Section 3.2.3).

4. See Section 1.2.1.

5. It is frequently the case that intellectual property is an input to a production process.

6. Substitutability is greater if individuals can switch from one supplier to another without having to spend large amounts of time learning how to use the new product. Substitutability is also greater if there is little investment in new equipment if one switches from one manufacturer of a product to another.

7. See Section 1.2.1.
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