DEPARTMENT OF JUSTICE

Mergers that Increase Bargaining Leverage

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1. **Introduction**

Good morning. Thank you for the invitation to speak at this interesting conference on "Competition and IP Policy in High Technology Industries". I look forward to having an engaging discussion with my fellow speakers and would like to thank Greg for moderating today's discussion.

Technology is all around us and is constantly advancing. I am old enough to remember the "good old days" when a "wireless" phone meant a phone without a wire, or cord, and when you wanted to "look something up" you pulled an encyclopedia off the shelf rather than search using your smartphone. My first desktop computer as a grad student had a "blistering fast" 486 processer and a "huge" hard drive of 40MB. Even the government issued BlackBerry that I carry in my pocket is orders of magnitude faster and has more memory. I do not know what devices and services we will be using 10 years from now, but almost surely we will be talking about the good old days when we used our current then-to-be-outdated technology.

As the economy evolves and new industries emerge, competition policy and enforcement remains as important as ever. Competition in high-tech industries grows our economy and raises consumer welfare through the introduction of new technologies, products and methods of doing business. The role of antitrust is to protect the competitive process and create an environment that provides companies the right economic incentives to innovate and generate these benefits.

High-tech industries are characterized by features such as rapid innovation, high fixed costs and low marginal costs. These industries tend to be IP-intensive, rely on technology standards, and often exhibit network effects. This dynamic marketplace requires a constant evaluation of how antitrust laws are enforced.

We, at the Antitrust Division, are constantly looking for ways to promote competition and benefit consumers. Throughout the day today we will discuss the various issues that arise in high-tech industries. Rather than survey many of these issues, and how the Division has been active in them, I would like to focus on one particular issue: mergers that increase bargaining leverage. The issues I will discuss are present in high-tech industries, but they are not unique to these industries.

2. Mergers that Increase Bargaining Leverage

a. Setup and Background

Many industries are characterized by bargaining between providers, who produce content or provide services, and distributors, who sell the products or services to final consumers as part of a bundle. For example, consider the producer of a Smartphone, the distributor, deciding on what features, each which relies on some IP, to include in its phone. The patent holders are the providers. The phone is sold as a "bundle" with the various features included.

There are examples in other industries as well. For example, in health care, the providers are hospitals or physicians, and the distributors are the insurers. The consumers are patients, who choose an insurance plan, and use providers as medical needs arise. Looking at subscription TV packages, providers license content to MVPD (e.g., cable companies or satellite distributors). The consumers are viewers who choose a provider and bundle, and watch content. There are of course many other industries that fit this setting.

There are two main issues that usually come up when explaining how one should think of antitrust in this context. First, is to explain why the interplay between different providers as they separately bargain with distributors is a form of competition (and therefore why a merger between providers is a loss of competition). Second, is to understand how we should actually measure this competition. I will mostly focus on the first issue and just mention the latter one briefly.

From my perspective, the parallels between the loss of competition from mergers in this setting and in a more standard setup are easy to see. Each provider supplies a potential improvement in the quality of a distributor's bundle, or network. Those increments of network quality are substitutable for each other. That's the same basic antitrust framework we see in any differentiated products markets. Buyers usually have one product they like most but could choose another product in the market, if their preferred option disappears or its price rises. Negotiations in the setting I am discussing are a little different in that the distributors generally buy more than one product, but as matter of economics that is not a real difference and indeed there are examples of antitrust cases where every customer bought several products.

The FTC's baby food case offers a useful parallel.[1] In that case, every grocery store bought exactly two of three available brands. Indeed, every store bought the same first brand and the case turned on competition among the two merging brands to be the second baby food brand on the shelf. That is an extreme form of the competition I see between providers in the bargaining setting. Providers, say patent holders, compete to not be the one left out of any distributor's bundle.

The industries I used as examples are not as simple as baby food. For one thing, we often have distributors choosing to purchase all the products instead of always excluding a provider. That doesn't mean they couldn't have excluded one provider and that possibility may drive the pricing even if it never gets exercised in practice.

b. Economic Theory

The economic theory underlying the model relies on the so called Nash bargaining solution.[2] Nash's key insight was that the parties split the surplus between the benefits of reaching agreement and those of disagreeing. The outcome relies on two key factors: the division of these gains, which I will call the bargaining power, and the leverage that each party has. The bargaining power each party has can be motivated by requiring certain

[1] *FTC vs. H.J. Heinz Co., 246 F.708 (D.C. Cir 2001).*

[2] John F. Nash, Jr. (1950), "The Bargaining Problem," *Econometrica*,18(2), pg. 155-162.

axioms to hold, as Nash did, or by looking at the relative patience of the parties.[3] For the purpose of this talk I will assume that the parties have equal bargaining power and that the split is fixed at 50:50. The level of the split is not important for what follows, but the assumption that it will not change with the merger is potentially important.

A merger in this setting will have an effect on the fees negotiated between providers and distributors if it changes the value of an agreement relative to the value of disagreement. This change can happen for different reasons, but the key is whether the value of an agreement post-merger is more or less than the sum of the pre-merger values.

Just to fix ideas, let's consider a simple numerical example. Suppose a distributor negotiates with two providers. The distributor nets $120 if its bundle includes both providers, $100 if its bundle includes either provider but not both, and nothing with neither provider in its bundle. The provider only gains fees it gets if in the bundle, and zero otherwise. The incremental gain from adding either provider to the bundle, relative to disagreeing, is $20 when the other provider is in the bundle already. Hence, by threatening each provider with exclusion, while the other is included, the distributor causes the gain from making a deal to be $20. Split equally with the provider results in a fee of $10.

Now suppose the two providers merge and bargain as a single unit. The gain from making a deal with the merged provider is $120. Split equally this results in the two providers acting together getting a combined $60, while acting separately they were only able to bargain for $10 each or a total of $20 for both. The providers gained from joint bargaining.

If we change the numbers slightly the result could change. For example, if each provider generated a value of $60 regardless, then bargaining jointly or separately the providers would gain the same: $30 each. On the other hand, if the value of having either provider

[3] See, for example, Rubinstein, A. (1982), "Perfect equilibrium in a bargaining model," *Econometrica*, 50 (1) pg. 97-100.

in the bundle alone was only $20, and both $120, then bargaining separately the providers would get $50 each, so more than bargaining jointly. This might seem surprising, but it is just the counterpart of two complements merging in a price setting framework.

In technical terms, the effect of the merger depends on the curvature of the function that relates the net gain from an agreement. If this function is concave -- the incremental gain from adding a provider decreases -- then a merger will increase fees. There are several reasons why the incremental value of having providers is decreasing.

If consumers view the providers as substitutes then every provider adds value to the distributor, by making its plan more attractive, because some subscribers prefer each provider over all others. But the more providers already in a bundle, then the less is the incremental value of an additional provider.

Much the same can be true when providers are not perceived as substitutes. For example, a user of a Smartphone may care most about whether the phone can make calls and receive and send texts, but the user wants to have additional features. The phone manufacturer can make its phone more attractive by adding any number of features, say Bluetooth capability or face recognition. Either might add the same value to the phone, but from the manufacturer's point of view the marginal benefit of adding multiple features is decreasing. So while not direct substitutes both features could be in competition to be added to the phone in addition to basic functionality.

Up to now I focused on the implications of the distributor's value function, but similar effects can arise through the provider's incentives. Like the distributor, when negotiating the provider weighs the value of a deal against the value of disagreeing. When a small provider bargains on its own it is reasonable for it to assume that in case of disagreement most consumers will not switch distributors and therefore it will lose all the consumers it currently gets from the distributor. However, when bargaining as part of a larger system, which imposes an "all or nothing" rule in disagreement, some of the consumers might switch to an alternative distributor and be recaptured by the provider. This makes the

state of disagreement less painful to the provider and therefore gives it leverage in negotiation.

c. Case Law

The application of bargaining theory in antitrust is not new. Five brief case studies of merger assessment guided by bargaining theory are provided by commentary on the Horizontal Merger Guidelines.[4] Both federal enforcement agencies have long employed bargaining theory in analyzing hospital mergers, and the district court opinion in a recent FTC case, *ProMedica*, relies heavily on bargaining theory.[5]

The *ProMedica* court describes the fundamentals of hospital competition and pricing, and explains that the "respective degrees of bargaining leverage are determined by how each party would fare if no agreement were reached."[6] The court examined the record in the light of bargaining theory. For example, the court recounts the testimony of an insurer that the merger increases the "bargaining leverage" of the merging hospitals by making the "prospect of walking away" "far less economically feasible" for the insurer.[7] The reason is that "it would be exponentially more difficult to market a network" without not just one of the merging hospitals but also without the other.[8]

In hospital merger cases, the economic theory has been that the merged firm could and would bundle commonly used hospitals, which would cause the bargaining with insurers to produce higher reimbursements. Hence, the legal theory of the cases was that the merger should be enjoined not because the change in ownership itself would cause the hospitals to raise prices, but rather because the merger would provide the incentive and

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[4] U.S. DEP'T OF JUSTICE & FTC, COMMENTARY ON THE HORIZONTAL MERGER GUIDELINES 34–36 (Mar. 2006), *available at* http://www.usdoj.gov/atr/public/guidelines/215247.pdf

[5] *FTC v. ProMedica Health Sys., Inc.*, 2011-1 Trade Cas. (CCH) ¶ 77,395 (N.D. Ohio Mar. 29, 2011). *See also FTC v. OSF Healthcare Sys.*, 852 F.Supp.2d 1069, 1084 (N.D. Ill. 2012) ("[T]he proposed merger in this case would give the combined entity significant bargaining leverage, which would in turn allow the combined entity to extract higher prices from [managed care orgimizations].").

[6] *Id.* ¶ 52

[7] *Id.* ¶ 132a.

[8] *Id.* ¶ 144 (quoting testimony).

opportunity for the hospitals to adopt a negotiating tactic that would result in higher prices.

d. Empirical Analysis

At this point, hopefully, I have convinced you that as a matter of economic theory and case law bargaining leverage is a source of market power and a merger that involves an increase in bargaining leverage is a form of lessening of competition. Before concluding I would like to briefly touch on how one can go about empirically measuring the effects of leverage.

The two methods that I will discuss are based on well established principles in antitrust economics. The first method, often called the willingness-to-pay (WTP) model, relates prices to measures of competition. The effect of the merger is estimated by computing how the merger changes the measure of competition. The second method is the equivalent of merger simulation but uses the bargaining model described above instead of a Cournot or Bertrand model in the simulation.

The WTP analysis consists of two steps.[9] In the first step ones uses historical data on provider choices to estimate a provider choice model. The model estimates the weight that consumers put on different attributes by choosing the parameters that best explain why consumers choose the providers they did, over those they did not. The estimates from the consumer choice model allow us to compute the (expected) value, or utility, from each option or from a set of options. In other words, the model allows us to compute what consumers are willing to pay to add an option to various bundles, which is exactly what we need.

[9] For more details see Town, R. and Vistnes, G. (2001), "Hospital competition in HMO networks," *Journal of Health Economics*, 20(5), pg" 733-53; Capps, C., Dranove, D., and Satterthwaite, M. (2003)," Competition and market power in option demand markets," *The RAND Journal of Economics*, 34(4), 737-63; and Farrell J., D. Balan, K. Brand and B. Wendling (2011), "Economics at the FTC: hospital mergers, authorized generic drugs, and consumer credit markets," *Review of Industrial Organization,* 39(4), pg 271-96.

To see how the WTP measure captures competition consider the following example. Suppose providers A and B are very close substitutes in the eyes of consumers, but very far substitutes from any other provider. In that case consumers will not be willing to pay much to add provider A to a network that already includes provider B, nor to pay much to add provider B to a network that includes A. Since neither A or B add much incremental value to consumers, if the other is already in the network, they also do not add much value to the distributor trying to construct a network. Thus, on their own neither provider can obtain favorable rates and we would expect to see prices for providers A and B to be low.

The second step of the WTP analysis simply correlates the expected value, or WTP, to prices paid historically and uses this relationship to simulate the likely effect of the merger. This regression is loosely motivated by the bargaining model, which says that WTP should be related to prices, but does not fully impose the relationship implied by the model. It parallels the idea of using historical data to estimate the relationship between prices and concentration, as measured for example by HHI, and using it to predict the effect of a change in concentration. The main difference is in the measure of competition used: WTP instead of HHI.

An alternative approach,[10] which I will only briefly mention here, is to use historical data to estimate the primitives of the industry, such as demand and cost parameters, and then use these to compute what the bargaining model would predict for post-merger prices. This approach directly follows the tradition of merger simulation, but replaces the often used Bertrand or Cournot model with the bargaining model described above. It provides a tighter link with the theory and also allows us to account for additional effects that might be present in the market place. For example, one can allow the distributors to charge a co-pay and see how that impacts the bargaining process.

[10] Crawford, G. and Yurukoglu, A. (2012), "The welfare effects of bundling in multichannel television Markets," *American Economic Review*, 102(2), pg 643-85; Grennan, M. (2013), "Price Discrimination and Price Bargaining: Empirical Evidence from Medical Devices," *American Economic Review* 103(1), pg 145-77; Gowrisankaran G., Nevo A., and Town R. (2013), "Mergers when prices are negotiated: evidence from the hospital mergers," working paper.

3. Concluding Comments

Let me conclude by briefly summarizing. Very much like the high tech industries we are discussing today, antitrust analysis is ever evolving. The beauty of antitrust laws is that they lay down general principles but allow for flexible interpretation that makes them powerful tools in industries that could not have even been imagined when the laws were initially written. Antitrust analysis has relied on Bertrand and Cournot models and their economic implications for a long time, it is time to add to our toolkit and think of additional models such as the bargaining model I discussed today. This will allow us to continue to promote competition and benefit consumers in a dynamic marketplace.