Economics Roundtable

Testimony before the Antitrust Modernization Commission

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Introduction

Thanks very much for the opportunity to appear here today. I am Daniel Rubinfeld, the Robert L. Bridges Professor of Law and Professor of Economics at the University of California Berkeley. I have taught at Berkeley since 1983, and during that time I have served twice as Associate Dean and Chair of the Law School's Program in Jurisprudence and Social Policy. I have previously served as Co-Editor of the International Review of Law and Economics, and am currently the President of the American Law and Economics Association.

I have long been interested in industrial organization, antitrust, and competition policy. However, my writing focused on antitrust policy during and following my years as Deputy Assistant Attorney General for Economics (June 1997 through December 1998). I have also been active as a consultant on antitrust issues generally and on mergers specifically, serving on numerous occasions as an expert witness for the Antitrust Division, the Federal Trade Commission, and private parties. I have also lectured extensively for the Federal Judicial Center on the use of statistical methods by the courts. My recent teaching has focused on antitrust law and economics and the use of quantitative methods in law.

The Commission has posed several questions relevant to the use of economics in merger analysis. In the testimony that follows, I offer commentary on a number of those questions. My thoughts rely heavily on my own personal experiences as an antitrust enforcer, as a consultant, and as a teacher. They also draw heavily on a number of articles that I have authored or co-authored in the past decade. With respect to empirical methods generally, I am referring to Baker and Rubinfeld (1999); with respect to the Merger Guidelines, Rubinfeld (2000), and with respect to merger simulation, I rely on Epstein and Rubinfeld (2001, 2004).

Following some initial commentary about the Merger Guidelines, I have organized my comments into three substantive topics, market definition, market power, and anticompetitive effects.

Horizontal Merger Guidelines

Both in my role as antitrust enforcer and as a consultant and expert witness, I have found the Guidelines generally to be extremely helpful, in providing an overall framework for merger analysis, and in a number of situations in offering a specific roadmap for analysis.

Consequently, it is sensible and sound policy to continue to continue to rely on the Guidelines in most cases. However, like any roadmap that offers broad principles, there are occasions in which the Guidelines should be given less weight. Two such examples are (1) the use of market definition in unilateral effects cases, and (2) reliance on current measures of concentration in mergers involving dynamic markets. While these topics offer some potential areas for improvement in the Guidelines, I do not believe that they warrant the extensive effort that would be needed to undertake a revision at this time.

Should Merger Policy be More or Less Aggressive?

Any particular level of agency enforcement is likely to generate both Type 1 and Type 2 errors. The former arises when there are mergers that are blocked that are socially desirable, while the latter occurs when the agencies fail to block an acquisition that is socially undesirable. Because it is difficult to evaluate the magnitude of these errors, it is not easy to know with any certainty whether a more aggressive policy would improve social welfare. From my personal viewpoint, the balance that was achieved during my tenure in the Clinton Administration was appropriate. Some have argued that there has been excessive enforcement, citing as evidence the fact that the agencies have had mixed success in court. This argument misses the point; if the agencies only brought cases with a high probability of success, the social cost of Type 2 errors would be too high.

Market Definition

The exercise of market power requires that the firm or firms involved (collectively) face a relatively inelastic demand curve for a product at "competitive" prices. Only then can it be profitable for firms to raise price by reducing output. It is appropriate, therefore, as the Guidelines suggest, to focus initially on demand when defining relevant antitrust markets. Whether demand substitution is sufficient to prevent the exercise of market power will depend on the extent to which consumers will substitute away from the product or products at issue in the event of a price increase by a hypothetical monopolist. It is well known that the relevant substitution information is given by the own-elasticity of demand. However, there are a number of situations in which it can be very useful to identify the set of products that must be controlled to generate market power. In these situations, information about the relevant set of cross-price elasticities can be highly informative.

Can One Identify and Estimate Market Demand?

Identifying and estimating the relevant demand elasticities can be a difficult exercise. It is thought by some that such an exercise can only be accomplished when evaluating mergers in industries that generate substantial micro-level data, such as IRI or Nielsen scanner data. However, as Baker and Rubinfeld (1999) have described in detail, this is not the case. There are numerous methods for identifying demand, some of which do not require extensive data. Moreover, even in situations in which past experience is not sufficient to allow one to identify demand, conjoint survey methods offer a potentially valuable alternative approach.

Is the Hypothetical Monopolist - SSNIP test -Useful?

Yes. I have found the test to be valuable in a treating a number of mergers during my tenure at the Antitrust Division. As a private consultant, I have also used the hypothetical monopolist exercise on a number of occasions. For example, in litigation surrounding the acquisition by Kraft of the Nabisco cereal assets, I used the Guidelines' framework (coupled with an extensive econometric analysis of demand) to explain to the Court why the appropriate relevant market should be seen to be (at a minimum) the market for ready-to-eat breakfast cereals rather than a narrower "adult" cereal market.

There are, of course, situations in which a complete SSNIP test approach is not workable, because of data limitations or because the market is so highly differentiated that there is no clarity as to the order in which products should be added if the initial hypothetical relevant market is not sustainable. While a good deal has been written about this subject, the Guidelines are largely silent.

Even when a full implementation is not possible, the Guidelines teach us to be careful in evaluating documentary evidence or evidence obtained by surveys. Marketing studies are often informative with respect to the list of possible products that might be included in a relevant market, but it is only occasionally the case that such studies offer sufficient information about demand elasticities to be of immediate, direct use. Similarly, posing direct questions to consumers as to whether they would switch in response to a hypothetical price increase, without the context and implicit budget constraint that is part of a conjoint study, does not usually offer the best information about demand substitution.

Is the Guidelines Market Definition Useful in Section 2 Cases?

The Merger Guidelines pose the question of whether a single, profit-maximizing firm controlling a candidate market would raise price from the competitive level by a significant amount for a non-negligible time period. In merger situations, the competitive level is usually the *prevailing level*, except, for example, if the industry is currently coordinating prices at a monopoly level. In Section 2 cases in which a firm may have monopoly power, it is necessary to consider raising price from the "competitive" and not the "monopoly" level. However, because it is often difficult to specify the competitive level, a full, complete Guidelines analysis of market definition is difficult. Nevertheless, I find the use of the Guidelines framework to be valuable in Section 2 cases, since the Guidelines ask the right questions and focus the analysis on the shape of the market demand curve.

Market Power

Market power can be ascertained through a combination of indicators, including (i) profit margins; (ii) market shares; and (iii) barriers to entry. A fourth alternative, overall

profitability is difficult to utilize because it is difficult to translate accounting measures of profitability into useful economic measures (see Fisher and McGowan (1983)).

An examination of barriers to entry, as proposed by the Guidelines, is essential if one is to evaluate market power. While further development on this subject is clearly needed, especially in distinguishing those expenditures that are sunk from those that are not (the basis for distinguishing committed from uncommitted entry), I believe that the Guidelines' framework fosters sound policy.

Do Profit Margins Provide Useful Indicators of Antitrust Market Power?

The use of profit margins can be valuable, but profit margins must be used with care. The potential confusion arises between the textbook use of the term and the use of the term in merger and other antitrust analysis. In Pindyck and Rubinfeld (2005), I define market power for pedagogic purposes as arising when there is a gap between price P and marginal cost MC. The Lerner Index, (P-MC)/P, is used as an indication of market power. The index is useful in merger analysis because it serves as an important element in a unilateral effects analysis. One uses the fact that in Bertrand equilibrium with differentiated products the Lerner Index is equal to the inverse of the elasticity of demand facing a firm to infer demand elasticities; if we know the demand elasticity, we can infer the relevant marginal cost. Alternatively, if we know the marginal cost (or we can calculate it from accounting data), we can infer the relevant elasticity of demand (see Epstein and Rubinfeld (2004) for a discussion).

However, the price-cost margin does not in itself offer a useful measure of market power for antitrust purposes. As my textbook explains, many firms have relatively high price-cost margins, yet little or no market power in the antitrust sense. This is particularly true in high-fixed cost, low variable cost industries, including high technology, where incremental costs are low and profit margins are high (to cover the fixed costs). What is particularly important, but difficult to ascertain, is whether the price-cost margins are sufficient to allow the firm to invest in R&D and to earn a risk-adjusted competitive return (see Fisher (1987) for further elaboration).

Are Measures of Concentration, such as HHIs, Useful in Merger Analyses?

As a general rule, I believe that the Guidelines place appropriate weight on measures of concentration. Some have criticized the Guidelines because the cutoffs proposed by the Guidelines do not offer an accurate description of the likelihood that the enforcement agencies will intervene to block a merger or to negotiate a consent decree. To my mind, however, the cutoffs are not meant to be predictive, they are meant to give guidance. It is well known that a merger whose HHI and delta (the change in the HHI) fall below the cutoff is very unlikely to be challenged. It is also known that the likelihood of challenge is greater the greater the HHI and in particular, the greater the delta (see FTC (2004) and Coate and Ulrick (2005)).

It is sometimes thought that measures of concentration are useful only with respect to the analysis of coordinated effects, and not to unilateral effects analysis. My work has convinced me that this is not the case. Concentration can also matter in the evaluation of unilateral effects. Other things equal, the more concentrated the industry, the greater the predicted price increases that would be generated from the merger, absent efficiencies, repositioning, entry, etc. Of course, other things are not always equal. With a relatively large market demand elasticity, and/or a number of relatively low cross-price elasticities, even mergers in concentrated industries may generate small predicted price effects.

In sum, I see no reason to change the Guidelines at this point in time.

Should Concentration Measures be Used in Dynamic Industries?

Merger analysis should be forward looking, even if it is based on historical trends and current snapshots. The Guidelines make this clear. In dynamic, innovative industries, in which market shares are changing rapidly over time, and entry is likely, current and historical market shares are likely to provide a poor indication of future competitive effects.

The key is not to drop the use of concentration entirely, but rather to put it into proper context. If the industry is one in which innovation is generating new products that are likely to provide significant competitive pressure on existing products, the firm that is expected to put new products into the market place should be given greater significance than historical concentration measures would suggest.

It is essential that the antitrust authorities and courts account for the dynamics of markets, taking into consideration recent evidence concerning technology, innovation, and firms' competitive strategies. As a general rule, they have done so, although there is always room for improvement, as economic evidence continues to inform the issues. Rubinfeld and Hoven (2001) provides supporting evidence. The article points out that The Intellectual Property Guidelines gives serious and substantial treatment to both technology and innovation markets. We also explain that the Horizontal Merger Guidelines offer guidance as to how to incorporate innovation and technology issues into analyses of market definition, market concentration, entry, and competitive effects. We further note that the Division has utilized models of Schumpeterian competition as well as insights from the literature on innovation management and evolution in its merger work. The analysis of the proposed Lockheed-Northrop merger (which was blocked by the Antitrust Division) offers a particularly interesting example of a case whose theory was driven by considerations of dynamics and innovation.

There is an important qualifier here. The fact that a market is innovative and dynamic should not give a merger a free pass. It is appropriate to ask whether the merger will cause the new entity to have durable, lasting market power that could lead to sustainable high prices. A dominant firm in an industry with barriers to entry, that has had stable, high market shares, is a firm that may have had market power in the past. (We need to ask further whether there are substantial barriers to entry, whether prices are above

competitive levels, and whether the firm has the ability to exclude rivals.) If that firm is making an acquisition, it is relevant to ask whether that stability and dominance can be expected to continue in the future; indeed it is particularly appropriate to ask on the one hand whether the firm that is being acquired would have threatened the dominance of the acquiring firm, and on the other hand, whether other firms in the industry are likely to offer superior products or services with the potential to undermine the market power of the dominant firm.

The recent acquisition of MCI by Verizon provides a useful case in point. I recently offered testimony for Verizon to the California Public Utilities Commission. Verizon has historically had high market shares of local landline telephone service within its own footprint in California. However, recent innovations leading to new products and services have changed the competitive landscape significantly. And, there are likely to be even more significant changes in the future. In addition to PCS and cellular service, those new products include Internet telephony (VOIP) among others. While a measure of current concentration may have appeared to be a useful indicator of market power, in fact it was not. Furthermore, there is no doubt in my mind that these innovations and new product introductions will change the relevant antitrust market, if they have not done so already.

Should Concentration be Treated Differently in Network Industries?

My answer is yes. In network industries, concentration brings with it both benefits and costs. It is quite possible that a dominant firm in a concentrated industry can generate substantial benefits that flow from control over a large network. One might be tempted to conclude that increased concentration is pro-competitive, since consumers benefit from access to the network. However, those benefits may be short lived. A merger that increases concentration in the network industry could substantially reduce the ability of other firms in the same industry to compete for the network. Thus, two firms of equal size may generate smaller short-run network benefits, but the two firms may compete aggressively for the network. That network competition, in turn, could be an important source of innovation in dynamic industries.

How Should Buyer Power be Treated?

Merger analyses involving sellers tend to pay little or no attention to the possible countervailing effects of buyer power. That power can be exhibited either as pure bargaining power, or as monopsony power. In the former case, the buyer is able to bargain to get a larger share of the economic rents associated with a particular transaction, without any necessary efficiency consequences. In the latter case, there are efficiency implications. Here the average expenditure on a product or service increases as the quantity purchased increases, and the marginal expenditure lies above the average. In the absence of seller market power, a buyer merger that increased monopsony power could be anticompetitive. However, the presence of a buyer with monopsony power could be a countervailing force against the market power of the merged seller. The U.S.

government as a defense procurer and Wal-Mart as a buyer of consumer goods, offer two examples of substantial buyer power.

Competitive Effects

The Guidelines appropriately distinguish between analyses involving coordinated effects and unilateral effects. I believe that this is a useful analytical distinction. That it has proven to be useful is evidenced by the fact that the agencies have successfully pursued Clayton §7 and FTC §5 cases under both theories.

There is more case law relating to coordination cases, and the economics appears to be relatively uncontroversial. However, the economic issues relating to unilateral effects are more controversial, and the case law is less extensive. Consequently, I will limit my remarks to issues relating to unilateral effects.

Is Market Definition a Necessary Prerequisite for a Unilateral Effects Analysis?

As a matter of economics, I believe that the answer is no. To see why, suppose that one is using a merger simulation methodology to predict the unilateral effects of a merger. To undertake such an analysis, one needs (among other things) a list of products that are sufficiently related to the merged products to be taken into consideration as possible generators of or counterbalances to unilateral effects. Apart from the demands that this might place on the econometrics of demand estimation, there is no reason that this "competitive set" cannot be larger than the list of products that might be determined to be in the relevant antitrust market. If the list is indeed larger, then there will be a number of cross-price elasticities that are sufficiently low so that no significant price effects will result. But, this will not bias the merger simulation analysis.

Undertaking a market definition exercise can be useful in some unilateral effects cases, if only because the Guidelines approach to market definition offers a constructive means by which one can determine the set of products that should be considered to be in the "competitive set." However, the results of an appropriately undertaken merger simulation should not be sensitive to the decision as to whether to include a particular product in a relevant market or not.

If the Relevant Market Contains a Large Number of Products, Can One Necessarily Conclude that there Are Likely to be No Significant Price Effects?

The answer is no. The Guidelines make it clear that what is particularly important is the degree to which the merging products are "close." Even if the set of merger products in a market is large, the merger of two closely related products can generate substantial unilateral effects. In the cereal merger discussed previously, I concluded that the relevant market (all ready-to-eat cereals) contained over 200 products (brands). Nevertheless, until I conducted a merger simulation and a number of other analyses, I could not be certain that there would not be a significant price effect because of a close relationship

between Nabisco Shredded Wheat and Post Grape Nuts. In this particular case, I ultimately found no significant unilateral effects.

Is Merger Simulation a Reliable Methodology?

In recent years, the technique of "merger simulation" has emerged as a promising framework for unilateral effects analysis, thanks to the efforts of Greg Werden, Luke Froeb, Jerry Hausman, and others. Simulation uses economic models grounded in the theory of industrial organization to predict the effect of mergers on prices in relevant markets. There is a common theoretical core to all simulation approaches in use today, although the details of a given simulation will depend on data availability and on the mathematical characterization of the market or markets at issue.

In addition to the work at the FTC and DOJ, there is growing use of merger simulation by enforcement agencies around the world. I have personally been involved (with co-author Roy Epstein) in producing merger simulation software for the EU Directorate of Competition. Simulation has played a significant role in actual merger reviews by a number of national competition authorities.

Recently, merger simulation has been criticized by a number of commentators on a variety of grounds, including: (i) it is biased towards finding significant price effects; (ii) it is difficult to apply in practice, in part because its data needs are substantial; (iii) it generates predictions that are not necessarily accurate; and (iv) it relies heavily on certain assumptions about market structure.

Merger simulation is not a panacea for all of the economic issues that arise in difficult transactions. It should not be the sole basis on which one should rely in evaluating a merger. Documentary and testimonial evidence should play a substantial role as well. Nevertheless, merger simulation is a potentially valuable tool, which should continue to be improved and evaluated by the agencies and by industrial organization scholars. Merger simulation not only allows one to make price predictions, it can also be used to evaluate the likelihood that potential merger-specific efficiencies are sufficiently great to offset predicted price increases. Simulation can also be of value in analyzing the competitive effects of product repositioning, and de novo entry. Furthermore, simulation can help one to evaluate the adequacy of proposed divestitures. Finally, simulation can be useful in the market definition exercise -- the simulation of a hypothetical merger to monopoly offers information concerning the ability of a hypothetical monopolist to profitably raise price.

While some of the criticisms of merger simulation have merit, many are overstated or in error. First, there is no bias in a properly designed simulation. Second, the data needs are not insurmountable; the more theory that one puts into the analysis, the lesser the data requirements for a successful simulation. Third, it is possible to generate confidence bounds around simulations.

Fourth, most merger simulations rely on comparative static analyses associated with Bertrand equilibria. There is no reason in principle, however, that simulation methods cannot be applied under alternative behavioral assumptions. Suppose, for example, that a merger is likely to change the structure of competition, perhaps making one firm sufficiently dominant that a Stackelberg framework is more appropriate than Bertrand. Specific price predictions will be difficult using traditional merger simulation tools. However, we will know that the merger simulation predictions are likely to be conservative. Suppose also that we are uncertain as to which behavioral assumption is valid. Merger simulation can still be of use because it can be used to generate a range of post-merger price predictions based on a variety of behavioral assumptions.

Merger simulation is a technique that can and should be improved through improved methodology and through the empirical evaluation of actual mergers. It would also be useful to do post-merger price studies, using scanner data for example. These efforts should be encouraged, not discouraged by the antitrust community.

Conclusion

Thanks very much for the opportunity to present my thoughts to the Commission.

References

Baker, Jonathan B. and Daniel L. Rubinfeld (1999), "Empirical Methods in Antitrust Litigation: Review and Evidence," *American Law and Economics Review*, Fall, pp. 386-435.

Coate, Malcolm, B. and Shawn W. Ulrick (2005), "Transparency at the Federal Trade Commission: The Horizontal Merger Review Process: 1996-2003," Bureau of Economics, Federal Trade Commission, February.

Epstein, Roy and Daniel L. Rubinfeld (2001), "Merger Simulation: A Simplified Approach with New Applications," *Antitrust Law Journal*, Volume 69, No. 3, December, pp. 883-919.

Epstein, Roy and Daniel L. Rubinfeld (2004), "Merger Simulation with Brand-Level Margin Data: Extending PCAIDS with Nests," *Advances in Economic Analysis & Policy*: Vol. 4: No. 1, Article 2, Berkeley Electronic Press, March.

Fisher, Franklin M. (1987), "On the Misuse of Profit-Sales Ratios to Infer Monopoly Power," *Rand Journal of Economics*, Vol. 18, Autumn, pp. 384-396.

Fisher, Franklin M. and John McGowan (1983), "On the Misuse of Accounting Rates of Return to Infer Monopoly Profits, *American Economic Review*, Vol. 73, March, pp. 82-94.

Federal Trade Commission (2004), "Horizontal Merger Investigation Data, Fiscal Years 1996-2003," February 2, revised August 31.

Harkrider, John and Daniel L. Rubinfeld, eds. (2005), *Econometrics: Legal, Practical, and Technical Issues*, ABA Antitrust Section.

Pindyck, Robert S. and Daniel L. Rubinfeld (2005), *Microeconomics*, 6th Edition, (New York: Prentice Hall).

Rubinfeld, Daniel L., "Market Definition with Differentiated Products: The Post-Nabisco Cereal Merger," *Antitrust Law Journal*, Vol. 68, No. 1, 2000, pp. 163-185.

Rubinfeld, Daniel L. (1998), "Antitrust Enforcement in Dynamic Network Industries," *Antitrust Bulletin*, Fall-Winter, pp. 859-882.

Rubinfeld, Daniel L. (2001), "Innovation and Antitrust Enforcement" (with John Hoven), in Jerry Ellig, ed., *Dynamic Competition and Public Policy: Technology, Innovation, and Antitrust Issues*, (New York: Cambridge), pp. 65-94