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NEW ANTI-MERGER THEORIES: A CRITIQUE

Edward J. López

Does recent federal merger regulation make economic sense? Merger activity has clearly increased this decade, both in the numbers of mergers and their market value. Whether antitrust regulators have responded with a proportional increase in enforcement is up for debate. What is clear, however, is that regulators at the Department of Justice Antitrust Division and the Federal Trade Commission have begun to enforce merger laws in innovative ways. These innovations have developed not in academic literature but within government agencies themselves. “Innovation market” analysis evaluates a merger between technologically advanced firms based on the effects of the merger on research and development in the relevant market. “Unilateral effect” analysis evaluates a merger on the ability of the merged firm to singularly influence price in the relevant market. These instruments—which I explain in detail below—have been employed explicitly and implicitly in dozens of antitrust cases and investigations since 1993. They have been observed as the intellectual force supporting the current revival of antitrust enforcement (*The Economist* 1998b, Price 1997). And regulators have accepted them seemingly wholesale as sound guides to policy action.

The purpose of this paper is to evaluate these new anti-merger instruments on the basis of economic theory and evidence. I first discuss how the economics of antitrust has developed over the years, with the intention of characterizing the intellectual inheritance of 1990s’ antitrust regulators. Within this context, I then discuss each anti-merger instrument, how it has been applied in specific cases, and how it accords with underlying economic science. On the basis of these arguments, antitrust regulators should pause and reconsider the

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theoretical and empirical bases of applying unilateral effects and innovation markets to merger investigations.

The Economics of Antitrust

Early Theory

The economics of antitrust originates with the structure-conduct-performance (SCP) paradigm founded in the late 1940s and early 1950s (Mason 1939, 1949; Bain 1956). The SCP approach underlies the basic microeconomic model taught in principles textbooks today. Industries are situated on a continuum between the fictional extremes of perfect competition and perfect monopoly. Industries which fall closer to perfect monopoly are more “concentrated.” Competitive industries exhibit low prices and high quantities, and produce the highest possible benefits to society—i.e., they are efficient. Monopolies exhibit high prices, low quantities, and socially wasteful allocations of resources—i.e., they are inefficient. In short, once the *structure* of an industry is defined (where on the continuum the market falls), the *conduct* of the firms will also be defined (price and quantity selections), and, as such, the *performance* of the industry can be determined (whether the market is good for society). Indeed, the SCP approach yields a central conclusion: The degree to which an industry departs from the model of perfect competition—as measured by industry concentration—determines the departure from the societal ideal. In other words, the theory concludes that there is a negative correlation between industry concentration and the societal welfare produced by that market.

This was truly a monumental theoretical achievement, as the prediction distilled decades of academic discourse, building upon the intellectual inheritance of two centuries of economic thought, into a single statistic. Federal regulators had merely to devise a method by which to measure concentration, and apply the benchmark to real markets. By far the dominant statistic still in use until the 1980s was the four-firm concentration ratio (CR4), in which the market shares of the four largest firms in the industry were added together. Occasionally broader concentration ratios were used, such as CR6 or CR8. A merger that would significantly increase the CR statistic was thought to create monopolistic market power, enabling the new seller to raise price well above cost, which caused social inefficiencies and justified enjoinder of the merger. But the CR statistic, without theoretical justification, ignored all but the largest firms. In the 1980s, a less arbitrary measure was adopted by federal regulators. The Her-

findahl-Hirschmann Index (HHI)—the sum of all firms' squared market shares—measured concentration of the entire industry rather than just the largest firms. The HHI ranges from near zero to reflect perfect competition (large number of firms each with infinitesimal market shares) to 10,000 indicating perfect monopoly (a single firm with a 100 market share). The HHI embodies the SCP approach in a single statistic, and has also become a central tool (though not the only one) of antitrust enforcement. Currently, the federal government's official merger guidelines classify any merger resulting in an HHI above 1,800 to be highly concentrated.¹

Bringing Down the SCP Paradigm: Chicago Political Economy

The legitimacy of the SCP approach, particularly in its reliance on a single statistic, came under criticism with the maturing of the economics profession. Scholars affiliated primarily with the University of Chicago, but also UCLA and the University of Virginia, amassed a body of theory and evidence known as Chicago Political Economy that delineated a richer picture of the market. The essence of Chicago Political Economy is twofold.² First, the approach emphasized the characteristics of the individual firm (rather than the industry as a whole), particularly the cost structure and its implied competitive stature. Despite a firm's proclivities toward monopolization, the forces of competition, determined by industry cost structure, imposed constraints on attempts to monopolize. This greatly enhanced economists' understanding of the market's ability to achieve efficiency on its own. Second, Chicago Political Economy emphasized the incentives that the legal structure imposed on rational, cost- and benefit-calculating firms and individuals. An arbitrarily defined antitrust environment, for example, would undermine the stability of the incentives that firms face and lead to new inefficiencies. These two pillars, while an oversimplification of Chicago Political Economy, created a theoretical infrastructure to which the SCP approach compared as atheoretical, descriptive, and arbitrary, rather than analytical and objective. The effect was to undermine the SCP inferences regarding empirical observations of the market. Early empirical research under the SCP paradigm, for example, showed that when CR4 increased above 40 percent, prices began to rise significantly. In similar fashion, profits were shown to rise significantly between CR4 of 45 percent

¹See the merger guidelines, U.S. Department of Justice and Federal Trade Commission (1992: sec. 1.5).

²Chicago School economics is perhaps most comprehensively gathered in Posner (1992). See also Stigler (1966) and Bork (1978).

and 59 percent. Within these ranges, antitrust enforcement was justified and typically pursued. However, these correlations were soon criticized under the Chicago theoretical apparatus. Rising profits were now viewed as the result of economies of scale producing falling short-run costs, not monopoly pricing.

Chicago Political Economy took the threat of monopolization seriously and contained scope for monopoly behavior to manifest itself both theoretically and in practice. But the approach forced analysts to consider the broader competitive environment of an industry as determined by the cost structure of the firms in the market, not simply the number of firms or the concentration of the market, before pronouncing judgment. Industry structure was still a key to the economics of antitrust, but a single statistic such as the CR4 or HHI would be insufficient for establishing an antitrust concern. You also have to search for the balancing effect of economies of scale.

The Virginia School

The enforcement of antitrust came under scrutiny with the application of public choice theory to the FTC and DOJ. Antitrust law had always been justified by its stated objectives of protecting consumers and the public interest. Few ever seriously questioned this until, in the early 1970s, economists of the Virginia School began to investigate the origins and effects of antitrust.³ In Virginia Political Economy, political agents are best characterized using the same rational choice theoretical bases used to explain economic agents. When applied to antitrust regulators and congressional overseers, this approach achieved a superior explanatory and predictive theory of the way antitrust worked in practice. The vaunted public-interest standard was difficult to detect in empirical studies of actual policy decisions. Antitrust was never intended to achieve, nor did it engender, an enhanced competitive market.⁴ According to the Virginia perspec-

³The Virginia approach to antitrust is best exemplified in the collected volume by McChesney and Shughart (1994). See also, however, Mackay, Miller, and Yandle (1987). Virginia scholars have criticized Chicago Political Economy for seemingly inexplicably upholding a public-interest theory of the intents (though not effects) of antitrust. See, e.g., McChesney (1991). In an interview with Thomas W. Hazlett (1984), George Stigler had praise for antitrust, saying the Sherman Act is “a public interest law . . . in the same sense in which I think having private property, enforcement of contract, and suppression of crime are public-interest phenomena . . . I like the Sherman Act.”

⁴See Stigler (1985) on the origins of the Sherman Act, and Ekelund, McDonald, and Tollison (1995) on the origins of the Clayton Act. For a more recent treatment of the private interest origins of antitrust statutes, see Ramírez and Eigen-Zucchi (2001). On the private-interest effects of antitrust, see the survey by Tollison (1985).

tive, antitrust was intended for, and achieved, a suppression of competition in order to redistribute wealth from relatively competitive firms to their less competitive rivals (e.g., Faith, Leavens, and Tollison 1982). As such, rather than creating societal benefits, antitrust enforcement was socially costly, and ought to be pursued selectively if at all (Shughart and Tollison 1991).

Combined with the rigors of Chicago Political Economy, the Virginia critique undermined the validity of antitrust enforcement in a manner from which it would prove difficult to overcome—at least intellectually. Not only would regulators' economic analysis be scrutinized but also their stated objectives vis-à-vis the actual effects of their enforcement.

The Theory of Contestable Markets

The economics of antitrust underwent another phase of development with contestable market theory in the early 1980s. The theory of contestable markets offered yet a more dynamic view of competition. Industry structure would still determine the competitiveness of the market, as with the SCP and Chicago approaches. Moreover, costs would primarily define the structure of the market, as with the Chicago approach. However, contestable market theory showed unambiguously that concentration—i.e., number of firms in the market—has little to do with industry structure, a feat that eluded Chicago economics. Moreover, the analysis would extend to multiproduct firms, an obvious empirical challenge with which Chicago economics did not contend. The boldness of these advances created great controversy, but ultimately widespread acceptance, about the theory of contestable markets.

The central element of the new theory became focusing primarily on the conditions of entry and exit to the market. The SCP paradigm had no explanation for *why* an industry would be concentrated. It was a descriptive story rather than an analytical theory. The contestability approach, on the other hand, rigorously specified the alternative conditions under which a prediction of competitive behavior will emerge. Specifically, if the incumbent producers in a market face competition either from existing firms or potential entrants, then the incumbent producers will price competitively. Even if there is only a single incumbent producer, prices will still be competitive if there remains the threat of competition from potential entrants into the market. Therefore, the conditions of entry and exit, not concentration, define industry structure. And, in turn, free entry and exit are defined by the absence of sunk costs to entering the market. Researchers in contest-

able market theory have shown that only under highly restrictive conditions, in which a secondary market for start-up costs does not exist, will sunk costs be significant enough to make entry and exit prohibitive. Hence, only under highly restrictive conditions will an industry structure that is conducive to monopolistic pricing behavior actually prevail.⁵

The implications of the contestability approach for antitrust were profound. Concentration mattered very little to determining the competitiveness of an industry. Even a single producer could behave as if it were in a perfectly competitive market, so long as free entry and exit ensured that it faced competition from potential challengers. The definition of monopoly that was acceptable to economic theory was now quite restrictive, even more so than under a Chicago approach. As a result, the intellectual scope for antitrust enforcement narrowed still more.

The Theoretical Inheritance of 1990s' Antitrust Enforcement

In the face of a superior theory of markets and also a superior theory of politics, the SCP approach so friendly to activist antitrust enforcement was severely undermined. In its place stood a rigorous theory of the market, which improved economists' understanding of competition and monopoly. When applied to actual markets and consistently interpreted, antitrust economics typically denied the presence of an antitrust concern. Moreover, under public choice theory, antitrust was subject to the scrutiny of the institutional environment that structured the individual regulator's incentives. The bottom line at the beginning of the 1990s was a narrow scope for antitrust, relative to decades past.

In order to increase that scope, to revive antitrust, activists might attempt to resurrect the validity of the SCP paradigm. But such an attempt would likely fail to gain legitimization: 30 years of a maturing body of research stood in its way. Alternatively, activists may attempt to create something new, a different theory. It is apparent that "unilateral effects" and "innovation markets" serve this purpose.⁶ Each of

⁵For the seminal contribution to contestable market theory, see Baumol (1982). For a review of this theory, see either Spence (1983) or Brock (1983). The founders of the contestable market approach have gathered their research in a collected volume, Baumol, Panzar, and Willig (1988).

⁶It should be noted that other innovations have been introduced to antitrust enforcement in recent years. The DOJ's Sherman Act case against Microsoft, for example, makes heavy use of "path dependence" terminology, as well as network externality and systems market theory pioneered by economists Michael Katz and Carl Shapiro (1994). Also, game theory models of strategic behavior, specifically non-price predation such as "raising rivals' costs"

these is an attempt to adopt what resembles a new theory, so as to support activist antitrust enforcement. But I intend to show that neither is analytically different from the SCP approach, and therefore cannot be justified in light of modern economic theory. With each in turn, I will put forth its basic description, an illustration of how the FTC and DOJ have used it in practice, and a critical assessment to argue that such usage is misplaced.

Innovation Markets Analysis

Innovation market analysis identifies a market as anti-competitive where a market does not even exist. According to the 1995 Antitrust Guidelines for the Licensing of Intellectual Property, an innovation market is defined as “the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development.”⁷ In other words, the “product” of an “innovation market” is the R&D of future goods. Supporters of antitrust activism have emphasized the market is increasingly technologically sophisticated. As more industries become technologically based, and as technological markets represent more of the economy, a competitive environment in technology markets becomes more important to social efficiency. Increasingly, regulators have emphasized the potentially anti-competitive aspects of innovation in the markets they investigate.

Innovation Markets in Practice

Antitrust regulators have begun to use the idea of “innovation markets” to evaluate proposed mergers. If a merger threatens to make an “innovation market” anti-competitive, regulators could enjoin the merger on the logic that the new firm would have monopoly power in developing new technology for the downstream product market. Concentration in product markets now becomes less important to defining an antitrust market. With the “innovation market” approach, regulators can now justify enforcement where earlier approaches would not.

(Salop and Scheffman 1983, Coate and Kleit 1994) have been discussed by antitrust officials (though I cannot find explicit applications to actual cases). These other innovations lie afield from this paper’s purposes because (1) these theories are not readily applicable to horizontal merger analysis; (2) these theories, unlike innovation markets and unilateral effects, were first developed within economic science; and (3) discussing these other theories in responsible detail would increase the size of this paper to an impractical length.

⁷U.S. Department of Justice and Federal Trade Commission (1995: sec. 3.2.2).

The DOJ employed innovation market analysis as early as November 1993. A German heavy transmission manufacturer, ZF of Friedrichshafen, proposed to acquire General Motors' Allison Transmission Division. DOJ considered the relevant "innovation market" to be dominated by the two firms, and filed a complaint in the Federal District Court of Delaware, arguing that the merger would cause an "unacceptable concentration" of the innovation market for this particular sort of transmission. Soon after the DOJ filed its complaint, the firms abandoned the merger (Bingaman 1994).

Innovation market analysis officially became an element of merger review with the new Intellectual Property Guidelines in 1995.⁸ That same year, innovation market analysis was applied in the government's decision to enjoin the merger between Microsoft and Intuit. The two firms competed in the market for personal finance software, but the DOJ considered them to be competitors in new software developments. The benefits of this competition had been, up to that point, improved product quality and lower prices. But the DOJ argued that the proposed merger would have increased concentration unacceptably in both the product and innovation markets. Microsoft agreed to divest its Money software package to Novell, a move that would have deconcentrated the product market and likely cleared the merger under current antitrust theories. But the government argued that Novell would not be a forceful competitor in personal finance software, particularly in the innovation market.⁹ As a result, the benefits of superior products at lower prices were at risk. On that basis, the merger was enjoined.

Critiquing Innovation Markets

An "innovation market" as specified by the IP Guidelines is of dubious definition. Certainly R&D is an economic activity, in which firms try to minimize error and garner a profitable outcome. That is why R&D is a competitive process. But to characterize new technologies as the product of competition for innovations—in the same sense in which sport-utility vehicles are the product of competition for consumer dollars—is to mistake the meaning of markets. In truth, the process of R&D cannot be characterized as a market because exchange is absent. R&D is typically unilateral and private. In fact, it is usually rather secretive. A firm does not directly sell its R&D, and so

⁸U.S. Department of Justice and Federal Trade Commission (1995: sec. 3.2.2).

⁹U.S. v. Microsoft Corp. and Intuit Corp. "Complaint for Injunctive Relief Against Violation of Section 7 of Clayton Act," U.S. District Court, N. Calif., 27 April 1995.

gathers no revenues until successful innovations are introduced in the downstream product market. Only once the innovation is produced, marketed, and sold does a market develop. In short, the success of an R&D venture can be evaluated only after the fact. An “innovation market,” as defined by the government’s IP Guidelines, does not yet truly exist. An “innovation market” cannot be defined or measured, nor can its competitors be identified, nor can their respective degrees of market power be gauged. Such an analytical void is unhelpful and perhaps harmful. More specifically, it is too restrictive, analytically redundant, and inconsistent with the agencies’ principles of enforcement.

Type I Error. The use of “innovation market analysis” is highly prone to a Type I Error. In merger regulation, a Type I Error would be to reject a merger that was not really anti-competitive—for example, if the Microsoft-Intuit merger, blocked by DOJ, would have created net social benefits. Because innovation market analysis introduces inherent difficulties in trying to measure the competitiveness of a market that does not truly exist, antitrust regulators are especially prone to Type I Errors. Under innovation market analysis, then, antitrust would be biased toward imposing *net harm* on consumers. The reason is rather simple: because an innovation market does not truly exist, regulators cannot gather the information required to make a clear assessment of the “market” to make the right decision.¹⁰

For example, when looking at the production of R&D, how do regulators define the relevant market? The reality of R&D makes the problem acutely difficult because most R&D projects overlap into the innovation of several products. Companies are also notoriously secretive about their new products while still in development, making the outcomes of R&D nebulous until released. In fact, for this same reason even determining the participants—the relevant firms—in an “innovation market” is a dilemma. If regulators nonetheless justify some definition of the market and its participants, how are they then to measure the structure of the market? Firms do not generate direct sales from their research efforts, and market shares cannot be determined where there are no revenues. Measuring the share of R&D expenditures does not improve matters either. Again, a firm’s R&D budget goes into the production of many different innovations. Even two firms who clearly compete in a product market might produce entirely unrelated goods from simultaneous R&D efforts. There is no

¹⁰For a complete exposition of this argument, see Rapp (1995). A view supportive of innovation market analysis argues it is necessary to protect against Type II Errors, i.e., allowing anti-competitive mergers to proceed (Gilbert 1995).

consistent connection between R&D expenditures and new innovations that would compete in product markets.

It is difficult enough for antitrust regulators to estimate the competitive attributes of existing product markets. This new approach ignores the information problems associated with trying to estimate the competitiveness of a market that is not even there. Moreover, even if regulators are talented and diligent enough to define the relevant market, identify market participants, and determine market structure, there is no clear economic reason to expect concentration in R&D markets to be anti-competitive (Jorde and Teece 1990).

Analytical Redundancy. Using innovation market analysis to regulate a merger is redundant. Innovation market analysis already presumes that the merging firms will be competitors in the downstream product market. To see this, imagine a merger between two firms in an R&D-intensive industry. To invoke innovation market analysis, antitrust regulators must first assume the two firms are horizontally related in innovation. One possibility is that the two firms are then horizontal competitors in the downstream product markets. This would, in principle, adequately define an antitrust market. But it could be addressed using conventional merger analysis. The other possibility is that the firms are not downstream competitors, in which case there is no antitrust concern, even in innovation. The combined R&D efforts, after all, would span an array of product innovations, failing to overlap, and would therefore not retard innovation.¹¹ It is difficult to see what innovation market analysis adds: any case that would call for innovation market analysis can be adequately analyzed using conventional horizontal merger analysis, without inordinate risk of Type II Error.

Still, guarding against the Type II Error is a major reason cited for the relevance of innovation markets analysis. Rapp (1995) and Gilbert and Sunshine (1995) argue that the conventional “potential competition” doctrine of merger analysis cannot detect anti-competitive effects in innovation. But there is little agreement that the potential competition doctrine falters, allowing mergers that are actually anti-competitive to proceed. Instead, existing merger enforcement is biased toward the Type I Error, in a manner similar to the FDA’s bias toward disallowing new medical devices until they are proven inordinately to be safe and effective (Campbell 2000). Rather than a new theory, the innovation market approach is merely a weak substitute

¹¹One theoretical exception to this scenario that would create scope for antitrust concern is discussed by Addanki (1995). He notes, however, that this scope is narrow and chances for an actual antitrust concern are remote.

for the doctrine of potential competition. One seasoned antitrust economist testified that “in most applications, the innovation market approach is merely superfluous—a new way of talking about potential competition” (Rapp 1995: 20). The innovation market approach has been called a “stealth weapon” and a thin disguise for traditional analysis (Hoerner 1995). Absent any substantive contribution, innovation markets remains a superfluous, redundant tool for analyzing mergers.

Inconsistency with Underlying Principles of Enforcement. The innovation market approach violates the methodological strictures suggested by the antitrust authorities themselves. There are two clear examples of this. First, the central element of antitrust analysis is the estimation of market structure. Antitrust regulators clearly value the objectivity of quantitative measures of market power, such as the HHI statistic. But the innovation markets approach is inherently speculative. There is no actual good being produced and traded in an “innovation market.” There are no revenues on which to base a firm’s “innovation market” share. Hence, there is no basis upon which to construct an HHI or even something more basic such as a CR. It is even more ambiguous devising a measure of market structure that is consistent with contestability theory. Entry conditions cannot be established when the relevant market cannot be defined. The government betrays its own standards for enforcing antitrust when it embraces the vagueness and arbitrariness of attempting to objectively define and evaluate a market that does not actually exist.

Second, the innovation market approach is inconsistent with the underlying theory of harm put forth in the Horizontal Merger Guidelines (Widnell 1998). In the guidelines, social harm is created when industry structure imparts sufficient market power to one firm or a group of firms. But, as explained above, to measure industry structure in an innovation market is difficult if not impossible. An implication of the economic critique of innovation market analysis, therefore, is a subsequent legal critique. Since regulators cannot measure market power in an R&D setting, they cannot assert a social cost that is consistent with the Horizontal Merger Guidelines, and they cannot, therefore, legally enforce the Clayton Act’s provisions on horizontal mergers.

Unilateral Effects

The 1992 Horizontal Merger Guidelines describe the FTC’s and DOJ’s objectives in defining the relevant market for merger analysis. The stated policy is for the government to examine conditions under which an antitrust concern would be most likely to emerge. On the

one hand, the guidelines aim to evaluate mergers “within the context of economically meaningful markets.” However, “economically meaningful” is then apparently defined as a sufficiently narrow market such that the merged firm would necessarily possess market power (and, hence, the ability to exercise it).¹² The methodology of the 1992 guidelines, therefore, creates a bias toward narrowly defining relevant markets—indeed, toward such a narrow definition that there exist effectively no substitutes for the good in question, by which there is necessarily a monopoly producer. One important justification for narrowly defining the product market is the potential for so-called unilateral effects. This doctrine of analysis represents a second attempt to avoid the intellectual inheritance of 1990s’ antitrust enforcement, and to thereby broaden the scope for merger enforcement.

After defining the relevant market, investigators then try to detect the ability for merging firms to increase price. Exercise of market power is divided into coordinated and individualized actions among producers (in game theory, cooperative and noncooperative behavior). The unilateral effects doctrine represents the latter. The idea, as presented in the Merger Guidelines, is as follows. In certain markets, competitors do not produce direct substitutes for one another. Instead, these markets are characterized by product differentiation. However, not all products are equally differentiated—some may be closer substitutes for each other than for other goods in the market. Hence, competition among firms selling closer substitutes is greater than among firms selling more distant substitutes, even though they are all in the same market. In such a differentiated market, a merger between firms whose products are close substitutes would create market power, enabling the merged firm to *unilaterally* raise prices for their products above the pre-merger level. Moreover, greater substitutability between the products will result in a more severe price increase. With unilateral effects, certain mergers create market power even where collusion among producers is not sustainable.

Unilateral Effects in Practice

The FTC used the doctrine of unilateral effects to analyze the proposed merger between Guinness and Grand Metropolitan, two British conglomerates, in December 1997.¹³ The merged firm’s com-

¹²U.S. Department of Justice and Federal Trade Commission (1992: sec. 1.1.0).

¹³Though these companies are headquartered in London, the FTC found an antitrust concern because, for their purposes, the relevant geographic market was defined as the United States. The FTC announced that it worked in concert with antitrust authorities from the European Community, Canada, Australia, and Mexico on this case.

bined assets would total \$36 billion, spanning an array of well-known companies including Burger King, Pillsbury, and Guinness beers. Consistent with the Merger Guidelines, the FTC focused on the narrowly defined product markets in which the merging firms were close competitors: the premium gin and premium blended scotch markets. The top brand of gin in America at the time was Tanqueray, followed by Bombay and then Beefeater. The merged firm would have controlled the first two brands. In blended scotch, the top brand at the time was Dewar's, but Jonnie Walker and J&B were also popular brands. The merged firm would have accounted for all three. The FTC filed a proposed consent order on December 15, 1997, recommending the divestiture of the Dewar's and Bombay labels, respectively first- and second-best selling brands (Federal Trade Commission 1997). In drafting the consent order, the FTC defined the product market as "premium distilled spirits." Thus, when defining the relevant gin market, the FTC used only the top three brands. According to the government, therefore, the only reasonable substitutes consumers would have for the Bombay label of gin were Tanqueray and Beefeater. So if the prices among these three brands all increased, consumers would be unable to substitute into rail brands of gin (i.e., non-name brand) or other kinds of distilled spirits or alcoholic drinks. They would simply have to pay the higher price. Under such a narrow definition of the relevant market, Guinness and Grand Met combined to a 73 percent market share, and were found to be capable of unilaterally increasing price. Very similarly, the relevant blended scotch market was defined using only the top four brands, of which the two firms owned three and accounted for 92 percent of the market. Unilateral effects were predicted here as well. In March of 1998, the merged firm announced the sale of the Dewar's and Bombay labels to rival firm Barcardi International for \$1.9 billion. FTC Commissioner William J. Baer promptly hailed this as "a record sum in a government mandated divestiture" (Baer 1998).

In another high profile case, the unilateral effects doctrine was also applied in enjoining the merger between Staples and Office Depot in April of 1997. Here again, the key to the government's ruling was the definition of the relevant market. Despite there being many choices for consumers in purchasing office supplies, the FTC defined the relevant market as "office supply superstores" (Baer 1997). With Office Max representing the only other "superstore," this amounted to defining away most potential substitutes. The FTC ruled that the merger would cause an unacceptable concentration of this narrowly defined market in several of the defined geographic markets (metropolitan areas). Divestiture would not suffice. Even though the merg-

ing firms agreed to sell dozens of key stores to Office Max, the government recommended full injunctive relief on the grounds that the post-merger firm could exercise monopoly power, and that consumers would suffer from increased prices. The Court ruled in favor of the FTC and the merger was enjoined.

Critique of Unilateral Effects Doctrine

Similar to innovation markets, the unilateral effects doctrine is suspect on several fronts. Little if any direct theoretical support can be found for unilateral effects within economic science. Also, unilateral effects, similar to the old SCP approach, neglects the importance of potential competition and the dynamics of the marketplace. In particular, it fails to emphasize industry structure as a guide to merger analysis. And, finally, the doctrine has been applied in ways that are inconsistent with the motivation provided in the Merger Guidelines.

Weak Basis in Economic Theory. Unilateral effects analysis has very little direct basis in economic theory. Certainly there is a literature on product differentiation, and much of this is focused specifically on the antitrust implications of such markets. However, there is no published study detailing the economic theory behind the alleged phenomenon of unilateral effects. The reason is simple. Any journal editor today would reject such an article on the basis that the theory had been developed over 50 years ago. Unilateral effects describes nothing more than the ability of a firm to single-handedly influence market price without losing all of its sales. It is a simple argument that came into existence under the SCP paradigm and manifested empirically as CR statistics. As such, unilateral effects is no more justified by economic theory than the old SCP approach. Antitrust regulators have simply borrowed language from newer economics literature on strategic behavior to resurrect the SCP approach and to recreate a means of more narrowly defining relevant markets in order to more effectively argue, given the paucity of close and available substitutes, that market power would be exercised.

While it is true that the Merger Guidelines are explicit in saying that unilateral effects are intended for demand analysis, and that supply analysis of entry conditions is not to be neglected, recent judgments have weighed the demand evidence much more heavily. The FTC's brief in the Staples case, for example, had already reached its conclusions before the section on entry analysis. Contrary to the accepted tenets of modern antitrust economics, the conditions of entry are being treated as secondary, almost an afterthought, in the wake of seemingly impressive evidence that price effects would be likely. But again, the Merger Guidelines stress that price setting

power is not a sufficient condition for an antitrust concern. It is only a necessary condition. The ability to exercise market power successfully hinges on the ability to keep potential challengers from entering the market. The overemphasis on unilateral effects is to the neglect of truer measures of anti-competitiveness.

Unilateral Effects Represents a Retreat in the Economics of Antitrust. Along with the sophisticated appearances of the new theories of antitrust have come advances in the technology brought to bear on antitrust analysis. In particular, increases in computing power and ubiquitous use of point-of-sale checkout scanners have presented new opportunities for antitrust regulators. With scanners, retailers amass detailed price and quantity data on every item they sell. Better software and faster computers enable analysts at FTC and DOJ to organize these huge amounts of information and “let the data speak.” For example, in the Staples enjoinder, FTC attorneys used pre-merger scanner data to simulate the effects on post-merger prices. Using a cross section of prices in various metropolitan areas, analysts were able to use actual market data, rather than vague inferences based on concentration statistics, to evaluate the merger. Indeed, analysts detected an existing pattern in the pricing data. “Staples and Office Depot today charge higher prices in those parts of the county where they do not compete against each other and lower prices where they are rivals” (Baer, et al. 1997: 2, “Preliminary Statement”). Apparently, the appropriate inference is self-evident. “Since prices are significantly lower where Office Depot and Staples compete, eliminating their head-to-head competition will free the parties to charge higher prices” (Baer, et al. 1997: 25, sec. IV.A).

Several prominent antitrust observers have been rather taken by the sophistication and objectivity of this new, data-rich approach. In an article, “The Trustbusters’ New Tools,” *The Economist* (1998a: 63) reports, “For the first time, [regulators] have the ability to predict whether a merger will raise prices for consumers.” In a related editorial, *The Economist* (1998b: 16) notes, “Today’s competition authorities should be praised for judiciously putting their new economics to use.” Elsewhere, *CFO* magazine writes, “[Regulators] think they can make the heretofore invisible hand of competition quite visible” (Gross 1997: 87). FTC Chairman Robert Pitovsky (1997) joined the praise: “When such data is available,” he said, “it surely offers a more reliable description of the ‘competitive arena’ in which rivalry occurs than we have sometimes seen in past merger cases.” These are certainly impressive endorsements. But whether the Staples-Office Depot and Guinness-Grand Metro mergers were anti-competitive or not, using scanner data in this manner to support these sorts

of inferences is flawed in two fundamental ways. First, the approach abandons the importance of industry structure. Second, and more serious, the approach yields biased predictions of post-merger prices.

A constant in the maturation of industrial organization has been the centrality of industry structure to the competitiveness of the market. The legal rules, cost conditions, and entry concerns are all fundamental to whether a firm can exercise market power. Relying solely on empirical observations of current pricing patterns, without the theoretical context of the market's structure, is unfounded. In the Staples-Office Depot case, again, the FTC did not wholly ignore industry structure. Concentration ratios and HHIs were calculated for the relevant product and geographic markets, and the brief includes a minor section on the analysis of entry conditions. However, these elements of the brief are plainly treated as secondary. The FTC places its main emphasis on the scanner data analysis. *Before* the section that analyzes entry conditions, the brief reads: "In sum, the Court has direct evidence, buttressed by the parties' pricing and other documents, establishing that this merger . . . will result in the loss of present as well as future competition. The harm to consumers from a merger has never been so clear" (Baer, et al. 1997: 27, sec. IV.A.3). The FTC makes this conclusion based on concentration and the new scanner data. Entry conditions are an afterthought. Such a conclusion and the resultant judgment represent a retreat, not an advance, in the economics of antitrust. There is no explanation for why the pricing data appear as they do. There is no inquiry into whether the current or future conditions of the market will support the exercise of market power. There is only the apparently self-evident inference that patterns in today's scanner data will prevail tomorrow, and therefore the merger is anti-competitive. This analysis is counter to a central tenet of industrial organization: firms cannot be said to raise prices successfully unless industry structure is accounted for. Ignoring industry structure in this manner takes us back to descriptive and atheoretical criteria for antitrust enforcement, and reintroduces arbitrariness to the enforcement of antitrust, which further enables regulators to pursue private interests.

This new, real-world use of scanner data is even more seriously flawed in another way. The 1994 Nobel Prize in Economic Science was awarded to Robert Lucas for his development of the theory of rational expectations. Rational expectations theory acknowledges the forward-looking characteristics of markets, in particular suppliers and their pricing decisions. The most important implication of rational expectations theory is represented in a 1976 study that challenges the use of econometric data analysis to simulate the impacts of alternative

policy actions (Lucas 1976). Lucas argued that empirical data are the manifestation of underlying market relationships, but that these relationships would not remain stable in the face of a policy change. However, any simulation of alternative policy changes must implicitly rely on the underlying relationships remaining stable. The result, as Lucas showed, is systematically biased estimates of the effects of a policy change.

When applied to analysis of scanner data to evaluate a merger, Lucas's critique is no less damaging. The FTC inferred that, simply because Staples *currently* prices higher in markets where it does not face competition from Office Depot, any post-merger market with fewer suppliers would also feature monopoly pricing. Just like policy simulations before Lucas, the FTC's analysis implicitly relied on the assumption that the pre-merger underlying economic relationships would be stable and also prevail in the post-merger market. But the FTC cannot support this assumption because the brief fails to delve into these underlying economic relationships. For example, there is no explanation for why Staples and Office Depot compete head-to-head in certain markets but not others. There is no inquiry into the extent of alternative markets. There is no explanation for site selection in the industry and how the merger might affect that. There is only basic observation with the convenience of scanner data and its sophisticated facade. But applying Lucas's reasoning shows that these economic relationships, which the FTC ignored, will not remain stable beyond the merger. As a result, the FTC's estimation of the post-merger market is very likely statistically biased.

The use of new data sources can be used to support theories other than unilateral effects, but unilateral effects have been supported first. There are laudable and sensible reasons for pursuing better information of the marketplace. But the Merger Guidelines never explicitly cite sophisticated data gathering as grounds for an antitrust concern. The data must match an *underlying theory* of the market and a predicted effect of a proposed merger. Combined, the two criticisms above severely undermine the use of unilateral effects. The doctrine must be viewed as atheoretical, descriptive, and biased, rather than analytical, rigorous, and objective, which is what the Merger Guidelines call for.

Misapplication to Nondifferentiated Products. Finally, the Merger Guidelines explicitly discuss unilateral effects in the context of markets with differentiated products. Yet it is not at all clear that the approach has been applied in markets with differentiated products.

As stated earlier, unilateral effects are deemed a concern in markets that feature differentiated products. In such markets, horizontal

mergers can produce harm if the firms' products are close substitutes for each other. More importantly, the closer the substitutability of the merging firms' products, the more severe a price increase the merger will produce (all other things being equal). This is introduced in the Merger Guidelines, and is directly quoted with emphasis in the FTC's brief in *Staples*. But before any mention of differentiated product markets, the Merger Guidelines suggest defining the relevant product market as narrowly as possible. Let us see, then, how the use of unilateral effects would bear on a proposed merger. As a product market is increasingly narrowly defined, the scope for product differentiation is also increasingly narrowed. In such a narrowly defined market, the goods of two merging firms cannot be closer substitutes for each other than for their competitors' goods. Are Dewar's and J&B really *closer* substitutes for *each other* than are Dewar's and Jonnie Walker? Are Staples and Office Depot really closer substitutes for each other than are Staples and Office Max? Because the Merger Guidelines encourage a narrow product market definition, the merged firm could unilaterally impose only a relatively small increase in price. There is not sufficient product differentiation in a sufficiently narrowly defined market to support the prediction of unilateral effects. In attempting to support increased merger enforcement, antitrust authorities have instead mopped themselves into a corner, from which consistent application of the unilateral effects doctrine is inconsistent with the Merger Guidelines more generally.

Conclusion

In this paper, I have discussed the development and application of "innovation market" and "unilateral effect" analyses to merger investigations. In light of the economics of antitrust, the development of which I have also traced, neither of these new instruments for merger analysis can be supported in theory. Given the regulatory agencies' own exhortation to ground merger analysis in a sound analytical framework, one must conclude that innovation markets and unilateral effects ought not to be relied upon in future merger investigations.

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