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EXCLUSIONARY CONDUCT, EFFECT ON CONSUMERS, AND THE FLAWED PROFIT-SACRIFICE STANDARD

STEVEN C. SALOP*

I. INTRODUCTION

Antitrust law sets standards for the competitive behavior of firms. There are two broad classes of anticompetitive conduct: collusion and exclusion. Collusion involves a group of firms cooperating with one another to restrict their own output. Exclusion involves a firm (or group of firms) raising the costs or reducing the revenues of competitors in order to induce the competitors to raise their prices, reduce output, or exit from the market. Utilizing either collusive or exclusionary practices, the firm (or group of firms) can achieve or maintain market power. Section 2 of the Sherman Act focuses on exclusionary conduct, i.e., conduct that creates or maintains monopoly power by disadvantaging and harming competitors.¹

Exclusionary conduct decisions by antitrust enforcers and the courts sometimes have been criticized for protecting inefficient competitors

* Professor of Economics and Law, Georgetown University Law Center. I would like to thank Todd Anderson, Jonathan Baker, Richard Brunell, Timothy Brennan, Margaret Bloom, Stephen Calkins, Dennis Carlton, Aaron Edlin, Einer Elhauge, Joseph Farrell, John Fingleton, Warren Grimes, George Hay, Ken Heyer, Herbert Hovenkamp, Jonathan Jacobson, Thomas Krattenmaker, David McGowan, Alan Meese, John Nannes, Rainer Nitsche, Janusz Ordovery, Mark Popofsky, Carl Shapiro, Joe Sims, John Vickers, Greg Vistnes, Gregory Werden, Robert Willig, John Woodbury, and the Editors for comments and helpful conversations on these issues. I owe special thanks to Andrew Gavil and A. Douglas Melamed, who have both motivated and educated me about the complexity of these issues, and to Serge Moresi for helping me understand the more subtle economic issues. An earlier version of this article was presented at the AALS meeting in San Francisco, in January 2005.

¹ Section 1 of the Sherman Act is implicated when a group of competitors engages in collective exclusion, as in the case of exclusionary group boycotts, such as *Toys 'R' Us* or *JTC Petroleum*. *Toys 'R' Us v. FTC*, 221 F.3d 928 (7th Cir. 2000); *JTC Petroleum Co. v. Piasa Motor Fuels, Inc.*, 190 F.3d 775 (7th Cir. 1999). In addition, Section 2 is implicated when a single firm attempts to orchestrate a cartel, as in *American Airlines*. *United States v. American Airlines*, 743 F.2d 1114 (5th Cir. 1984). Section 2 is also implicated for mergers to monopoly and conspiracies to monopolize.

at the expense of consumers.² Competitors may be disadvantaged and harmed by exclusionary conduct that raises their costs or cuts off their access to customers or suppliers. However, sometimes conduct that harms competitors benefits consumers, implying that such conduct should be applauded as competition on the merits, not attacked. Antitrust law is said to be a “consumer welfare prescription.”³ The potential tension between harm to competitors and harm to consumers has created long-standing controversy regarding the proper legal standards to govern exclusionary conduct.⁴ Even where harmful conduct is identified, critics suggest that enforcement will end up deterring other conduct that is beneficial to consumers.⁵

There is currently great intellectual ferment over the proper antitrust liability standard governing allegedly exclusionary conduct under Section 2 in the United States and Article 82 in Europe. This article focuses on the two main competing liability standards: the *profit-sacrifice standard* (and the *no economic sense* variant of the test) and the *consumer welfare effect standard*. The profit-sacrifice standard was introduced into antitrust not as a complete test for exclusionary conduct, but as a test of anticompetitive intent or as part of a multi-pronged standard.⁶ It recently has been suggested that the profit-sacrifice test alternatively could be made the only permissible evidence of anticompetitive purpose or even could be declared the sole liability standard.⁷ For example, the government’s amicus brief at the petition stage in *Trinko* seemed to take this position as a way to reduce false positives.⁸ Judge Ginsburg’s *Covad* opinion also

² See ROBERT BORK, *THE ANTITRUST PARADOX* 64–66 (1978).

³ See, e.g., *Reiter v. Sonotone Corp.*, 442 U.S. 330, 343 (1979).

⁴ See, e.g., *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 432 (2d Cir. 1945).

⁵ See Ronald A. Cass & Keith N. Hylton, *Preserving Competition: Economic Analysis, Legal Standards and Microsoft*, 8 GEO. MASON L. REV. 1, 31 (1999); Frank Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 266 (1981) [hereinafter *Predatory Strategies*].

⁶ Janusz A. Ordover & Robert D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8 (1981) [hereinafter *Predation*].

⁷ The profit-sacrifice test is often characterized as a “predation” test for non-price predatory conduct. For example, in *Covad*, Judge Ginsburg stated that, “in the vernacular of antitrust law, a ‘predatory’ practice is one in which a firm sacrifices short-term profits in order to drive out of the market or otherwise discipline a competitor.” *Covad Communications Co. v. Bell Atl. Corp.*, 398 F.3d 666, 676 (D.C. Cir. 2005). Although the focus of the analysis in this article is exclusionary conduct other than predatory pricing, the *Brooke Group* standard, set out by the Supreme Court in *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993), is relevant to the analysis because of its conceptual relationship to the profit-sacrifice test. However, this article is not focused on evaluating the usefulness of the *Brooke Group* standard for predatory pricing cases.

⁸ See Brief for the United States and the Federal Trade Commission as Amici Curiae Supporting Petitioner at 15, *Verizon Communications Inc. v. Law Offices of Curtis V.*

seems to take this position.⁹ Gregory Werden¹⁰ and A. Douglas Melamed¹¹ have suggested a variation on this standard that Werden refers to as the “no economic sense” standard. In contrast, the D.C. Circuit’s *Microsoft* opinion,¹² the Areeda-Hovenkamp treatise,¹³ and my own work¹⁴ suggest that consumer welfare effect would be a better overarching standard. Mark Popofsky¹⁵ has suggested that there should not be a single standard, but instead the standard should differ according to the category of conduct alleged.¹⁶

The central thesis of this article is that the use of the profit-sacrifice test as the sole liability standard for exclusionary conduct, or as a required prong of a multi-pronged liability standard is fundamentally flawed. The profit-sacrifice test may be useful, for example, as one type of evidence of anticompetitive purpose. In unilateral refusal to deal cases, it can be useful in determining the non-exclusionary benchmark. However, the test is not generally a reliable indicator of the impact of allegedly exclusionary conduct on consumer welfare—the primary focus of the antitrust laws. The profit-sacrifice test also is prone to several significant pitfalls and often would be complex and subjective to implement in practice. As a result, relying on the profit-sacrifice test as the legal standard would lead to significant legal errors.

Instead, a better standard to govern exclusionary conduct is the consumer welfare effect test, which is focused directly on the anticompetitive

Trinko, LLP, 540 U.S. 398 (2004) (No. 02-682) [hereinafter Brief for the United States]; see also R. Hewitt Pate, Assistant Attorney General, Antitrust Division, U.S. Department of Justice, *The Common Law Approach and Improving Standards for Analyzing Single Firm Conduct*, Address at the Thirtieth Annual Conference on International Antitrust Law and Policy (Oct. 23, 2003), available at <http://www.usdoj.gov/atr/public/speeches/202724.htm>.

⁹ *Covad Communications*, 398 F.3d at 676.

¹⁰ Gregory J. Werden, *Identifying Exclusionary Conduct Under Section 2: The “No Economic Sense” Test*, *infra* this issue, 73 ANTITRUST L.J. 413 (2006).

¹¹ A. Douglas Melamed, *Exclusionary Conduct Under the Antitrust Laws: Balancing, Sacrifice and Refusals to Deal*, 20 BERKELEY TECH. L.J. 1247 (2005) [hereinafter *Exclusionary Conduct*]; A. Douglas Melamed, *Exclusive Dealing Agreements and Other Exclusionary Conduct—Are There Unifying Principles?* *infra* this issue, 73 ANTITRUST L.J. 375 (2006) [hereinafter *Unifying Principles*].

¹² *United States v. Microsoft Corp.*, 253 F.3d 34, 64 (D.C. Cir. 2001).

¹³ 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 651d, at 79 (2d ed. 2002).

¹⁴ Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards, and Microsoft*, 7 GEO. MASON L. REV. 617, 646–47 (1999).

¹⁵ Mark S. Popofsky, *Defining Exclusionary Conduct: Section 2, the Rule of Reason, and the Unifying Principle Underlying Antitrust Rules*, *infra* this issue, 73 ANTITRUST L.J. 435 (2006) [hereinafter *Antitrust Rules*]. See also Mark S. Popofsky, *Charting Antitrust’s New Frontier*, 9 GEO. MASON L. REV. 565, 578 (2001) [hereinafter *New Frontier*].

¹⁶ The *equally-efficient entrant* standard is also discussed briefly in this article.

effect of exclusionary conduct on price and consumer welfare. This standard can be described in various ways: for example, as conduct that is “unreasonably exclusionary” or “unnecessarily restrictive,” or simply as conduct that causes “consumer harm.” Although this standard has been criticized, it can be implemented without causing excessive false positives that might lead to over-deterrence or a welfare-reducing diminution in innovation incentives.¹⁷ Many of the criticisms of the consumer welfare standard are based on a misunderstanding of the workings of the standard relative to the profit-sacrifice test. In fact, the consumer welfare standard exhibits fewer potential over-deterrence and under-deterrence errors in implementation. For example, the profit-sacrifice standard may well be more likely to condemn a cost-reducing investment that leads to market power than would the consumer welfare effect standard.

II. COMPETING LEGAL STANDARDS

While there are a number of alternative legal standards that could be used to govern allegedly exclusionary conduct under Section 2, the main focus of this article is on the profit-sacrifice standard and the consumer welfare effect standard. Comparison of the relative efficacy of these two standards involves the issue of optimal legal decision making with imperfect information, and the tension between over-deterrence (false positives) and under-deterrence (false negatives).¹⁸

A. THE *BROOKE GROUP* PREDATORY PRICING STANDARD, EXCLUSIONARY CONDUCT, AND RAISING RIVALS’ COSTS

The paradigmatic predatory pricing theory involves reducing price with the purpose and effect of causing rivals to exit from the market, generally by winning a war of attrition, and thereby allowing the predator to profit by raising price to the monopoly level.¹⁹ In *Brooke Group*, the Supreme Court set out a two-part liability standard for predatory pricing that involves (1) evaluating whether the conduct involves below-cost pricing and (2) evaluating the likelihood of recoupment.²⁰ The *Brooke*

¹⁷ For example, when the market impact of exclusionary conduct involves an uncertain impact, a consumer welfare standard would evaluate the conduct on an ex ante (i.e., expectations) basis rather than an ex post (observed outcome) basis.

¹⁸ The term “false positives” refers to erroneous convictions and the term “false negatives” refers to erroneous acquittals.

¹⁹ The theory of predatory pricing underpinning the *Brooke Group* standard and the standard itself have been criticized by post-Chicago economists. See *infra* note 24. However, summarizing and developing those criticisms is beyond the scope of this article.

²⁰ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 222–24 (1993).

Group standard, in principle, could be applied to all exclusionary conduct. A court could first evaluate whether the defendant's price exceeds its cost. If it does, then the conduct would not be condemned.²¹ If the price falls short of the cost, then the court would evaluate whether the defendant likely would be able to recoup its losses by exercising durable market power in the future.

Obviously, this approach would constitute a very permissive standard with respect to non-predatory pricing exclusionary conduct. For example, payments to input suppliers to induce them to refuse to deal with rivals would be allowed unless the payments were so large that the defendant's overall profits turned negative. Similarly, burning down a rival's factory would not violate the antitrust laws as long as the arsonist's fee was modest and the predator charged a high output price, so that its price remained above its costs. Conduct that was used to maintain an existing monopoly would be treated more permissively because the defendant's initial price would be at the highly profitable monopoly level.

Predatory pricing is one paradigmatic type of exclusionary conduct. Raising rivals' costs (RRC) is another paradigm.²² RRC generally describes conduct to raise the costs of competitors with the purpose and effect of causing them to raise their prices or reduce their output, thereby allowing the excluding firm to profit by setting a supracompetitive price.²³ Analysis consistent with the RRC paradigm is commonly applied to exclusivity arrangements that have the effect of raising rivals' distribution costs.

RRC conduct is more likely to harm consumers than is predatory pricing for several reasons. First, unlike predatory pricing, or at least the

²¹ This raises the issue of the definition of "below-cost," an issue that the Supreme Court explicitly did not decide in *Brooke Group*. Edlin and Farrell have pointed out that the test could mean simply non-profit-maximizing pricing or it might mean actually losing money on average. See Aaron S. Edlin & Joseph Farrell, *The American Airlines Case: A Chance to Clarify Predation Policy*, in *THE ANTITRUST REVOLUTION: ECONOMICS, COMPETITION, AND POLICY* 502, 510–17 (John E. Kwoka, Jr. & Lawrence J. White eds., 4th ed. 2004).

²² Steven Salop & David Scheffman, *Raising Rivals' Costs*, 73 *AM. ECON. REV.* 267 (May 1983); Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 *YALE L.J.* 209 (1986). The term "RRC" is preferable to the term "non-price predation," for several reasons. First, the conduct often does involve prices, in particular, input prices. Second, the term "predation" has become associated with causing victims to exit from the market, and RRC strategies often involve merely disadvantaging competitors without causing them to exit from the market. Third, courts might mechanically interpret the word "predation" as legally implying the appropriateness of the current legal tests for predatory pricing. See *Covad Communications Co. v. Bell Atl. Corp.*, 398 F.3d 666, 676 (D.C. Cir. 2005) (applying a profit-sacrifice test in an RRC context); *supra* note 7.

²³ See generally Krattenmaker & Salop, *supra* note 22. Output reductions may occur in the short run and the long run, and could involve output reductions flowing from reduced innovation.

paradigmatic view of predatory pricing, successful RRC does not require a risky investment or associated profit sacrifice during an initial predatory period that may only be recouped at some later point in the future.²⁴ Instead, recoupment often occurs simultaneously with the RRC conduct. Thus, it is more likely to succeed, which also means that it is more likely to be attempted.

Second, unlike predatory pricing, successful RRC does not require the exit of rivals or even the permanent reduction in competitors' production capacity. If the marginal costs of established competitors are raised, those rivals will have the incentive to raise their prices and reduce their output, even if they remain viable. This also means that RRC is more likely to succeed and, therefore, is more likely to be attempted.

Third, unlike paradigmatic predatory pricing intended to permit a deep pocket defendant to win a war of attrition, RRC is not necessarily more costly in the short run to the defendant than to its victims. For example, a threat may not be very costly to the perpetrator but could substantially raise the target firm's costs.²⁵ A lower cost of excluding means that the conduct is more likely to succeed and, therefore, more likely to be attempted.

Fourth, unlike predatory pricing, successful RRC does not always involve a short-term consumer benefit that may or may not be overwhelmed by longer-term consumer harm during the recoupment period.²⁶ In RRC, rivals whose variable costs increase would have the incentive immediately to raise their prices or reduce their output. As a result, the consumer harm would occur immediately. Thus, there is more likely to be consumer harm from RRC than from predatory pricing.

²⁴ See generally Salop & Scheffman, *supra* note 22; see also Krattenmaker & Salop, *supra* note 22, at 224. Economists have formulated additional—and sometimes more complex—theories of predatory pricing that have market impacts closer to RRC conduct. See, e.g., Jonathan B. Baker, *Predatory Pricing After Brooke Group: An Economic Perspective*, 62 ANTITRUST L.J. 585, 590 (1994) [hereinafter *Predatory Pricing*]; Patrick Bolton et al., *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L.J. 2239, 2241 (2000); Aaron Edlin, *Stopping Above-Cost Predatory Pricing*, 111 YALE L.J. 941 (2002). However, this article generally will focus on the conventional predatory pricing theory and how that paradigm differs from the RRC paradigm.

²⁵ Pushing up the market price of an input by increased purchasing could raise the marginal costs of an unintegrated rival by more than it would raise the cost of the integrated firm that carries out the overbuying. Oliver E. Williamson, *Wage Rates as a Barrier to Entry: The Pennington Case in Perspective*, 82 Q.J. ECON. 85 (1968); see also Steven C. Salop, *Anticompetitive Overbuying by Power Buyers*, 72 ANTITRUST L.J. 669 (2005) [hereinafter *Anticompetitive Overbuying*]; Susan A. Creighton et al., *Cheap Exclusion*, 72 ANTITRUST L.J. 975 (2005).

²⁶ The immediate consumer benefit from the low “predatory” prices may or may not be trumped by higher prices during a subsequent recoupment period. Concern with this tradeoff is endemic to all discussions of predatory pricing.

Fifth, unlike predatory pricing, RRC has an analogue to naked price fixing, what might be called “naked RRC,” that is, exclusionary conduct where there are no valid efficiency benefits for the exclusion, for example, when the defendant’s claims are pretextual, noncognizable, or the benefits are insignificant.²⁷ Such failed claims arise in *Lorain Journal*,²⁸ *JTC Petroleum*,²⁹ *Conwood*,³⁰ and *Dentsply*.³¹ At the same time, however, consumer harm is not inevitable, even for naked RRC conduct. This is because there may be sufficient competition to prevent the defendant from raising prices in the output market. For example, if a firm burns down the factory of one out of many equally efficient competitors that lack expansion barriers, then the other competitors could increase their output and, thereby, maintain competitive prices.³²

²⁷ In fact, what might be called “stark naked” RRC involves the extreme case of conduct when a firm approaches input suppliers that supply only its rivals (but not itself) and pays them to deny critical inputs to these rivals. Salop, *Anticompetitive Overbuying*, *supra* note 25, at 684 n.37. Pretextual claims involve rationales invented by the defendant or its lawyers for litigation purposes. As stated in the Competitor Collaboration Guidelines, cognizable efficiencies are “efficiencies that have been verified by the Agencies, that do not arise from anticompetitive reductions in output or service, and that cannot be achieved through practical, significantly less restrictive means. Non-cognizable claims include conduct that amounts to a reduction in competition or that is not reasonably necessary to achieve the benefit or where there is no supporting evidence for the applicability of the rationale to the specific facts of the case.” Federal Trade Comm’n & U.S. Dep’t of Justice, Antitrust Guidelines for Collaborations Among Competitors § 3.36 (2000), available at <http://www.ftc.gov/os/2000/04/ftcdojguidelines.pdf> [hereinafter Competitor Collaboration Guidelines]. For example, in the context of Section 1, the NCAA joint venture engaged in a variety of beneficial practices for college football. However, the Court concluded that its role in setting the price for TV broadcasts lacked any valid benefits and led to higher prices and fewer games being telecast. *NCAA v. Bd. of Regents*, 468 U.S. 85, 113–19 (1984).

²⁸ *Lorain Journal* suggests no procompetitive rationale for the newspaper’s decision to offer only all-or-nothing exclusive contracts to advertisers. *Lorain Journal Co. v. United States*, 342 U.S. 143 (1951) (adoption of exclusive advertising policy that deprived competing radio station of advertising revenue).

²⁹ Judge Richard Posner suggests that the sole purpose of denying asphalt to JTC was to prevent it from acting like a maverick competitor and disrupting an alleged price-fixing cartel of the other applicators who also bought asphalt from the suppliers. *JTC Petroleum Co. v. Piasa Motor Fuels, Inc.*, 190 F.3d 775, 778–79 (7th Cir. 1999).

³⁰ In *Conwood*, there was no convincing efficiency justification for the defendant tobacco company destroying the display racks used by retailers for its competitors’ products. *Conwood Co. v. U.S. Tobacco Co.*, 290 F.3d 768 (6th Cir. 2002)

³¹ In the *Dentsply* case, the exclusive arrangements, in principle, could have prevented free riding but the court concluded that the procompetitive justifications for the exclusivity were pretextual. *United States v. Dentsply Int’l Inc.*, 399 F.3d 181, 196–97 (3d Cir. 2005).

³² This raises the question of the appropriate legal standard for such naked exclusionary conduct. See generally Krattenmaker & Salop, *supra* note 22. For example, in a speech given while he was at Antitrust Division, A. Douglas Melamed suggested that competitive harm might be inferred if there were no *plausible* procompetitive efficiency benefits, even if there is no proof of an impact on prices paid by consumers. A. Douglas Melamed, Principal Deputy Assistant Attorney General, Antitrust Division, U.S. Dep’t of Justice, Exclusionary Vertical Agreements, Remarks Before the ABA Section of Antitrust Law, available at [http://](http://www.ftc.gov/os/2000/04/ftcdojguidelines.pdf)

Not all RRC conduct is naked, of course. Some exclusionary conduct leads to cost savings, product improvements, or elimination of free riding. The existence of such benefits to the excluding firm does not necessarily mean that consumers gain an overall “net” benefit from the conduct. Evaluating the net impact on consumers would require comparing the magnitudes of the opposing forces leading to higher versus lower prices to see which is likely to be stronger.

Because predatory pricing and RRC are so different, there is no reason to think that they should be governed by the same standards for antitrust liability. In fact, the *Brooke Group* standard is not generally proposed as the liability standard for exclusionary conduct other than predatory pricing. Instead, two other legal standards generally are discussed, the profit-sacrifice standard and the consumer welfare effect standard. The profit-sacrifice standard is closer to and grows out of the predatory pricing paradigm and the *Brooke Group* standard (though there are significant differences discussed below).

The fact that RRC conduct generally raises more significant competitive risks than predatory pricing suggests that a more restrictive legal standard is appropriate. RRC conduct can be evaluated effectively with a consumer welfare effect standard that evaluates whether the conduct harms competitors by raising their costs and whether those higher costs harm consumers and competition by allowing the defendant to achieve, maintain, or enhance monopoly power.³³ In carrying out this analysis, the procompetitive rationales for the conduct would be taken into account in evaluating the overall competitive impact of the conduct on consumers.

B. THE PROFIT-SACRIFICE STANDARD³⁴

The profit-sacrifice standard is an intellectual descendant of the below-cost prong of the *Brooke Group* predatory pricing standard, generalized

www.usdoj.gov/atr/public/speeches/1623.htm. See also Jonathan B. Baker, *Promoting Innovation Competition Through the Aspen/Kodak Rule*, 7 GEO. MASON L. REV. 485 (1999) [hereinafter *Promoting Innovation*]; Creighton et al., *supra* note 25.

³³ See, e.g., *United States v. Microsoft Corp.*, 253 F.3d 34, 64 (D.C. Cir. 2001) (“although Microsoft did not bar its rivals from all means of distribution, it did bar them from the cost-efficient ones”); *Dentsply*, 399 F.3d at 189, 191–96. In *Aspen Skiing*, the Court also was concerned about increases in the plaintiff’s distribution costs. *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 608 (1985).

³⁴ For a variety of other analyses of the profit-sacrifice test for exclusionary conduct, see Edlin & Farrell, *supra* note 21; Janusz A. Ordover & Robert D. Willig, *Access and Bundling in High-Technology Markets*, in *COMPETITION, INNOVATION AND THE MICROSOFT MONOPOLY: ANTITRUST IN THE DIGITAL MARKETPLACE* 103–28 (Jeffrey A. Eisenach & Thomas M. Lenard eds., 1999) [hereinafter *Access and Bundling*]; Einer Elhauge, *Defining Better Monopolization Standards*, 56 STANFORD L. REV. 253 (2003); Andrew I. Gavil, *Dominant Firm Distribution: Striking a Better Balance*, 72 ANTITRUST L.J. 3 (2004) [hereinafter *Dominant Firm*].

for more complex non-price exclusion scenarios.³⁵ The profit-sacrifice test examines the profitability of the defendant's conduct relative to a hypothetical market outcome that is used as the non-exclusionary benchmark. The hypothetical "but-for" marketplace is one in which it is impossible to raise prices following the exclusionary conduct. When exclusionary conduct potentially raises barriers to competition in some way, a defendant's exclusionary conduct can be said to sacrifice profits if the conduct would have been unprofitable (and, thus, likely not undertaken) in the absence of those enhanced barriers to competition. This basic idea can be formulated in various ways.³⁶

Recently, Gregory Werden and A. Douglas Melamed have suggested a variation on this standard that Werden refers to as the "no economic sense" test and which places less emphasis on the level of profits sacrificed.³⁷ As stated in Department of Justice Brief in *Trinko*, the standard evaluates whether conduct "would make no economic sense for the defendant but for the tendency to eliminate or lessen competition."³⁸ That is, the conduct would not be profit-maximizing absent its anticompetitive effect. This variation is primarily different from the conventional profit-sacrifice standard because it does not require a showing that there

Distribution]; Mark R. Patterson, *The Sacrifice of Profits in Non-Price Predation*, 18 ANTITRUST L.J. 37 (2003); Melamed, *Exclusionary Conduct*, *supra* note 11; Melamed, *Unifying Principles*, *supra* note 11; John Vickers, *Abuse of Market Power*, 115 ECON. J. F244 (2005); Werden, *supra* note 10.

³⁵ Werden, *supra* note 10, at 422 n.35, takes issue with this historical characterization of the profit-sacrifice test as a more general version of the below-cost pricing test for predatory pricing. Whatever the chronology, the below-cost pricing test is a specific application of the profit-sacrifice standard. Not that anyone today (except the participants) still care about how events of 25 years were perceived at the time, but there was great intellectual turmoil among economists over the Areeda-Turner test and it was in that context that the original Ordoover and Willig article, *infra* note 36, was written. *See also* STRATEGY, PREDATION, AND ANTITRUST ANALYSIS (Steven C. Salop ed., FTC 1981) (containing final versions of articles presented at a FTC conference held in 1980).

³⁶ Robert Bork formulates the test as identifying business practices that "would not be considered profit-maximizing except for the expectation either that (1) rivals will be driven from the market, leaving the predator with a market share sufficient to command monopoly profits, or (2) rivals will be chastened sufficiently to abandon competitive behavior the predator finds inconvenient or threatening." BORK, *supra* note 2, at 144. Janusz Ordoover and Robert Willig formulate the test as a "response to a rival that sacrifices part of the profit that could be earned under competitive circumstances, were the rival to remain viable, in order to induce exit and gain consequent monopoly profits." Janusz A. Ordoover & Robert D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8 (1981) [hereinafter *Predation*]. *See also* Ordoover & Willig, *Access and Bundling*, *supra* note 34, at 9. As discussed in more detail below, the various formulations of the test could lead to different results in practice.

³⁷ Werden, *supra* note 10, at 413. Melamed terms this test the "sacrifice" or "business sense" test. Melamed, *Unifying Principles*, *supra* note 11, at 391-92.

³⁸ *See* Brief for the United States, *supra* note 8, at 15; *see also* Pate, *supra* note 8.

is a period of time in which the defendant's profits are lower than they were before the exclusionary conduct was undertaken. The reduction in profits can be conceptual rather than temporal.³⁹ Although this standard shares many obvious similarities with the standard version of the profit-sacrifice test, the no economic sense conceptualization does resolve some of the implementation pitfalls of the typical profit-sacrifice formulation discussed in this article.⁴⁰

As a literal matter, the profit-sacrifice standard is a test of anticompetitive purpose and intent. That is, if a profit-maximizing firm engages in conduct that would not be economically rational (i.e., maximally profitable) absent a reduction in competition, then it can be inferred that the firm must have intended to cause the anticompetitive effect. The Supreme Court discussed this role of the profit-sacrifice test to infer anticompetitive intent in *Aspen Skiing*⁴¹ and *Trinko*.⁴² For example, in *Trinko*, the Court stated that "[t]he unilateral termination of a voluntary (*and thus presumably profitable*) course of dealing suggested a willingness to forsake short-term profits to achieve an anticompetitive end."⁴³

Recently, commentators have suggested that the profit-sacrifice test alternatively could be made the only permissible evidence of anticompetitive purpose or even could be declared the sole liability standard.⁴⁴ This was the position of the government in its amicus brief at the petition stage in *Trinko*.⁴⁵ *Covad* also seems to take this position.⁴⁶ The mechanics of the profit-sacrifice test can be illustrated generally with the following

³⁹ Werden characterizes the counterfactual as altering the competition faced by the defendant, not the defendant's market power. Werden, *supra* note 10, at 416 n.10.

⁴⁰ On the similarities of the "no economic sense" variant to other profit-sacrifice formulations, see also Vickers, *supra* note 34, at F253. The remainder of this article will refer to the profit-sacrifice test as including the no economic sense formulation, except where it is necessary to distinguish between the formulations.

⁴¹ In rejecting Ski Co.'s efficiency claims, and concluding in essence that Ski Co. was motivated solely by anticompetitive intent, the Court utilized a version of the profit-sacrifice test that looked to ticket revenues forgone by the refusal to cooperate with Highlands. *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 608–09 (1985). *But see* Elhauge, *supra* note 34, at 287–88.

⁴² *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409–10 (2004).

⁴³ *Id.* at 409. In *Trinko*, the Court characterized part of Ski Co.'s conduct in the *Aspen Skiing* case as motivated by anticompetitive intent in a similar way, stating that "the defendant's unwillingness to renew the ticket *even if compensated at retail price* revealed a distinctly anticompetitive bent." *Id.*

⁴⁴ See generally Melamed, *Unifying Principles*, *supra* note 11; Patterson, *supra* note 34; Werden, *supra* note 10.

⁴⁵ See Brief for the United States, *supra* note 8, at 15; see also Pate, *supra* note 8.

⁴⁶ *Covad Communications Co. v. Bell Atl. Corp.*, 398 F.3d 666, 676 (D.C. Cir. 2005). See also *supra* note 8.

conceptual example. Suppose that a dominant firm with monopoly power but competing with a small competitor initially is earning profits with a net present value of \$700. Suppose further that the dominant firm contemplates engaging in some type of exclusionary conduct that raises its only rival's cost very substantially and, thereby, causes it to exit. The dominant firm anticipates that if the exclusionary conduct is undertaken but for some reason would fail to raise the competitor's costs and cause it to exit, the dominant firm's profits would be reduced by \$100, down to \$600. However, suppose that the firm's internal analysis concludes the rival would exit and the market price would rise after the exclusionary conduct is undertaken. As a result, the conduct would be profitable on balance once its impact on price and exit is taken into account, raising the dominant firm's anticipated profits from the initial level of \$700 up to \$900.

This conduct would be condemned under the profit-sacrifice test. The dominant firm would not have the economic incentive to undertake the exclusionary conduct absent its effect on exit and the resulting price increase because the exclusionary conduct would have been unprofitable, leading to a \$100 profit reduction. Thus, the conduct would not have made "economic sense." It is only the anticipated exit-inducing and price-raising effect that tips the scales in the firm's profitability analysis. Because the exclusionary conduct would have led to higher prices, the application of the profit-sacrifice test to these facts also protects consumer welfare.

The profit-sacrifice test, in principle, can be applied to any type of exclusionary conduct, although the analysis is simpler for some types of conduct than for others. The exact way in which the profit-sacrifice standard is implemented can affect the determination of whether or not allegedly exclusionary conduct passes muster, and there is debate over the proper way to implement the standard, particularly the assumption regarding the defendant's output.⁴⁷ In this article, I assume the profit-sacrifice test is implemented by measuring profits relative to a benchmark of the market price that would have occurred absent the allegedly anti-competitive conduct.

In order to understand how the profit-sacrifice test is used in practice, the following discussion applies that standard to a variety of types of

⁴⁷ For example, Ordover and Willig focus on conduct that does not simply disadvantage competitors, but actually causes them to exit. They refer to the benchmark as the profit that could be earned "under competitive circumstances, were the rival to remain viable." This requires that the terms "under competitive conditions" and "were the rival to remain viable" be defined in a way that the standard can be implemented by a court. *See* Ordover & Willig, *Predation*, *supra* note 36, at 8.

conduct—inducement of refusals to deal, incompatible design change, and predatory pricing—that illustrate how the test can be applied to exclusionary conduct by a firm as a way of achieving, maintaining, or enhancing monopoly power.

1. *Inducing Refusals to Deal by Independent Input Suppliers*

The profit-sacrifice test can be applied to a payment to suppliers for a refusal to deal. For example, suppose that a dominant firm is currently selling 500 units at a price of \$60 per unit and produces that output at a constant marginal cost of \$50 per unit. Thus, the firm has a profit-margin of \$10 per unit (i.e., \$60 – \$50) and operating profits on the 500 units equal to \$5000. Assume further that if the firm's closest competitor is denied access to a critical input, the firm would be able to raise its price to \$100 and increase its market share and total volume by 100 units. This is because the disadvantaged competitor would have the incentive to reduce its output and raise its own price.⁴⁸ Suppose that the dominant firm enters into exclusionary vertical agreements with the critical input suppliers to refuse to supply the competitor, pays these input suppliers a total of \$3000 for the refusal to deal agreements, and no efficiency benefits (e.g., elimination of free riding) are generated by the agreements.

Based on these facts, this exclusionary conduct is anticompetitive. It leads to higher prices paid by consumers. Assuming that there are no offsetting consumer information or product quality benefits that might occur if the conduct had eliminated free riding, consumer welfare surely would fall. Consumer welfare also would fall if there were modest benefits that were insufficient to reverse or offset the higher prices.⁴⁹

Furthermore, this conduct would fail the profit-sacrifice test: It would make “no economic sense” for the firm to pay the suppliers \$3000 unless the payment would permit the firm to increase the price it could charge to consumers. This is certainly true at the dominant firm's initial output level. In fact, if the only impact of the refusal to deal in this example were that the firm would be able to increase its sales by 100 units at a constant price of \$60, this would contribute incremental profits of only \$1000 (i.e., 100 units @ \$10 profit margin). Thus, its profits in this hypothetical, but-for world, where price remains at \$60, would fall by \$2000 (i.e., \$3000 – \$1000). What makes the conduct profitable, on

⁴⁸ At the higher price, the total market demand would be lower. But, the dominant firm can expand its own volume (and market share) by absorbing customers from the now-higher cost rival, which would have an incentive to shrink.

⁴⁹ Assessing this tradeoff is discussed in more detail in the product design and cost-reducing investment examples below.

balance, for the dominant firm is that the refusal to deal agreements allow the firm to raise its price by \$40 per unit up to \$100 on the 600 units that it can sell.

However, suppose that the required payments to input suppliers are only \$500. In this case, consumer welfare still falls because the price rises by \$40, with no offsetting consumer benefits. But the evaluation of profit-sacrifice in this case raises the issue of the proper treatment of the profits on the 100 units of incremental retail sales at the but-for benchmark price of \$60. These profits might be counted as “legitimate” profits because the units are sold at the non-exclusionary price of \$60. In contrast, they might be viewed as “illegitimate” or anticompetitive profits because the units would not be sold absent the allegedly exclusionary conduct.⁵⁰ This assumption is a contentious issue and often may determine whether or not there is a finding of profit-sacrifice.

2. *Incompatible Design Change*

The profit-sacrifice test similarly can be applied to the controversial fact situation of a product design change by a dominant firm with monopoly power.⁵¹ Suppose that a dominant firm makes a design change that improves the quality and value of its product to users by \$5.⁵² However, at the same time, suppose that the improved design change necessarily also reduces the compatibility of the monopolist’s product with competing products. That is, the incompatibility is “inextricably linked” to the quality improvement.⁵³ Moreover, suppose that it is not feasible to

⁵⁰ The analytic issue is how to implement the concept of “absent the anticompetitive effect of the conduct.” As discussed below, the lack of consensus over this implementation issue would make the profit-sacrifice test more subjective in practice. Defining *non-exclusionary* profits is discussed in more detail below in Part IV.C. A court cannot simply conclude that the profits are (or are not) legitimate on the grounds that the conduct extrinsically is (or is not) procompetitive. This is because the proper role of *antitrust standards* is to determine whether the conduct is procompetitive, not the other way around.

⁵¹ *United States v. Microsoft Corp.*, 253 F.3d 34, 54–57 (D.C. Cir. 2001).

⁵² That is, suppose that the firm would be able to raise its price by \$5 if there were not a change in the degree of competition provided by other firms. Sometimes courts in contract cases assume perfectly competitive markets and use the market price as the measure of consumer value. That measure assumes generally that consumers could purchase an identical unit from another seller and that sellers lack market power. Equating value to price is inappropriate in antitrust. After all, that assumption would lead to a conclusion that monopolization increases the value of a product because its price rises from the competitive level up to the monopoly level.

⁵³ The “inextricably linked” language is taken from the discussion of efficiencies in the current version of the Horizontal Merger Guidelines. U.S. Dep’t of Justice & Federal Trade Comm’n Horizontal Merger Guidelines § 4 n.36 (1992, revised 1997), *available at* <http://www.usdoj.gov/atr/hmerger/11251.pdf> [hereinafter Merger Guidelines].

continue selling the old compatible product. In this case, the incompatibility is not a naked restraint.⁵⁴

Suppose that the incompatibility creates significant barriers to competition to existing competitors and causes enhanced barriers to entry. The dominant firm consequently gains the ability to raise its price by far more than the \$5 quality improvement. For example, suppose that the dominant firm is able profitably to raise its price by \$50, which it does.

This product improvement might or might not be condemned under the profit-sacrifice test. The outcome of the test would depend on the cost of the product improvement. As a hypothetical matter, if there were no barriers to competition caused by the reduction in compatibility (and holding outputs constant), the simplest economic model might predict that the firm would only have had the ability and incentive to raise the price of its product by \$5, which is equivalent to the magnitude of the product improvement.⁵⁵ That would be the benchmark price increase for the test. The profit-sacrifice test then would condemn the design change if the investment necessary to achieve the \$5 product performance benefits were so high that the investment would not have made economic sense absent the ability to raise price by more than the \$5.

The profit-sacrifice test compares the additional costs to the firm from the design change against the additional price it could charge in the hypothetical world. For example, suppose that there are no incremental investment costs but the variable costs of the higher quality product are \$15 per unit higher than the old product. In this case, it would not be rational for the dominant firm to spend \$15 per unit to gain the power to raise its price by \$5 per unit (holding output constant). Thus, if the firm chose to adopt the design change in the but-for world, it would sacrifice profit of \$10 per unit.

A court applying the profit-sacrifice test could conclude that a rational profit-maximizing firm would not have adopted the design change unless

⁵⁴ If, contrary to the assumptions of the example, the old design could continue to be sold or if the incompatible product design were more expensive than a compatible design that delivers the same quality improvement, then the design easily would be condemned under the profit-sacrifice test. In this situation, the extra cost of creating the incompatibility would be the focus of the complaint, not the product improvement. It would be argued that the firm could have achieved the \$5 quality improvement at lower cost. The only rationale for spending more to create an incompatible product would be to permit the price to be increased by more. A consumer welfare effect standard also would condemn this conduct, though the reasoning would be different.

⁵⁵ More complicated economic models might be formulated in which the price increase would be more or less than \$5. Thus, selecting the proper model often would be a contentious issue if the profit-sacrifice test were used in practice. This issue is discussed in more detail *infra* Part IV.C.

it anticipated that it would be able to raise price by more than \$15, its cost per unit to produce the higher quality product, without losing any sales. Stated differently, the firm must have anticipated that the design change would give it the monopoly power profitably to raise price by far more than the increase in product performance quality. As set out in the hypothetical, the firm also anticipates that the barriers to competition flowing from the incompatibility give it the monopoly power to raise price by \$50.

This particular design change would violate the consumer welfare effect test as well as the profit-sacrifice test, although the reasoning is somewhat different. The consumer welfare effect test compares the additional performance benefits to consumers (here, \$5) to the additional price they must pay (here, \$50). It is obvious that rational consumers would have preferred the old product at the old price.

In contrast, if the design change would cost only \$3 more per unit and the performance benefits were \$5, then the conduct would not be condemned by the profit-sacrifice test. At the hypothetical \$5 price increase in the benchmark world, the firm's profits would rise by \$2 per unit. In this case, the ability to raise price by more than \$5 is not necessary to achieve an increase in profits. However, this design change still would be condemned under the consumer welfare effect standard because the price in the real world increases by \$50, whereas the value of the product increases by only \$5. This shows that the competitive impact of the new product design still is clearly adverse to consumers. Only if the performance benefits exceed \$50 would consumers benefit when the reasonably anticipated price increase is \$50. Thus, the profit-sacrifice standard is more permissive than the consumer welfare standard in this type of case. The design change satisfies the profit-sacrifice standard as long as the performance benefits of the product improvement exceed the cost of the design change, whereas it satisfies the consumer welfare standard only if the performance benefits exceed the price increase.

Werden goes further. He suggests that courts would and should apply a "prudential safe harbor" to such new product introductions, as well as cost-reducing investments.⁵⁶ This safe harbor would immunize such conduct from antitrust liability, *even if it fails the profit-sacrifice (or no economic sense) test.*⁵⁷

⁵⁶ Werden, *supra* note 10, at 418 & nn.21–25. See also Popofsky, *Antitrust Rules, supra* note 15.

⁵⁷ Werden, *supra* note 10, at 421–22, also would not apply the no economic sense standard to the "scenarios" where "the inevitable outcome of the competitive process would be a single surviving competitor" and "aggressive competitive tactics may be required for survival,

In my view, this methodology would make the analysis circular and the standard an empty shell. The rationale for using an antitrust standard is to determine rigorously and objectively whether or not alleged exclusionary conduct is anticompetitive or whether it is “competition on the merits,” not vice versa. If a court separately has already postulated for other extrinsic reasons that certain exclusionary conduct is “competition on the merits,” then there is no reason to use the standard. Finally, such safe harbors obviously also would require far more justification than the perceived “experience” of the court or commentator because of the conscious or unconscious role of ideology in perceiving reality. Only in this way can courts maintain the rigor and coherence of antitrust, rather than reducing it simply to a subjective reflection of the court’s general ideology.

3. *Predatory Pricing*

Brooke Group does not use a true profit-sacrifice standard but rather a *negative-profit* standard.⁵⁸ However, if a true profit-sacrifice standard were applied to predatory pricing, it would be less permissive (i.e., more interventionist) than the below-cost pricing test. To illustrate, suppose that a monopolist has always priced at the monopoly level of \$100. At some point, suppose that a unique new competitor enters the market and the monopolist cuts price drastically. Suppose that the low price saps the entrant’s financial resources and causes it to exit permanently from the market.⁵⁹ Suppose that a profit-sacrifice standard were being used, rather than the *Brooke Group* below-cost pricing test. In order to implement the profit-sacrifice test properly, it would be necessary to determine the price to use as the non-exclusionary benchmark for the test.

A court might be tempted to treat the pre-entry monopoly price (\$100, in the example) as the non-exclusionary price benchmark for evaluating profit sacrifice. However, if this price were used as the benchmark, then

yet such tactics would make sense only because of a tendency to eliminate competition.” Courts might not treat this situation as so rare. A defendant might argue that it should apply to a broad range of exclusionary conduct by a monopolist to maintain its monopoly in the face of entry by an efficient new competitor, if the monopolist can successfully argue that the market involves strong network effects or if the market is a natural monopoly. In contrast, the consumer welfare effect standard would evaluate whether or not the exclusionary conduct would harm competition, that is, whether it would increase price and reduce output.

⁵⁸ For a similar point, see Elhauge, *supra* note 34, at 272–74.

⁵⁹ Suppose that the entrant could neither simply reduce output without exiting nor re-enter in the event that the defendant subsequently increases its price, which implies that recoupment would be likely. Note also that I am assuming away other potential rationales for the low prices, such as promotional pricing of new products.

any price decrease below the initial monopoly level would be found to involve profit-sacrifice. Using a pre-entry monopoly price as the benchmark could lead to false positives because the profit-sacrifice test would catch welfare-enhancing price competition in response to entry into a monopolized market as well as attempts to drive rivals out of business in the hope of raising prices after their exit.

Thus, the initial monopoly price would not be the proper non-exclusionary benchmark for the profit-sacrifice test. The proper benchmark is the market price that would prevail if the entrant had sufficient financial resources to survive a price war (i.e., if there would be no exit for the rival and no recoupment for the predator). After entry into the monopolized market, the now-former monopolist generally would have an incentive to reduce its price to compete, even if it were not attempting to start a war of attrition to cause the entrant to exit from the market.⁶⁰ In most cases, the firm would not cut its price all the way down to marginal cost, and marginal cost pricing is unlikely to be the oligopoly market equilibrium if the entrant remained a viable competitor.⁶¹ Thus, the *Brooke Group* below-cost pricing test does not measure true profit-sacrifice.⁶²

⁶⁰ If the entrant has very limited capacity and no ability to grow, it is possible that the monopolist instead might maximize its profits by holding its price at the monopoly level and ceding this limited number of sales to the new entrant, rather than reducing price to all of its customers. However, this scenario would be the exception, not the rule. See Drew Fudenberg & Jean Tirole, *The Fat-Cat Effect, the Puppy-Dog Ploy, and the Lean and Hungry Look*, 74 AM. ECON. REV. 361 (1984); Judith R. Gelman & Steven C. Salop, *Judo Economics: Capacity Limitation and Coupon Competition*, 14 BELL J. ECON. 315, 315 (1983).

⁶¹ Marginal cost pricing would be the market equilibrium only under very limited market conditions: the firms sell perfectly homogeneous products; the firms are equally efficient; and each firm assumes that its price choice will have no impact on its rival's price. In contrast, price equal to marginal cost would not be the outcome for a duopoly market where the incumbent and an equally efficient entrant sell differentiated products. Nor would it be the outcome if the incumbent and the entrant would tacitly coordinate imperfectly, again assuming that the entrant remained viable. In either case, if the entrant remained viable, the equilibrium market prices would exceed the firms' marginal costs.

⁶² Ordover and Willig recognized this issue in their article on the role of profit-sacrifice test in predatory pricing. However, they chose to use the profit level at the perfectly competitive outcome (i.e., where price equals marginal cost) as one key benchmark for their modified profit-sacrifice test. They refer to this modified benchmark with the proviso that it is the outcome "under competitive conditions." See Ordover & Willig, *Predation*, *supra* note 36, at 10. Werden states that the no economic sense test can only be properly applied if "the defendant's choices can be narrowed down to a few, only one of which includes the challenged conduct." Werden, *supra* note 10, at 420. In predatory pricing, there is a continuum of price choices so the test could not be properly applied, if a court wanted to do so, instead of simply making a price-cost comparison. *Brooke Group* is not a true profit-sacrifice standard for another reason. The recoupment prong of that standard evaluates whether the defendant's investment in predation likely would be profitable, not whether it would be unprofitable absent any price-raising effect. It is a test of the rationality of the overall strategy, not the irrationality of the conduct in a hypothetical world. For

It might be argued that a price equal to marginal cost is a good non-exclusionary price benchmark because that price level would be efficient and, therefore, not anticompetitive. However, this defense of using marginal cost as the benchmark for the profit-sacrifice test is circular, as discussed above.

C. THE EQUALLY EFFICIENT COMPETITOR STANDARD

Another possible rationale for the below-cost pricing standard in *Brooke Group* is to protect an equally-efficient entrant from being excluded from the market. Judge Posner has suggested applying this standard to all exclusionary conduct, not just predatory pricing: under the equally efficient competitor standard, the plaintiff would need to prove that the conduct “is likely in the circumstances to exclude from the defendant’s market an equally or more efficient competitor.”⁶³

The fundamental problem with applying the equally efficient entrant standard to RRC conduct is that the unencumbered (potential) entry of less-efficient competitors often raises consumer welfare. For example, consider the simplest example of limit pricing by a monopolist that has obtained its monopoly legitimately with superior skill, foresight, and industry. Suppose that this monopolist has variable costs of \$20, and initially charges the unconstrained monopoly price of \$50, when the monopolist faces no threat of entry.⁶⁴

Now suppose that there is a new entry threat by a less-efficient firm with variable costs of \$40. Facing this threat, the monopolist would have the incentive to reduce its price to the “limit price” of \$39 in order to deter the entry into the monopolized market. This potential entrant would not produce any output but it would act as a *perceived potential entrant*, constraining the monopolist’s price by waiting in the wings. Its potential for entry reduces price, increases market output, and raises both consumer welfare and total economic welfare.⁶⁵

further discussion of recoupment as an “investment test,” see Kenneth G. Elzinga & David E. Mills, *Testing for Predation: Is Recoupment Feasible?*, 34 ANTITRUST BULL. 869 (1989).

⁶³ RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC PERSPECTIVE 194–95 (2d ed. 2001). Posner would also require the plaintiff to prove that the defendant has monopoly power. The defendant could rebut by showing that the conduct is efficient. For other commentaries on this standard, see Elhauge, *supra* note 37, at 273; Ken Heyer, *A World of Uncertainty: Economics and the Globalization of Antitrust*, 72 ANTITRUST L.J. 375, 419 n.64 (2005) (quoting Joseph Farrell, Comments at Antitrust Division Conference on the Developments in the Law and Economics of Exclusionary Pricing Practices (Mar. 18, 2004)); Gavil, *Dominant Firm Distribution*, *supra* note 34, at 59–61; Vickers, *supra* note 34, at F256.

⁶⁴ Assume for simplicity of the example that the firm has no sunk capital or fixed costs and its variable costs are constant for all output levels.

⁶⁵ There would be a reduction in “production efficiency” if the entrant actually produced output because its costs are higher than the monopolist’s. But, it does not produce any

Suppose next that the monopolist engages in naked RRC conduct that raises the entrant's costs above \$50. For example, suppose that it raises the entrant's costs by \$12 to a cost of \$52. The entrant then would lose the ability to prevent the monopolist from charging the monopoly price of \$50. As a result, consumers would be harmed by the RRC conduct, and total welfare would fall.

However, no antitrust liability would attach to this RRC conduct under Posner's equally efficient entrant rule. This is because a \$12 cost increase would not deter an equally efficient potential entrant with costs of \$20. If the monopolist were to maintain its price at the \$50 monopoly price, that equally efficient entrant would still be able to enter successfully even if its costs increased from \$20 to \$32.

This example may be simple and somewhat stylized, but it is certainly within the mainstream of antitrust. The idea that a perceived potential entrant can constrain the pricing of a monopolist is a central idea in the analysis of entry barriers, potential competition, and market power. If the equally efficient entrant standard fails in this simple RRC example, then it also is likely to be significantly flawed for evaluating non-price exclusionary conduct more generally.⁶⁶

D. THE CONSUMER WELFARE EFFECT STANDARD

Section 1 of the Sherman Act is concerned with agreements that "unreasonably" restrain trade.⁶⁷ This standard generally is interpreted as an anticompetitive effect test that focuses on the net impact on consumer welfare, that is, market price and output.⁶⁸ This same type of fact-based

output. Note also that production efficiency benefits not passed on to consumers would not count as part of consumer welfare.

⁶⁶ For example, in discussing this standard in the context of a fraudulent patent claim, Professor Hovenkamp states that it would be "unreasonably lenient and even perverse. It exonerates the defendant in precisely those circumstances when the conduct is most likely to be unreasonably exclusionary." Herbert Hovenkamp, *Exclusion and the Sherman Act*, 72 U. CHI. L. REV. 147, 154 (2005).

⁶⁷ See, e.g., *Bd. of Trade of City of Chicago v. United States*, 246 U.S. 231 (1918); *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1 (1911).

⁶⁸ See, e.g., *NCAA v. Bd. of Regents*, 468 U.S. 85, 103-04 (1984). Note that there is also controversy over whether the appropriate antitrust goal is *consumer* welfare or *aggregate* welfare (i.e., efficiencies), as suggested by Bork's use of the Williamson diagram. BORK, *supra* note 2, at 107-10 (citing Oliver E. Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AM. ECON. REV. 18 (1968)). For criticisms of Bork's position, see Robert H. Lande, *Proving the Obvious: The Antitrust Laws Were Passed to Protect Consumers (Not Just to Increase Efficiency)*, 50 HASTINGS L. REV. 959, (1999); John Kirkwood, *Consumers, Economics and Antitrust*, 21 RES. IN L. & ECON. 1 (2004). With respect to exclusionary conduct, the aggregate welfare standard is inconsistent with a view that antitrust is for the protection of consumers rather than competitors. Consider the following two examples. First, in an exclusionary conduct case under Section 2, it is not sufficient for the plaintiff

competitive effects analysis could be applied to exclusionary conduct under Section 2. Under this standard, one would conclude that exclusionary conduct violates the antitrust laws if it reduces competition without creating a sufficient improvement in performance to fully offset these potential adverse effect on prices and thereby prevent consumer harm.⁶⁹ Such conduct could be labeled “unreasonably exclusionary.”⁷⁰

This is a very general antitrust standard. For example, if the fact-based analysis indicates that the exclusionary conduct likely increases or maintains barriers to competition or entry and likely leads to higher prices, then the exclusionary conduct would be condemned unless the evidence of likely and substantial procompetitive benefits is so strong that consumers are unlikely to be harmed. This analysis would involve a variety of evidence relevant to evaluating competitive effect, including both structural and behavioral evidence, and would be tightly focused on determining the impact on consumers. Profit-sacrifice evidence also could be relevant, but proof of profit sacrifice would be neither necessary nor sufficient to a liability finding.

This competitive effects-based antitrust standard essentially would compare the beneficial and harmful competitive aspects of the alleged exclusionary conduct in order to determine the overall impact on consumers. This is the type of competitive effects analysis contemplated in the Merger Guidelines.⁷¹ It is not intended to be an open-ended inquiry or involve “some ultimate reckoning of social or economic debits and credits.”⁷² Despite the use of the technical economic term “consumer

to prove significant injury to competitors. The plaintiff must also show injury to consumers. Under a total welfare standard, harm to competitors would be a cognizable harm, independent of the harm to consumers. Indeed, harm to competitors would be given the same weight as benefits to consumers. In fact, harm to competitors could be used to trump smaller consumer benefits. Second, suppose that a low cost firm hires an arsonist to destroy the factory of its higher cost competitor. That conduct would increase the efficiency of market production by moving production from the high cost firm to the low cost firm. If the resulting price increase is not too large, aggregate welfare nonetheless would rise from this exclusionary conduct but consumer welfare would fall. Yet, it seems clear that no court would permit the efficiency defense in this case. See Salop & Romaine, *supra* note 14, at 646–47; Steven C. Salop, Question: What Is the Real and Proper Antitrust Welfare Standard? Answer: The True Consumer Welfare Standard (Working Paper, Nov. 2005) (manuscript on file with author).

⁶⁹ These competitive benefits are often referred to as the “efficiencies” created by the conduct. For example, suppose that a merger to monopoly would increase prices from \$50 to \$100 if it had no impact on costs. However, suppose that the merger also reduces the marginal costs of the merged firm by 30%. That cost decrease would tend to push price below \$100, but not necessarily to \$50 or less. Only if the price remains at \$50 or less would consumer harm be avoided.

⁷⁰ Hovenkamp, *supra* note 66, at 155.

⁷¹ See Merger Guidelines, *supra* note 53, § 2.

⁷² United States v. Philadelphia Nat'l Bank, 374 U.S. 321, 371 (1963).

welfare,” the evaluation is really about whether consumers are harmed from higher prices, reduced quality, or (in some cases) reduced innovation. Thus, a better term might well be a “consumer harm” standard rather than a “consumer welfare effect” standard.⁷³

A useful reference point is the type of competitive effects analysis of “market power harms” in mergers suggested by the Merger Guidelines.⁷⁴ In the analysis of unilateral competitive effect, for example, the recapture of customers diverted to one’s merger partner creates upward price pressure. Cost savings generated by the merger potentially create downward price pressure. The competitive threat of entry and repositioning also constrains the upward price pressure. Putting together the evidence on these three elements permits the agency or court to gauge the likely net effect of the merger on prices and output. This same type of competitive analysis can be applied to exclusionary conduct under Section 2. Thus, alternative names for the standard could be a “competitive effect” or “competitive injury” standard.

The exact name of the standard is not important. What is important is that this test focuses on the effect of the conduct on the market, that is, consumers and the competitive process. In contrast, the other standards—profit sacrifice, no economic sense, equally efficient competitor—are focused instead on the impact of the conduct on the alleged miscreant. This is the key reason why the other standards are flawed.

The role of *balancing* in the consumer welfare effect standard is a potential source of confusion.⁷⁵ In carrying out this analysis, the courts would not engage in self-conscious, open-ended balancing of the magnitudes of benefits and harms using some subjective social weighting.⁷⁶ The consumer welfare effect test is not like the situation envisioned under a Williamsonian total welfare (efficiencies) standard, where harm suffered *by consumers* is balanced off against the benefits gained *by the monopolist*.⁷⁷ This consumer welfare analysis is more geared towards

⁷³ Vickers, *supra* note 34, at F258.

⁷⁴ See Merger Guidelines, *supra* note 53, § 2.2.

⁷⁵ I am one source of this confusion, having previously referred to the consumer welfare effect standard as a *balancing test*, apparently without sufficient clarification of the use of the term. See Salop & Romaine, *supra* note 14, at 618.

⁷⁶ See Brief for the United States, *supra* note 8, at 11 n.2 (“The application of Section 2 does not entail an open-ended “balancing” of social gains against competitive harms.’ and ‘a firm is under no obligation to sacrifice its own profits,’ but unlawful exclusionary acts are those that ‘do not benefit consumers . . . or . . . produce harms disproportionate to the resulting benefits.’”) (citing 3 AREEDA & HOVENKAMP, *supra* note 13, ¶¶ 651a, 658f, at 72, 131–132, 135).

⁷⁷ BORK, *supra* note 2, at 107–10.

comparing the magnitudes of various effects to predict the likely overall impact *on consumers*.⁷⁸

The finder of fact generally would compare and weigh the magnitude and credibility of evidence on both the procompetitive and anticompetitive sides to evaluate which evidence is stronger on balance.⁷⁹ Juries routinely weigh the credibility of opposing experts with differing views of the net effect of the challenged conduct. Alternatively, instead of formally comparing the effect on price and quality impacts of the increased market power with the lower costs and superior product performance, a court may reach the same result by setting the competitive benefits standard higher the greater are the market power harms shown.⁸⁰ For example, in a case in which the plaintiff has shown significant market power harms, the court may be more likely to find that the defendant has failed to demonstrate its benefits claims.

Similarly, in merger law, courts use a sliding-scale standard in which more compelling rebuttal evidence is required for a stronger prima facie case set out by the government. For example, as explained by Judge (now Justice) Thomas in *Baker Hughes*, the defendant can rebut a prima facie case by demonstrating that the merger will not have anticompetitive effects.⁸¹

The more compelling the prima facie case, the more evidence the defendant must present to rebut it successfully. A defendant can make the required showing by affirmatively showing why a given transaction

⁷⁸ In the context of deciding whether to apply the per se rule to a category of conduct, the Court in *Sylvania* described the evidentiary balancing as follows: "The probability that anticompetitive consequences will result from a practice and the severity of those consequences must be balanced against its pro-competitive consequences." *Continental T.V. v. GTE Sylvania Inc.*, 433 U.S. 36, 50 n.16 (1977). In evaluating an entire category of conduct, some fraction of the particular uses of the conduct by particular firms may lead to harm and some other fraction of particular uses by other firms may lead to benefits, and the probabilities are applied to the fraction of each outcome. Similarly, in evaluating a specific use of the conduct by a specific firm under a fact-based rule of reason, the relevant probabilities would be the likelihoods that the use of the conduct by the specific firm at a specific time would lead to either higher or lower prices and consumer welfare.

⁷⁹ That the consumer welfare effect analysis is stated in a quantitative way in this article and others is not unexpected in an area like antitrust, which is now so firmly rooted in economic analysis. But, it generally would not be necessary for the fact finder to attach numbers to the probabilities and strength of the evidence on each side. As Judge Posner put the point in the context of his algebraic formula for deciding whether to grant a preliminary injunction, the formula "is intended not to force analysis into a quantitative straitjacket but to assist analysis by presenting succinctly the factors that the court must consider in making its decision and by articulating the relationship among the factors." *American Hosp. Supply Corp. v. Hosp. Prods. Ltd.*, 780 F.2d 589, 593 (7th Cir. 1986)

⁸⁰ For a similar analysis, see Gavil, *Dominant Firm Distribution*, *supra* note 34, at 78-79.

⁸¹ *United States v. Baker Hughes Inc.*, 908 F.2d 981 (D.C. Cir. 1990). *See also* *FTC v. H.J. Heinz Co.*, 246 F.3d 708 (D.C. Cir. 1990).

is unlikely to substantially lessen competition, or by discrediting the data underlying the initial presumption in the government's favor.⁸²

As in any antitrust case, the difficult and controversial issue is setting the appropriate standard for proof and the burden of proof placed on the plaintiff.⁸³ The consumer harm threshold, in principle, could be one of plausibility, tendency, significant likelihood, and so on, up to absolute certainty.

Areeda and Hovenkamp also seem to contemplate a consumer welfare effect standard in RRC cases. They say that exclusionary conduct "requires actual or prospective consumer harm."⁸⁴ They define (anticompetitive) exclusionary conduct as acts that:

- (1) are reasonably capable of creating, enlarging, or prolonging monopoly power by impairing the opportunities of rivals; and
- (2) that either (2a) do not benefit consumers at all, or (2b) are unnecessary for the particular consumer benefits that the acts produce or (2c) produce harms disproportionate to the resulting benefits.⁸⁵

Regarding the standard of proof, Areeda and Hovenkamp also observe that while "an expectation of consumer harm must always be at the logical end of any determination that a particular act 'monopolizes,' . . . this is not the same thing as showing that consumer harm has in fact resulted from the challenged practice."⁸⁶ Harm may "be threatened rather than realized."⁸⁷

1. *The Section 2 Consumer Welfare Effect Standard in the Case Law*

A consumer welfare effect standard for evaluating the Section 2 liability flows directly from the Court's observation that antitrust is a "consumer welfare prescription."⁸⁸ Such a standard was adopted explicitly by the

⁸² *Baker Hughes*, 908 F.2d at 992.

⁸³ See, e.g., Timothy J. Muris, *The FTC and the Law of Monopolization*, 67 ANTITRUST L.J. 693 (2000); David A. Balto & Ernest A. Nagata, *Proof of Competitive Effects in Monopolization Cases: A Response to Professor Muris*, 68 ANTITRUST L.J. 309 (2000); Timothy J. Muris, *Anticompetitive Effects in Monopolization Cases: Reply*, 68 ANTITRUST L.J. 325 (2000); see also Baker, *supra* note 24.

⁸⁴ 3 AREEDA & HOVENKAMP, *supra* note 13, ¶ 651d, at 79.

⁸⁵ *Id.* ¶ 651a, at 72.

⁸⁶ *Id.* ¶ 651d, at 80. The Areeda-Hovenkamp treatise uses the example of arresting drunken drivers before they actually kill someone. *Id.*

⁸⁷ *Id.* ¶ 651d, at 80.

⁸⁸ *Reiter v. Sonotone Corp.*, 442 U.S. 330, 343 (1979). Even this conclusion is not devoid of controversy, however. Compare Steven C. Salop, Question: What Is the Real and Proper Antitrust Welfare Standard? Answer: The True Consumer Welfare Standard, Statement Presented to the Antitrust Modernization Commission, available at http://www.amc.gov/public_studies_fr28902/exclus_conduct_pdf/051104_Salop_Mergers.pdf; Charles F. (Rick) Rule, Consumer Welfare, Efficiencies, and Mergers, Statement Presented to the Antitrust

D.C. Circuit in *United States v. Microsoft*,⁸⁹ in which the court outlined a test requiring the plaintiff to prove that consumers would be harmed.⁹⁰ If that showing is made, then the monopolist may offer a procompetitive justification for its conduct.⁹¹ This justification then must be either invalidated by the plaintiff or the beneficial impact on consumers must be shown to be outweighed by the evidence of anticompetitive consumer harm.⁹² In this way, the likely effect on consumer welfare is predicted. The court, making the point that this standard is similar to the analysis that courts routinely carry out under the Section 1 rule of reason,⁹³ quoted the Supreme Court's seminal *Standard Oil* opinion, stating:

[W]hen the second section [of the Sherman Act] is thus harmonized with . . . the first, it becomes obvious that the criterion to be resorted to in any given case for the purpose of ascertaining whether violations of the section have been committed, is the rule of reason guided by the established law.⁹⁴

Modernization Commission, *available at* http://www.amc.gov/commission_hearings/pdf/Statement-Rule.pdf

⁸⁹ *United States v. Microsoft Corp.*, 253 F.3d 34, 59 (D.C. Cir. 2001). In *Microsoft*, the court did little explicit balancing because there generally was nothing to balance. For some conduct, Microsoft lacked a cognizable procompetitive justification. For other conduct, the government failed to offer evidence that the consumer harm exceeded the benefits that the court attributed to the conduct. However, the court claimed to balance benefits and harms with respect to its analysis of Microsoft's licensing restriction. For that conduct, the court concluded that the prohibition on OEMs automatically launching a substitute user interface upon completion of the boot process was necessary to prevent a "substantial alteration" of Microsoft's copyrighted work and "outweighs the marginal anticompetitive effect" of the prohibition. *Id.* at 63. For certain other conduct, the court appeared to apply a non-balancing framework. For a discussion of this latter point, see Popofsky, *New Frontier*, *supra* note 15.

⁹⁰ *Microsoft*, 253 F.3d at 58–59.

⁹¹ *Id.* at 59.

⁹² *Id.*

⁹³ As stated by the court, "In cases arising under § 1 of the Sherman Act, the courts routinely apply a similar balancing approach under the rubric of the 'rule of reason.'" *Id.* at 59. In this regard, compare the D.C. Circuit's formulation in *Microsoft* to the Second Circuit's language on Section 1 in *United States v. VISA USA, Inc.*, 344 F.3d 229, 238 (2d Cir. 2003) ("For the government to prevail in a rule of reason case under § 1, the district court concluded, and the parties do not argue otherwise, that the following must be shown: As an initial matter, the government must demonstrate that the defendant conspirators have 'market power' in a particular market for goods or services. Next, the government must demonstrate that within the relevant market, the defendants' actions have had substantial adverse effect on competition, such as increases in price, or decreases in output or quality. Once that initial burden is met, the burden of production shifts to the defendants, who must provide a procompetitive justification for the challenged restraint. If the defendants do so, the government must prove either that the challenged restraint is not reasonably necessary to achieve the defendants' procompetitive justifications, or that those objectives may be achieved in a manner less restrictive of free competition.") See also Competitor Collaboration Guidelines, *supra* note 27, §§ 1.2, 3.37.

⁹⁴ *Microsoft*, 253 F.3d at 59 (quoting *Standard Oil Co. v. United States*, 221 U.S. 1 (1911)).

*Aspen Skiing*⁹⁵ also used language that suggests the use of consumer welfare effect as the overarching liability standard. First, the Court explicitly stated the relevance of “impact on consumers.”⁹⁶ Second, the jury instruction summation (affirmed by the Court) asked whether the defendant’s conduct was “designed *primarily* to further any domination of the relevant market or sub-market.”⁹⁷ This formulation admits the potential for multiple motives and the resulting need to compare evidence of opposing effects. Third, the Court asked whether the conduct “has impaired competition in an unnecessarily restrictive way.”⁹⁸ This formulation is similar to the “reasonably necessary” language used in Section 1 cases.⁹⁹ Evaluating whether the exclusion is “unnecessarily restrictive” (or “unreasonably exclusionary”) requires some method of comparing the evidence of conflicting motives and effects, which the consumer welfare effect standard provides. Applying this standard to the facts, the Court in *Aspen Skiing* also found that the comparison was not difficult. The jury concluded that Ski Co.’s conduct was not justified by “any normal business purpose.”¹⁰⁰

This type of consumer-oriented competitive effect analysis also was embraced by the FTC in the 1980 *du Pont* decision regarding DuPont’s expansion of its titanium dioxide production capacity. The FTC referred to its analysis as a “rule of reason-type approach,” which suggests its relationship to Section 1 analysis.¹⁰¹ As Commissioner Clanton opined, “we believe that there is no substitute for a careful, considered look at the overall competitive effect of the practices under scrutiny.”¹⁰² However, the profit-sacrifice test also figured in the Commission’s determination because complaint counsel argued that DuPont’s conduct involved profit sacrifice, a claim that was rejected by the Commission.

⁹⁵ *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985).

⁹⁶ *Id.* at 605.

⁹⁷ *Id.* at 597 (emphasis added).

⁹⁸ *Id.* at 605. The Court cites the Areeda and Turner treatise, referring to conduct that not only impairs rivals, but also “either does not further competition on the merits or does so only in an unnecessarily restrictive way.” *Id.* at 605 (citing 3 PHILLIP AREEDA & DONALD TURNER, *ANTITRUST LAW* 78 (1978)); see also *Byars v. Bluff City News Co.*, 609 F.2d 843, 853 (6th Cir. 1979). The term “unnecessarily restrictive” suggests that the firm’s procompetitive goal could have been achieved with conduct that would have permitted more competition.

⁹⁹ *NCAA v. Bd. of Regents*, 468 U.S. 85, 115 (1984) (NCAA’s television plan was not “necessary to enable the NCAA to penetrate the market” (emphasis added)); see also *United States v. Brown Univ.*, 5 F.3d 658, 669 (3d Cir. 1993).

¹⁰⁰ *Aspen Skiing*, 472 U.S. 585, 608.

¹⁰¹ *E.I. du Pont de Nemours & Co.*, 96 F.T.C. 653, 1980 FTC LEXIS 14, at ¶ 160 (1980).

¹⁰² *Id.*, 1980 LEXIS at ¶ 201.

2. *Applying the Consumer Welfare Effect Standard*

Antitrust law focuses on consumer welfare (in particular, preventing economic harm to purchasers from anticompetitive conduct), not the defendant's profits or the protection of competitors. Therefore, the consumer welfare effect standard is useful because it is a fact-based analysis of the competitive effect of the allegedly anticompetitive monopolizing conduct.¹⁰³ In most antitrust cases, the profit-sacrifice and consumer welfare effect standards will reach the same outcome. However, there is no reason to think that the impact on the defendant's profits in the hypothetical world of the profit-sacrifice test would be a good proxy for the impact on consumers. Therefore, highlighting those situations in which the two standards are likely to diverge is critical to a comparative analysis. These obviously are the "harder cases." But only by looking at the harder cases can the standards properly be evaluated and compared.

a. *Inducing Refusals to Deal by Independent Input Suppliers*

In the example used previously to illustrate the profit-sacrifice test, it was assumed that a dominant firm is initially selling 500 units at a price of \$60 per unit and earning profits of \$5000. It also was assumed that if the firm's closest competitor is denied access to a critical input sold by a number of input suppliers, then the firm would be able to raise its price to \$100 because the disadvantaged competitor would have the incentive to reduce its output and raise its own price. The alleged exclusionary conduct involves exclusionary vertical agreements with the critical input suppliers to refuse to supply the competitor in exchange for fees of \$3000 for refusal to deal agreements that lack any efficiency benefits (e.g., elimination of free riding).

Based on these facts, this exclusionary conduct is anticompetitive and would violate the consumer welfare standard because it causes consumers to pay higher prices, with no offsetting consumer information or quality benefits that might occur if the conduct had eliminated free riding. Consumer welfare also would fall if there were modest benefits that were insufficient to reverse or offset the higher prices.

There would be no liability, however, if consumers could turn easily to other competitors who continue to sell a homogeneous product at the initial \$60 price. In this scenario, consumers would not be harmed

¹⁰³ For a general analysis of the application of the consumer welfare effect standard to specific RRC exclusionary conduct, see Krattenmaker & Salop, *supra* note 22.

by the agreements, despite the fact that the agreements harm competitors and lack any efficiency benefits.¹⁰⁴

It might be argued that this scenario would be highly unexpected. First, the other unrestrained competitors might have the ability and incentive to raise their prices above \$60 once some of their rivals are denied access to the critical input. But, that result does not follow as a matter of logic and is not always the case in practice. It depends on the number and excess capacity of the unrestrained competitors and their ability to successfully coordinate prices.¹⁰⁵ Second, it might seem that the defendant would lack an incentive to pay input suppliers to refuse to deal in this situation. But, as discussed in the earlier analysis of the profit-sacrifice standard, the defendant's profits nonetheless may increase because it is able to expand its sales at the \$60 price. For example, if its sales would increase by 100 units and its profit margin were more than \$30 per unit (as opposed to the \$10 assumed in the hypothetical), these increased profits would exceed the \$3000 paid to the input suppliers for the exclusion.

b. Predatory Pricing

In *Brooke Group*, the Court did not adopt an explicit consumer welfare effect standard, opting instead for its two-prong test of whether there was below-cost pricing and a dangerous probability of recoupment.¹⁰⁶ Predatory pricing delivers short-run benefits to consumers in the form of lower prices during the predatory period and, if the predation is successful, higher prices (and consumer welfare losses) during the recoupment period. If a court were to apply the consumer welfare effect test to predatory pricing, the defendant's strategy would violate the consumer harm standard only if the net present value of consumer welfare decreased from the conduct. That is, the court would evaluate whether the consumer benefits from lower prices achieved during the predatory period outweigh the likely harm during the recoupment period, taking into account the time value of money.¹⁰⁷ Thus, the

¹⁰⁴ If the products were differentiated, then consumers would be harmed from the reduction in variety and consumer choice. This finding could form the basis for antitrust liability under the consumer welfare standard. However, it is not clear that a court would treat the reduction in variety and choice as sufficient for liability. For further discussion of this policy issue, see *infra* note 193. See also Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach*, 63 ANTITRUST L.J. 513, 548-49 (1995).

¹⁰⁵ For further analysis, see Krattenmaker & Salop, *supra* note 2.

¹⁰⁶ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 222-23 (1993).

¹⁰⁷ The *Brooke Group* recoupment test evaluates the likelihood that the predator would be able to raise price subsequently. This recoupment analysis could be used as part of the evaluation of the impact on consumers but the two calculations are not identical.

consumer welfare effect standard could be more or less permissive than either the *Brooke Group* or the profit-sacrifice standard, depending upon the exact facts.¹⁰⁸

c. Incompatible Design Change

As discussed earlier, if the profit-sacrifice standard were applied to an incompatible design change that is a necessary, inextricable feature of the performance improvement, that standard would compare the increase in product value to consumers from the design change to the defendant's increased cost of the improved product.¹⁰⁹ This increased value would be compared to the increased cost in order to gauge whether the firm's profits would increase in the hypothetical world. In the example, the increased value was \$5 per unit. If the increased cost were \$3 per unit, then the conduct would pass muster. It would be condemned under a profit-sacrifice test if the unit cost increase were \$6. Thus, the profit-sacrifice standard requires the court (or the firm) to quantify the value of the product improvement to consumers and compare that change in value to the increased cost of producing the improved product.

Under the consumer welfare effect standard, the relevant antitrust question is whether the evidence better supports the view that the overall effect of the design change is procompetitive rather than anticompetitive, i.e., whether consumers are benefited or harmed. The court would focus on the quality-adjusted price. It would compare the increased value of the new product to the increased price paid by consumers, not to the increased cost borne by the defendant.

This consumer effect analysis could find antitrust liability despite the fact that the conduct involves a product improvement because the improvement in the hypothetical is inextricably linked to the elimination of compatibility and the resulting diminution of competition. For example, suppose the combination of the product improvement and incompatibility permits the dominant firm to raise its price for the new product by \$50 but the increased value to consumers is only \$5.¹¹⁰ On these facts,

¹⁰⁸ It could be more permissive because the strategy may not reduce the net present value of consumer welfare, even if there is below-cost pricing. It could be less permissive because it would not be necessary to show below-cost pricing. *See* Edlin, *supra* note 24.

¹⁰⁹ *See supra* Part II.B.2. Simply showing the new product is qualitatively better is not sufficient to escape liability because the price increase in the hypothetical benchmark world would be assumed to be equal to the increased value of the new product's performance.

¹¹⁰ As discussed previously, if the incompatibility were not a reasonably necessary by-product of the product improvement (for example, if a compatible version could be produced at the same cost, or if the older compatible version also still could be made available), then the incompatibility itself would be attacked. Absent the costly reduction in compatibility, consumers would have obtained the product improvement *and* continued

the quality-adjusted price clearly rises and consumer welfare is reduced because paying \$50 extra for \$5 worth of product improvements is a bad deal for the consumers who purchase the product. The product improvement is valued by consumers, but not by enough when it comes unavoidably bundled with increased barriers to competition that permit such large price increases.

Of course, if the product improvements were large enough, the result would change. For example, suppose that the product improvements raised the performance value to consumers by \$60 instead of \$5. In that case, even paying \$50 more for the product would reduce the quality-adjusted price and raise consumer welfare, if the incompatibility and resulting exclusion of competitors are necessary to achieve the \$60 increase in value.

This analysis has assumed that the ex post market outcome of the innovation was certain. However, in the real world, innovation often is an uncertain process. It is possible that at the time that the innovation was made, the innovator could not reasonably expect the innovation to allow it to raise price disproportionately to the consumer benefits. The fact that the new product turned out to be incompatible, and the fact that the rivals were unable to re-achieve compatibility, may have been a surprise. In those circumstances, a purely ex post analysis could lead to false positives.¹¹¹ Instead, the conduct would be evaluated from an ex ante perspective, based on the information reasonably available at the time that the innovator made its investment decision.¹¹²

d. Cost-Reducing Investments

A common concern about the consumer welfare effect standard is that it might be used to condemn a simple cost reduction by a firm with market power. To analyze this issue, consider the following example. Two firms are competing by selling differentiated products. The larger firm has variable costs of \$20 per unit and the smaller firm has variable costs of \$40. Because they produce differentiated products, their prices exceed their variable costs. Suppose that the low-cost firm charges \$50 and the high-cost firm charges \$60.¹¹³ Furthermore, assume the low-cost

competition. The profit-sacrifice standard would lead to the same result in this scenario. This issue about the availability of the old product was raised in the *Berkey* case, though in that matter, Kodak continued to sell the old type of film. *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 287 n.39.

¹¹¹ It could lead to false negatives in situations where the price likely would rise but turned out not to increase.

¹¹² This issue is discussed in more detail below. *See infra* Part II.D.3.

¹¹³ The low-cost firm might be able to obtain a 100% market share by reducing its price significantly, but the example assumes that this would not be the profit-maximizing strategy.

firm has a much higher market share, say 85 percent, and that there are barriers that would prevent entry by any other competitors.

Given these initial conditions, suppose that the low-cost firm has an opportunity to invest in a proprietary new lower-cost production technology that would push its production costs down from \$20 to \$5. Assume the firm makes this capital investment and reduces its price to \$30, at which point the smaller firm files a Section 2 complaint claiming that it is unable to match the lower production costs and will be forced to exit from the market. To focus on the differences between the standards, suppose that the smaller firm can establish that, once it exits, it would be unable to re-enter the market in the future, even if the larger firm subsequently raises its price.¹¹⁴

If the smaller firm alleges that the larger firm's capital investment in the new, more efficient technology is an anticompetitive exclusionary investment (i.e., because the firm's investment that will raise the plaintiff's investment costs to a prohibitive level and cause it to exit from the market, allowing the larger firm to achieve a durable monopoly), how would this complaint be treated under the profit-sacrifice and consumer welfare effect tests?

Some commentators¹¹⁵ and courts¹¹⁶ might want to take the position that such cost-reducing investments should be permissible per se, regardless of their effect on consumers. But, the profit-sacrifice standard could be applied to this conduct, and the investment strategy could be condemned under the profit-sacrifice test, depending on the magnitude of the investment cost of the new technology. In particular, suppose that it was reasonably foreseeable by the firm that an adequate return on this investment cost only could be recovered by driving the rival out of business and raising price. In this case, the strategy would fail the profit-sacrifice test (including the no economic sense version) because it would

¹¹⁴ If the smaller firm alleges predatory pricing in its complaint, it would lose under *Brooke Group* because the larger firm is not pricing below its costs.

¹¹⁵ See, e.g., Elhauge, *supra* note 34, at 316–20. In this case, the smaller firm was less efficient even before the larger firm's cost-reducing investment so that the equally efficient competitor standard also would not be violated. Werden would place such cost-reducing conduct in a safe harbor. Werden, *supra* note 10, at 419 n.25.

¹¹⁶ For example, perhaps Judge Douglas Ginsburg had something like this in mind with his statement in *Covad* that if Bell Atlantic's deceptive advertising forced Covad to increase its own advertising in response, "competition was only enhanced." *Covad Communications Co. v. Bell Atl. Corp.*, 398 F.3d 666, 674 (D.C. Cir. 2005). However, what seems peculiar about this statement is that the allegation involved deceptive advertising, not a simple cost reduction. Deceptive advertising directly harms consumers and potentially raises rivals' counter-advertising costs. Judge Ginsburg simply assumes away the possibility of anticompetitive effect.

be unprofitable on balance, absent the lessening of competition caused by the plaintiff's exit and the subsequent price rise.¹¹⁷

Under the consumer welfare effect standard, the plaintiff would need to prove that it was reasonably foreseeable that the plaintiff might exit rather than emulate the larger firm's investment strategy and reduce its own costs (which would have prevented price from rising and harming consumers). The plaintiff also would need to prove that consumers likely would be injured from the strategy. Even assuming that exit and the subsequent price increase was certain, consumer harm is not inevitable from the overall strategy, taking into account the consumer benefits achieved during the interim period when the market prices were lower. The consumer welfare effect standard is not a vague and open-ended balancing test but rather involves the calculation of the "average" price, taking into account the volume of sales at the different prices over time and the time value of money.¹¹⁸ Proving consumer harm would not be easy.

Thus, it is not clear that the defendant has much to fear here from the consumer welfare effect standard. First, under the consumer welfare effect standard, the plaintiff would have the burden, not the defendant. It is not clear that the plaintiff would have the burden under the profit-sacrifice test.¹¹⁹ Second, it is not clear that the consumer welfare effect standard would be more restrictive than the profit-sacrifice standard in this case and may well be less restrictive.

3. *Applying the Consumer Welfare Effect Standard Ex Ante*

This example of cost-reducing investment raises an important point about the consumer welfare effect standard that may be misunderstood. In this type of case, the consumer welfare effect analysis generally would be an *ex ante* analysis, not an *ex post* analysis. That is, the court would evaluate the likelihood and magnitude of expected consumer benefits or harms based on the information reasonably available at the time that the conduct was undertaken. It would not simply examine the ultimate *ex post* market effect. This timing makes sense because any deterrence

¹¹⁷ This test assumes that the benchmark for the profit-sacrifice evaluation uses the initial prices and quantities of both firms. As discussed below, another possible implementation of the profit-sacrifice test would use the initial prices as the price benchmark but allow the quantities to adjust to the new costs. This test is more permissive, but it still might be failed for a cost reduction if the higher price is also needed to achieve profitability.

¹¹⁸ The plaintiff's task also would be made more difficult because the low prices are achieved in the present while the high prices occur in the future and because downward-sloping demand curves mean that more units are sold at low prices than at high prices.

¹¹⁹ The defendant may well be assigned the burden with the profit-sacrifice test because it controls the relevant evidence. *See infra* Part IV.D.

only could take place on the basis of *ex ante* information and because the defendant is not compensated by the judicial system when consumer welfare increases.¹²⁰ Thus, a key issue would be what consumer effect was reasonably foreseeable at the time of the investment. (Similarly, the profit sacrifice standard also would be carried out on an *ex ante* basis.¹²¹)

This foreseeability analysis can be illustrated with the cost-reducing investment example. Suppose that, at the time that the investment was made, the firm understood that there were two possible market outcomes. In one scenario, the rival would achieve its own matching cost reductions through its own investments, in which case prices would fall and consumers would benefit. In the other scenario, the rival would be unable to achieve any cost reductions and would exit the market, at which point prices would rise (say, permanently) to the monopoly level. It is clear that consumers would be better off if the defendant would undertake the investment in the first scenario where it would lead to lower prices *ex post* but would have forgone the investment in the second scenario where it would lead to higher prices *ex post*.

Suppose that the firm reasonably could identify the applicable scenario before making the investment. In this case, the *ex ante* and *ex post* analysis would be identical. If the firm knew (or reasonably should have known) that the second market scenario would result and it made the investment, then the conduct would be condemned under the consumer welfare effect standard. The investment was harmful to consumers.

However, in many cases, at the time the investment is made, the firm would not be able to identify which scenario actually would occur. It would be a matter of probabilities. In those cases, the consumer welfare effect would be evaluated on an *ex ante* basis, using those reasonable probabilities. The analysis would involve estimating the likely impact on prices and consumer welfare. The conduct would be condemned only if *expected* consumer harm were found or, stated differently, only if the likelihood and magnitude of the potential consumer harm (in the second scenario) outweighed the likelihood and magnitude of the potential consumer benefits (in the first scenario).¹²²

¹²⁰ See the numerical example *infra* note 141.

¹²¹ Werden also points out that the no economic sense standard would be evaluated on the basis of what was reasonably foreseeable at the time that the conduct was undertaken. Werden, *supra* note 10, at 416; see also *id.* at 417 n.16 (noting that in *Dentsply*, the district court found that the defendant had undertaken conduct with the mistaken belief that it would have an exclusionary effect).

¹²² For an example of this type of analysis in the context of mergers, see Heyer, *supra* note 63. This also is similar to the type of *ex ante* determination undertaken in preliminary injunction cases. For example, Judge Posner suggests that the court should compare “the

This same ex ante focus of the consumer harm analysis would be used even if the case were brought after the fact, that is, after it became known that the second scenario actually occurred, perhaps as evidenced by the fact that the rival exited the market and prices rose. It would not make sense for a court to base liability solely on the actual ex post outcome if the defendant could not have known ex ante that this outcome was reasonably likely to occur. Because the goal of antitrust rules is to create optimal deterrence, the standard must be based on what the firm knew or should have known at the time that the conduct was undertaken.¹²³ This ex ante standard has important implications for the evaluation of false positives and false negatives caused by the different standards.¹²⁴

III. EVALUATING THE PROFIT-SACRIFICE AND CONSUMER WELFARE EFFECT STANDARDS

The fundamental question for antitrust is which standard provides a more accurate appraisal of the competitive effect of exclusionary conduct. A decision-theoretic approach to legal rules shows that the consumer welfare standard for exclusionary conduct is subject to less error than the profit-sacrifice standard. And, any potential for “false positives” from the consumer welfare standard is better resolved by awarding close cases to the defendant than by making a qualitative change in the legal standard and requiring the plaintiff to show profit sacrifice.

A. A DECISION-THEORETIC FRAMEWORK FOR ANTITRUST LIABILITY STANDARDS

Decision theory provides a framework for determining legal standards by analyzing the cost of legal errors and legal process costs.¹²⁵ For

probability of an erroneous denial weighted by the cost of denial to the plaintiff” with “the probability of an erroneous grant weighted by the cost of grant to the defendant.” *Am. Hosp. Supply Corp. v. Hosp. Prods. Ltd.*, 780 F.2d 589, 593 (7th Cir. 1986). *See also* *R.J. Reynolds Tobacco Co. v. Philip Morris Inc.*, 60 F. Supp. 2d 502, 511 (M.D.N.C. 1999).

¹²³ Similarly, if the investment were found to cause likely consumer harm on the basis of the ex ante analysis, the defendant would not be excused because price did not rise ex post. Easterbrook and Werden suggest that firms should not be condemned for their mistakes. *See* Easterbrook, *Predatory Strategies*, *supra* note 5, at 267 (observing that a failed attempt at predation “occasions no loss to consumers; a price reduction not leading to monopoly . . . simply benefits consumers by saving them money.”); Werden, *supra* note 10, at 416 (“The test does not condemn conduct undertaken because of an unreasonable belief that the conduct would have an exclusionary effect.”). However, in this case, the defendant did not make a mistake ex ante, but rather was just unlucky ex post. Of course, because the conduct failed ex post, such cases might better be pleaded as attempted monopolization rather than as monopolization.

¹²⁴ *See infra* Part III.A.

¹²⁵ Isaac Ehrlich & Richard Posner, *An Economic Analysis of Legal Rule Making*, 3 J. LEGAL STUD. 257 (1974); C. Frederick Beckner, III & Steven C. Salop, *Decision Theory and Antitrust Rules*, 67 ANTITRUST L.J. 41 (1999); Heyer, *supra* note 63.

example, in the context of Section 1 claims, the long-held antitrust bias is that the likely consumer harm from erroneously permitting a successful price-fixing conspiracy (i.e., a “false negative”) is far greater than the likely consumer harm from erroneously prohibiting joint price setting that has no anticompetitive effect (i.e., a “false positive”). This assumption provides a rationale for the per se and quick-look rules that can eliminate the requirement that plaintiffs prove anticompetitive harm to consumers.¹²⁶

Decision-theoretic analysis also can be applied to the determination of Section 2 standards.¹²⁷ This analysis might involve a general Section 2 standard, or different standards for specific categories of conduct.¹²⁸ The *Copperweld* decision reflects the view that antitrust enforcers generally should be more skeptical of agreements (particularly agreements among competitors) than unilateral conduct.¹²⁹ Although a fear of false positives from constraining unilateral conduct (even by a monopolist) was used by the Court in *Trinko* as a general rationale for the profit-sacrifice test for exclusionary conduct, the analysis here suggests that this confidence in the profit-sacrifice standard over the consumer welfare effect standard is misplaced.¹³⁰

¹²⁶ For example, this is the basic approach taken in *FTC v. Superior Court Trial Lawyers Ass'n*, 493 U.S. 411 (1990). For a general analysis of antitrust short-cut rules in the context of decision theory, see Beckner & Salop, *supra* note 125. Decision theory can be used to rationalize rules of per se legality as well as per se illegality.

¹²⁷ For the application of the decision-theoretic approach to monopolization law, see Salop & Romaine, *supra* note 14; Cass & Hylton, *supra* note 5; Easterbrook, *supra* note 5; Gavil, *Dominant Firm Distribution*, *supra* note 34; Heyer, *supra* note 63.

¹²⁸ For example, Mark Popofsky suggests how application of various legal tests for monopolization would be appropriate for different types of exclusionary conduct in light of differences in enforcement costs and the likelihood of false positives and false negatives. Popofsky, *Antitrust Rules*, *supra* note 15.

¹²⁹ *Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 768 (1984). Professor Gavil has suggested that the *Copperweld* distinction has been weakened over time by the courts' increased reliance on direct evidence of actual anticompetitive effect. Andrew I. Gavil, *Copperweld 2000: The Vanishing Gap Between Sections 1 and 2 of the Sherman Act*, 68 ANTITRUST L.J. 87, 102-04 (2000).

¹³⁰ The *Trinko* Court stated that “the cost of false positives counsels against an undue expansion of § 2 liability.” *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 414 (2004). The *Trinko* Court also said that *Aspen Skiing* is “at or near the outer boundary of § 2 liability,” presumably because of a concern about false positives. *Id.* at 399. *Aspen Skiing*, however, also was at the outer boundary because the defendant's lawyers erred by failing to appeal the narrow geographic market definition. More importantly, the plaintiff wanted to fix prices with the defendant through the jointly priced weekly ticket. *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 591 n.9 (1985). But the Court apparently could not dispose of the case on these grounds because Ski Co. dropped the issue. *Id.* at 598 n.22. The *Trinko* Court did not even mention this aspect of the defendant's conduct. Instead, it focused solely on the fact that the defendant refused to sell daily tickets at the retail price to the plaintiff. That latter conduct is

In decision-theoretic terms, there are two kinds of erroneous decisions, *ex ante* errors and *ex post* errors. When a decision maker is forced to make decisions with imperfect information, some *ex post* errors are inevitable. The best the decision maker can do is to make the optimal decision in light of the limited information available. However, where this is not done, the decision maker commits an *ex ante* error. Suppose that the chance of rain is 99 percent and the decision maker chooses to carry an umbrella. If it turns out not to rain, that decision would be an *ex post* error. However, if the decision maker chooses not to carry an umbrella in this situation, that decision would be an *ex ante* error, even if it fortuitously does not rain.

The profit-sacrifice standard allows both types of errors to be made.¹³¹ It permits conduct that causes *ex post* consumer harms. It also permits exclusionary conduct that causes *ex ante* consumer harms, i.e., conduct that reduces expected consumer welfare, taking into account the probability of benefits and harms. This general result is obvious because the direct impact on the defendant's profit is not equivalent to the overall impact of the conduct on consumer welfare, either *ex ante* or *ex post*. In fact, the profit-sacrifice test is not focused at all on the effect of the conduct on consumers. Rather, it is focused on the defendant's profits in a hypothetical world. These hypothetical profits are a highly imperfect (and generally biased) predictor of the impact of the conduct on competition and consumer welfare.¹³²

B. COMPARING THE INCIDENCE OF FALSE NEGATIVES AND FALSE POSITIVES

The previous example of the incompatible design change illustrates how the profit-sacrifice test can lead to false negatives. Consider the simple situation discussed where the market outcome is highly predictable at the time that the conduct is undertaken and *ex ante* and *ex post* are identical. In that example, the price increase benchmark for the profit-sacrifice test would be \$5 (i.e., the increase in product performance which would lead to a constant quality-adjusted price). If the design

farther from the outer boundary because it prevented the plaintiff from competing, not from colluding.

¹³¹ See Vickers, *supra* note 34, at F255; see also Edlin & Farrell, *supra* note 21, at 31 (“‘sacrifice’ . . . is logically neither necessary nor sufficient for harm to competition. It could yet be a useful test, but only because of some (still unexplored) empirical correlation, not as a matter of economic logic.”); Elhauge, *supra* note 34, at 271.

¹³² The direction of the bias—false positive or false negative—depends on the type of conduct being evaluated, as discussed in the various examples. In addition, the standard systematically diverts attention away from the impact of exclusionary conduct on consumers.

change costs only \$3 per unit, the defendant would not violate the profit-sacrifice test. But, if that design change necessarily raises entry barriers by making competing products incompatible and that inextricably linked incompatibility would permit the firm to raise its price by \$50, then consumers would be harmed because the quality-adjusted price would rise. If the profit-sacrifice standard were used, no sacrifice would be found despite this consumer harm. The result would be a false negative.

Although the profit-sacrifice test is generally more prone to false negatives, it sometimes can lead to false positives and condemn potentially exclusionary conduct that raises consumer welfare. The pure cost reduction hypothetical discussed earlier provides an example.¹³³ Consider first the simple version with perfect information, in which the impact on exit and price is known with certainty at the time the investment is undertaken.¹³⁴ As discussed in that example, it could well be that the firm would be able to recover its investment cost in a more efficient technology *only* if it were able to gain a monopoly market share and raise its price. If so, the investment would be condemned under the profit-sacrifice standard. However, that investment would pass muster under the consumer welfare effect standard, despite the higher ultimate prices, if market prices were sufficiently lower during the interim period before competitors exited from the market and the interim period were sufficiently long.¹³⁵

¹³³ See *supra* Part II.D.2.d; see also Elhauge, *supra* note 34, at 274–79; Marius Schwartz, *Investments in Oligopoly: Welfare Effects and Tests for Predation*, 41 OXFORD ECON. PAPERS 698, 701 (1989).

¹³⁴ That is, it is reasonably foreseeable that the second scenario would result.

¹³⁵ In yet another example, suppose that a dominant firm undertakes an investment that reduces its variable costs by \$5 per unit. Suppose further that the dominant firm realizes that its investment can and rapidly would be imitated by rivals, leading them to reduce their own costs by the same \$5. As a result, the dominant firm decides that it cannot recover the cost of its investment and chooses not to undertake the investment. However, suppose that the dominant firm instead tweaks the technology slightly so that its investment breaks an industry standard, which in turn means that competitors can reduce their costs by only \$3 per unit. As a result, the firm finds it necessary to reduce its price only by \$3 and, as a result, earns a sufficient return to justify the investment. This conduct would escape liability under the consumer welfare test because prices fell. However, it might fail the profit-sacrifice test. The profit-sacrifice test might assume that the but-for benchmark involves the standard not being broken and the rivals' costs reduction not being constrained. It might be assumed that the hypothetical market price in this but-for world would decrease by \$5, not \$3. At this benchmark price decrease, the dominant firm investment would not be profitable and so would fail the profit-sacrifice test. If the profit-sacrifice standard were implemented in this way, it would generate a false positive. Melamed, *Exclusionary Conduct*, *supra* note 11, at 17, criticizes this hypothetical as being unrealistic. He argues that the defendant also would bear some costs from the broken industry standard. However, having the defendant also bear a cost would not necessarily render the conduct unprofitable overall nor cause consumer harm on balance. He also suggests that the defendant would more likely use its cost advantage to drive the rivals out of

Some formulations of the profit-sacrifice test for Section 2 also would create false positives by condemning exclusionary conduct in markets in which the dominant firm is unable to gain sufficient market power to raise price.¹³⁶ For example, suppose that a firm destroys the counter displays of one of its rivals and, as a result, profitably increases its market share. However, suppose that the defendant is unable to increase its price because of the existence of other competitors. Liability would not attach to this conduct under the consumer welfare effect standard because of the lack of any significant impact on price or consumer welfare.¹³⁷ However, some implementations of the profit-sacrifice test would condemn this conduct.

Proponents of the profit-sacrifice standard might concede these errors but still favor the profit-sacrifice test. They might argue that false positives are rare with the profit-sacrifice standard or would be eliminated by mandating a combined standard under which the plaintiff would be required to satisfy both the profit-sacrifice standard and the consumer welfare effect standard.¹³⁸

Profit-sacrifice proponents might not be concerned about false negatives, arguing that the profit-sacrifice test is *intended* to trump direct evidence of anticompetitive effect in particular cases because the entire *category* of challenged exclusionary conduct ultimately benefits consumers by creating more competition and better products. This criticism

business, a conclusion that implicitly assumes that products are undifferentiated and that the firms have no capacity constraints. Finally, Melamed suggests that the defendant may have undertaken the innovation out of fear that someone else would move first, an assumption that is possible, but certainly is not compelled by any economic logic. For example, sometimes it is the idea that is original, not the implementation of the idea. Because ideas may not be patentable, the implementation can be rapidly imitated once the idea becomes known.

¹³⁶ For a similar point, see Creighton et al., *supra* note 25.

¹³⁷ These false positives would be eliminated by the combined standard, but that approach raises the question of whether the profit-sacrifice prong adds any incremental value, in that it also causes false negatives.

¹³⁸ Several commentators use the profit-sacrifice test as a test of whether the conduct is “predatory.” They then set out a structural analysis to gauge whether successful recoupment is likely, though this is not equivalent to a full consumer welfare analysis. *See, e.g.,* Melamed, *Exclusionary Conduct*, *supra* note 11, at 11 n.19; Ordover & Willig, *Predation*, *supra* note 36, at 9–13. In a more recent article, Ordover and Willig add a third prong that analyzes the likelihood and sources of monopoly profits from exclusion. Ordover & Willig, *Access and Bundling*, *supra* note 34, at 109–10. In addition, they also require a showing of harm to competition. *Id.* at 111 n.7. Werden, *supra* note 10, at 417, states that the no economic sense test “is applied only after a demonstration that the challenged conduct actually has some tendency to eliminate or lessen competition.” This suggests a two-part test with a type of anticompetitive market impact prong. However, Werden’s use of the classic incipency terminology of “tendency to eliminate or lessen competition” suggests a low bar for the plaintiff on its showing.

essentially makes a distinction between ex ante and ex post effect. The argument amounts to a claim that while consumers might gain ex post (i.e., in some cases) from the use of a consumer welfare effect standard, the use of the consumer welfare effect standard would generally over-deter innovative conduct by dominant firms ex ante (i.e., on average). According to this view, there also is no way for courts accurately to balance the ex post and ex ante costs and benefits on a case-by-case basis. Instead, the profit-sacrifice test must be substituted or added to stop courts from intervening too often.¹³⁹

This criticism of the consumer welfare effect standard seems to assume erroneously that the effect analysis invariably would be based solely on (ex post) information that was unavailable at the time that the exclusionary conduct was undertaken, rather than evaluated ex ante. That is not the case.¹⁴⁰

If the court were to base its decision on the ex post outcome even when the defendant faced a high degree of uncertainty ex ante, then there could well be over-deterrence. Investments with a high likelihood of benefiting consumers, a low likelihood of harming consumers, and positive expected contribution to consumer welfare would be condemned in those situations when they happened to work out badly for consumers. As a result, investments with a positive expected contribution might be deterred, to the detriment of consumers.¹⁴¹ However, this purely

¹³⁹ Melamed, *Exclusionary Conduct*, *supra* note 11, at 27.

¹⁴⁰ In the cost-reducing investment example, if the firm could not reasonably have known at the time that the investment was made whether prices ultimately would rise or fall with a high degree of certainty, then the consumer welfare effect standard would evaluate the impact of the conduct on an ex ante basis, using the information available at the time the conduct was undertaken. See 3 AREEDA & HOVENKAMP, *supra* note 13, ¶ 651b2, at 76; *id.* ¶ 651d, at 81; see also *United States v. Microsoft Corp.*, 253 F.3d 34, 79 (D.C. Cir. 2001).

¹⁴¹ The general potential for over-deterrence from an ex post evaluation of consumer welfare can be illustrated with a simple numerical example. Suppose that alleged exclusionary conduct by a dominant firm is predicted ex ante to have a 50% chance of raising consumer welfare by 2000, if rivals match the firm's expenditures, which leads to prices falling or remaining the same. But, suppose that the conduct also has a 50% chance of harming consumers and reducing consumer welfare by 1000 from higher prices, if rivals are unable to match and instead are forced to reduce their output or exit. Suppose that, in the event that consumer welfare is raised, the defendant's profits would fall by 10, whereas if consumer welfare were reduced, the defendant's profits would rise by 100. Absent antitrust rules, the firm would engage in the conduct because the expected value of its profits is positive. Suppose, however, that the conduct is evaluated under the consumer welfare standard on an ex post basis in the event that consumers turn out to be harmed. Suppose further that in this case, the firm is assessed "single" damages equal to the 1000 reduction in consumer welfare. Under this rule, the firm would be deterred from engaging in the conduct because its profits would fall by 10 if the conduct benefits consumers and its profits net of the damages would fall by 900 (i.e., 100 - 1000) if the conduct turns out to harm consumers. But this would represent over-deterrence because the conduct raises

ex post approach would be an improper implementation of the consumer welfare effect standard when there is a high degree of ex ante uncertainty.

Implementing the consumer welfare effect standard on an ex ante basis may turn out to cause some ex post false positives or false negatives. Conduct that predictably leads to expected consumer benefits but unfortunately turns out to harm consumers ex post would not be condemned.¹⁴² Similarly, conduct that predictably leads to expected consumer harms but fortuitously turns out not to harm consumers ex post would be condemned. The potential for these ex post errors must be tolerated for optimal ex ante deterrence when the outcome is probabilistic.

At the same time, it is important to emphasize that this ex ante approach does not mean that any small likelihood of consumer benefit would permit the defendant to escape liability. In many cases, at the time that the exclusionary conduct is undertaken, the defendant does not face a significant uncertainty regarding the likely outcome: the consumer harm often is reasonably foreseeable and, indeed, may be the primary goal as well as the expected outcome of the exclusionary conduct. In such cases, the use of ex post analysis would be appropriate and would not cause false positives. In addition, the legal standard placed on the plaintiff for proof of consumer harm should not be excessive. In this regard, the consumer harm might be threatened rather than actually realized.¹⁴³

Critics of the consumer harm standard might argue that even this ex ante application of the consumer harm standard causes ex ante false positives and leads to over-deterrence because it is difficult to estimate the impact on consumer welfare, even on an expected value basis.¹⁴⁴ Under these circumstances, it would be argued, the courts should err in the direction of false negatives because those errors are less serious. For example, Professor (now Judge) Frank Easterbrook argues that over-

the expected value of consumer welfare by 500. For this reason, the conduct properly would not be condemned in a ex ante evaluation. Note that this over-deterrence would not be mitigated by use of injunctive relief instead of damages. If the defendant is denied the opportunity to increase its profits, it will not institute the conduct. Incidentally, note that this conduct also would violate some versions of the profit-sacrifice test. Although the firm's expectation is that profits will rise (because the expected value of profits rises by 45), the conduct would be unprofitable absent the consumer harm from the higher prices in the event that rivals are unable to match. Because the expected value of consumer welfare rises, the profit-sacrifice standard would lead to over-deterrence, that is, a false positive.

¹⁴² *Id.*

¹⁴³ 3 AREEDA & HOVENKAMP, *supra* note 13, ¶ 651d, at 80.

¹⁴⁴ Melamed, *Unifying Principles*, *supra* note 11, at 380–81.

deterrence (resulting from false positives) is more serious than under-deterrence (resulting from false negatives) because over-deterrence can slow innovation whereas false negatives will be self-corrected by market entry.¹⁴⁵

However, this reasoning is inapplicable to modern antitrust enforcement. Because entry can eliminate the harms from anticompetitive conduct, or even deter it, ease of entry routinely is taken into account in determining liability for monopolization. When entry is easy, the defendant properly would escape Section 2 liability under the consumer harm standard. Thus, there would be no false positives because there would be no liability.

In contrast, if the liability standard itself is relaxed, the outcome will be harmful when there are entry barriers; the result will be a durable monopoly. When there are high entry barriers, a destroyed entrant likely cannot be resurrected or replaced. Thus, this analysis of entry barriers suggests that the profit-sacrifice standard leads to under-deterrence, not that the consumer harm standard leads to over-deterrence.

As for innovation, anticompetitive exclusion likely would reduce innovation in dynamic markets by eliminating rivals that would innovate and by decreasing competitive pressure that would force the monopolist to innovate. In fact, there is perhaps a greater irony in relying on Judge Easterbrook's advice. The entrant that is being destroyed, in fact, may be the very innovative firm trying to serve as the self-correcting market response to entry. Allowing exclusionary conduct reduces, or even eliminates, the ability of the market to self-correct.¹⁴⁶ Moreover, there is no evidence that dominant firms' innovations have been deterred by the fear of antitrust.¹⁴⁷

Judge Easterbrook also argues that false positives can set judicial precedents that will not be undone. While that may have been true forty years ago, there have been major shifts in key antitrust precedents since then. There is no reason to think that plaintiff verdicts create stronger prece-

¹⁴⁵ Frank Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 3 (1984) [hereinafter *Limits of Antitrust*]. For a recent criticism of the view that markets are self-correcting, see David McGowan, *Between Logic and Experience: Error Costs and United States v. Microsoft*, 20 BERKELEY TECH. L.J. 1185 (2005).

¹⁴⁶ Steven C. Salop, *The First Principles Approach to Antitrust, Kodak, and Antitrust at the Millennium*, 68 ANTITRUST L.J. 187, 197-98 (2000) [hereinafter *First Principles*]. See also Gavil, *Dominant Firm Distribution*, *supra* note 34, at 37-38. Deterrence in this area also is reduced by the courts' unwillingness to use a strong remedy for the destruction of nascent competitors. See *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001).

¹⁴⁷ Jonathan Baker, *The Case for Antitrust Enforcement*, 17 J. ECON. PERSP., Fall 2003, at 27, 41 [hereinafter *Antitrust Enforcement*].

dents than do defense verdicts, either today or in the last twenty-five years since the use of per se rules outside of naked price fixing has declined.¹⁴⁸ And, broad precedents are unlikely in a case-by-case rule of reason analysis under Section 2.

A different type of criticism involves judicial competence. Some anti-trust experts argue that implementing the consumer welfare effect standard is beyond the competence of judges and juries.¹⁴⁹ Judge Easterbrook also argues that courts cannot rely on economics because economists take a long time to decide and do not agree.¹⁵⁰ These criticisms seem extreme and unreliable. The rule of reason has been used in Section 1 and Section 7 cases, so it is not clear why Section 2 would be so much harder.¹⁵¹

It certainly is ironic to hear now from Judge Easterbrook that economics is not useful. After all, the shock and dismay at the view expressed in *Topco* that courts should not “ramble through the wilds of economic theory” became a *cause célèbre* for transforming antitrust standards from per se illegality to the rule of reason.¹⁵² Government agencies, courts, and juries also are asked to conceptualize and (if necessary) make quantitative comparisons in evaluating the costs and benefits of government programs, negligence under the classic *Carroll Towing* formula,¹⁵³ whether a product design is defective,¹⁵⁴ whether a preliminary injunction should be granted,¹⁵⁵ and whether an agency is providing sufficient due process.¹⁵⁶

Moreover, that same judicial competence argument would apply just as strongly to the implementation of the profit-sacrifice test, which

¹⁴⁸ *Northwest Wholesale Stationers, Inc. v. Pacific Stationary & Printing Co.*, 472 U.S. 284 (1985); *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 45 (1984); *Broadcast Music, Inc. v. CBS*, 441 U.S. 1 (1979); *Contintental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36 (1977).

¹⁴⁹ See, e.g., Easterbrook, *Limits of Antitrust*, *supra* note 145, at 29.

¹⁵⁰ *Id.* at 11.

¹⁵¹ For example, Baumol et al. suggest that a consumer welfare effect standard is the right criterion to use to evaluate false advertising claims with complicated market effects of the sort that would arise in an antitrust case. See William Baumol et al., Brief of Amici Curiae Economics Professors to U.S. Supreme Court at 8, *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004) (authored by four economics scholars: William J. Baumol, Janusz A. Ordover, Frederick R. Warren-Boulton, and Robert D. Willig).

¹⁵² *United States v. Topco Assocs.*, 405 U.S. 596, 610 n.10 (1972); see also *supra* note 2, at 274–78.

¹⁵³ *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947)

¹⁵⁴ *Barker v. Lull Eng'g Co.* 573 P.2d 443 (1978).

¹⁵⁵ *Am. Hosp. Supply Corp. v. Hosp. Prod. Ltd.*, 780 F.2d 589 (7th Cir. 1986).

¹⁵⁶ *Mathews v. Eldridge*, 424 U.S. 319 (1976).

requires a court to evaluate profitability in an unrealistic, hypothetical world. And, as discussed below, implementing the profit-sacrifice test is fraught with other pitfalls.¹⁵⁷

Similarly, it is argued that the consumer welfare effect standard for exclusionary conduct would lead to firms facing too much uncertainty because it is so difficult to know whether conduct is anticompetitive.¹⁵⁸ This claim ignores the fact that the consumer welfare effect test would be evaluated on the basis of the information reasonably available to the firm at the time that the conduct was undertaken, just as would be true for the profit-sacrifice test. The profit-sacrifice test is not any easier for firms to administer, as illustrated by several of the examples presented earlier. The profit-sacrifice test (and the no economic sense variation) involve analysis of outcomes in a hypothetical world in which real-world market forces are assumed to be inoperative.

For all these reasons, the consumer welfare effect standard is unlikely to lead to excessive false positives when it is used to evaluate exclusionary conduct. It also is not true that the profit-sacrifice standard would eliminate false positives or would maintain a low level of false negatives. Nor is it clear why false positives are more costly or more difficult to reverse than false negatives in the current legal environment. Thus, in terms of optimal deterrence, there is no evidence supporting the view that the consumer welfare effect standard would lead to over-deterrence, nor that the profit-sacrifice standard would avoid under-deterrence. There is no convincing empirical evidence to suggest that the profit-sacrifice test reaches the optimal outcome, or even pushes in the right direction, in the current legal environment.¹⁵⁹

¹⁵⁷ See *infra* Part IV.

¹⁵⁸ See *infra* Part IV.D.

¹⁵⁹ Empirical work to estimate the optimal standard would be very difficult. It is well known that the selection of cases that go to litigation is not a random sample of disputes, and the sample of cases that reach the Supreme Court is quite small, as well as non-random. See, e.g., George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984). Econometrics, in principle, could be useful in demonstrating the superiority or inferiority of per se illegality versus per se legality. But it is far less likely to be useful in comparing the relative efficacy of alternative rule of reason standards. For example, suppose that an econometric study would find that the "average" vertical merger is procompetitive and leads to lower prices, as discussed in James C. Cooper et al., *Vertical Antitrust Policy as a Problem of Inference* (Vanderbilt Law and Economics Research Paper No. 05-12, 2005), available at <http://ssrn.com/abstract=699601>. Such a rigorous study would be useful for arguing that vertical mergers should not be per se illegal. But, that study would not establish that all (or even that, say, 80% of) vertical mergers are procompetitive. Antitrust enforcement is designed to identify, enjoin, and deter only those few vertical mergers that are shown by the evidence to be anticompetitive. Thus, the results of a broad-based empirical study are not very useful for guiding case-by-case enforcement. Nor would these results be useful in choosing between the consumer welfare effect and profit-sacrifice

Finally, if over-deterrence still is viewed as a concern, there are better ways of tipping the scales to avoid false positives. In particular, it would be better to adjust the plaintiff's standard of proof under the consumer welfare effect standard. However this adjustment is phrased by the courts, the amount of harm that would be needed for the plaintiff to prevail can be increased. For example, the consumer harm threshold, in principle, can be set at either actual or threatened harm. Similarly, the required standard of proof can be set at plausibility, tendency, substantially threatened, significant likelihood, and so on, up to virtual certainty of significant harm. The consumer welfare effect standard can be adjusted at the margin along this continuum to accommodate concerns about the relative costs of false positives and false negatives. This corresponds to the weighting of the evidence according to a sliding scale.¹⁶⁰

On the one hand, if there is a greater concern with false positives, courts could be generally more skeptical of the plaintiff's allegations and evidence, both for summary judgment and in the merits determination. This would mean that defendants would prevail in close cases. (In fact, this may already be the case.¹⁶¹) If an even greater adjustment were desired, the test could be phrased in the way Areeda and Hovenkamp put it, "harms disproportionate to the resulting benefits."¹⁶² On the other hand, if there is a greater concern with false negatives, on the grounds that monopoly tends to be durable in markets with high entry barriers

standards. For a similar view, see Michael H. Riordan, *Competitive Effects of Vertical Integration* (2005) (unpublished manuscript). For a review of the large number of empirical studies of antitrust enforcement, see Jonathan Baker, *Antitrust Enforcement*, *supra* note 147. For criticisms of the FTC study, see William Comanor et al., *Vertical Antitrust Policy as a Problem of Inference: The Response of the American Antitrust Institute* (AAI Working Paper No. 05-04, Apr. 2005), available at <http://www.antitrustinstitute.org/recent2/408.pdf>. For further back-and-forth between the FTC and AAI authors, see the links at <http://www.antitrustinstitute.org/recent2/413.cfm>.

¹⁶⁰ See Salop & Romaine, *supra* note 14.

¹⁶¹ The "preponderance of the evidence" standard is often expressed as requiring the plaintiff to show that the harm is more likely than not (i.e., 51% likelihood). However, surveys of judges suggest that the required likelihood is larger than this for many judges. See C.M.A. McCauliff, *Burdens of Proof: Degrees of Belief, Quanta of Evidence, or Constitutional Guarantees?*, 35 VAND. L. REV. 1293, 1330-32 (1982); see also Rita James Simon, *Judges' Translations of Burden of Proof into Statements of Probability*, 13 TRIAL LAW. GUIDE 103, 112 (1969).

¹⁶² 3 AREEDA & HOVENKAMP, *supra* note 13, ¶ 651a, at 72. In evidentiary terms, the "preponderance of the evidence" standard of proof alternatively could be replaced by an even more disproportionate test like "clear showing" or something in between these two standards. For example, the FTC has recently suggested a move in the other direction—that the burden placed on firms attempting to overturn the presumption of patent validity should be reduced from a standard of clear and convincing evidence to preponderance of the evidence. FEDERAL TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY 8 (2003), available at <http://www.ftc.gov/opa/2003/10/cpreport.htm>.

or because monopolists have ample opportunities to destroy nascent competitors without facing risk of a significant remedy, then the standard of proof facing the plaintiff could be relaxed accordingly.

These various types of marginal quantitative adjustments make more economic sense than changing the liability standard in a qualitative way by adopting a standard, such as the profit-sacrifice test, that does not relate directly to the effect on consumer welfare. It is better to adjust the standard of proof than to make a wholesale change to the liability test that is not calibrated to the relative costs of the two types of judicial errors. When a qualitative change in the liability standard is adopted, there is no way of knowing whether the adjustment is the proper size. Simply grasping for a more defendant-friendly standard is just a shot in the dark.

An explicit marginal or incremental adjustment to the basic anticompetitive effect standard also is more transparent than a qualitative change in standard. Such transparency is necessary to ensure that antitrust law remains coherent. Doctrinal incoherence is always a risk when adjustments are made by adopting different qualitative standards. Litigants are left to argue by analogy over characterization (e.g., are loyalty payments more like alleged predatory pricing or more like attempts to induce exclusive dealing or more like tying), rather than arguing over the fundamental economic issue—the likely effect of the conduct on competition and consumers. It is hard to see how the goals of antitrust law are served by promoting analogy over analysis in this way.

C. ANTICOMPETITIVE PURPOSE AND INTENT

It might be argued that the plaintiff should be required to prove *both* profit sacrifice and consumer welfare harm. This type of combined standard could be claimed to flow from the concept of anticompetitive purpose and intent. For example, the combined standard could be said to follow from the classic *Grinnell* standard, which involves the “willful” acquisition of monopoly,¹⁶³ although in *Griffith*, the Supreme Court said that specific intent is not required for monopolization.¹⁶⁴ *Colgate* also raises the issue of anticompetitive purpose separate from anticompetitive effect.¹⁶⁵ In the combined standard, the profit-sacrifice standard would

¹⁶³ *United States v. Grinnell Corp.*, 384 U.S. 563, 570–71 (1966).

¹⁶⁴ *United States v. Griffith*, 334 U.S. 100, 105 (1948).

¹⁶⁵ *United States v. Colgate & Co.*, 250 U.S. 300, 307 (1919). Interestingly, in quoting *Colgate*, the *Trinko* Court dropped the “in the absence of any purpose to create or maintain a monopoly” proviso. *Verizon Communications Inc. v. Law Offices of Curtis v. Trinko, LLP*, 540 U.S. 398, 414 (2004) (“Thus, as a general matter, the Sherman Act ‘does not restrict the long recognized right of [a] trader or manufacturer engaged in an entirely

be treated as one source of evidence of anticompetitive purpose or the sole permissible evidence. The consumer welfare effect standard then would be used to determine whether there was an anticompetitive effect from the conduct.

The role of anticompetitive intent in exclusionary conduct cases has been subject to substantial criticism. Areeda and Hovenkamp say that most discussion of “‘purpose or intent’ is largely diversionary or redundant.”¹⁶⁶ They do agree, however, that “knowledge of intent may help the court to interpret facts and to predict consequences,” that is, to evaluate whether there is anticompetitive effect.¹⁶⁷ In fact, for ambiguous conduct, they suggest that “considerations of subjective intent are sometimes essential.”¹⁶⁸

Similarly, the *Microsoft* court emphasized that the key antitrust issue is competitive effect, though that may give a role to intent, stating: “[O]ur focus is upon the effect of that conduct, not upon the intent behind it. Evidence of the intent behind the conduct is relevant only to the extent that it helps us understand the likely effect of the monopolist’s conduct.”¹⁶⁹

If a firm’s exclusionary conduct would be unprofitable absent an anticompetitive impact on price and output, then that profit sacrifice would imply that a profit-maximizing firm would not have undertaken the conduct absent the anticompetitive effect because it would make no rational economic sense for a profit-maximizing firm.¹⁷⁰ However, there also are other ways to determine anticompetitive purpose. First, anticompetitive purpose could be inferred from anticompetitive effect, following Judge Hand’s view that “no monopolist monopolizes unconscious of what he is doing.”¹⁷¹ This approach would dispense with the need for

private business, freely to exercise his own independent discretion as to parties with whom he will deal.” (quoting *Colgate*, 250 U.S. at 307)).

¹⁶⁶ 3 AREEDA & HOVENKAMP, *supra* note 13, ¶ 651, at 75.

¹⁶⁷ *Id.* at 74 (quoting *Chicago Board of Trade v. United States* 246 U.S. 231, 238 (1918)).

¹⁶⁸ *Id.* ¶ 651b2, at 76. For another recent discussion of the role of intent evidence, see Marina Lao, *Reclaiming a Role for Intent Evidence in Monopolization Analysis*, 54 AM. U. L. REV. 151 (2004).

¹⁶⁹ *United States v. Microsoft Corp.*, 253 F.3d 34, 59 (D.C. Cir. 2001).

¹⁷⁰ In the context of predatory innovation (like the design change hypothetical in this article), Ordover and Willig state that profit-sacrifice shows that the innovation is “motivated solely by the monopoly attendant on the exit that they induce.” Ordover & Willig, *Predation*, *supra* note 36, at 8. Werden eschews an anticompetitive purpose interpretation of the no economic sense formulation. Werden, *supra* note 10, at 416–17, 417 n.15, 426.

¹⁷¹ *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 432 (1945). Werden makes a similar point. “Burning down a rival’s factory is exclusionary conduct even if the defendant is a pyromaniac and never considers the economic benefits of the conduct.” Werden, *supra* note 10, at 417.

separate evidence. Second, anticompetitive purpose could be determined through testimony and documents.¹⁷²

Moreover, conduct that does not involve profit sacrifice nonetheless may involve anticompetitive purpose and may cause anticompetitive effect. It is not possible to reject a claim of anticompetitive purpose in the absence of profit sacrifice for a simple reason: exclusionary conduct may have multiple motives rather than a single purpose.¹⁷³

Werden eschews any interest in subjective motivation. But a complexity similar to multiple motives arises in his test when the conduct generates “legitimate” profits as well as “profits from eliminating competition.” Werden suggests that the no economic sense determination may not be feasible in this situation.¹⁷⁴

When there are multiple motives, the profit-sacrifice test tends to ascribe the conduct to the procompetitive motive. In essence, the profit-sacrifice test implicitly takes the approach that a defendant only can be said to be motivated by an *anticompetitive purpose* if the conduct would have been unprofitable (and thus not undertaken) in the absence of the claimed anticompetitive benefits to the firm. However, this view is not compelled by logic or economic theory.¹⁷⁵ The anticompetitive effect of the conduct may have provided a sufficient incentive to carry out the conduct even absent any efficiency benefits. Applying this same logic symmetrically, it would be equally true to say that a defendant only could be said to be motivated by a *procompetitive purpose* if the conduct would have been unprofitable (and thus not undertaken) in the absence of the claimed efficiency benefits.

Requiring that the plaintiff prove that the *sole purpose* of the conduct is anticompetitive would lead to significant false negatives, as pointed

¹⁷² In Baumol et al., *supra* note 151, at 24, Ordoover and Willig and their co-authors recognize that there can be “direct objective evidence of willfulness, quite apart of profit sacrifice.” They argue that this evidence should be used, but apparently only where the exclusionary conduct violates an extrinsic standard.

¹⁷³ It surely is fallacious to assume that all anticompetitive economic conduct is driven simply by strict profit maximization. Humans are motivated by emotions in addition to greed. Vanity, envy, hate, disdain, and spite also may motivate anticompetitive conduct, and the market for corporate control is not a perfect constraint on such non-profit-maximizing conduct. In Werden’s view, the defendant’s psychological state is irrelevant. He would look to the “objective economic considerations for a reasonable person, and not the state of mind of any particular decision maker.” Werden, *supra* note 10, at 416.

¹⁷⁴ Werden, *supra* note 10, at 420–21.

¹⁷⁵ The profit-sacrifice standard does not go as far as immunizing all conduct with any non-zero efficiency benefits, as illustrated by the case of cost-reducing investments discussed earlier, in Part II.D.2.d.

out by Judge Hand in *Alcoa*.¹⁷⁶ Moreover, this pro-defendant approach to anticompetitive purpose is not the only possible way to deal with the concept. For example, in *Aspen Skiing*, the jury was instructed to determine whether the defendant's policies and business arrangements "were designed *primarily* to further any domination of the market or sub-market."¹⁷⁷ The Court affirmed this instruction in the context of analyzing the likely impact of the conduct on competition and consumer welfare. Of course, in that case, the Court also concluded that certain aspects of the defendant's conduct indicated profit sacrifice.

This analysis of anticompetitive purpose also is related to the issue of so-called costless or cheap exclusion that might not violate the profit-sacrifice test. The usual examples are fraud on the Patent Office, sham litigation, and bad-faith administrative filings.¹⁷⁸ For example, it is doubtful that Unocal increased its own costs by failing to disclose its patent application to the regulators in California.¹⁷⁹ Similarly, it does not seem very costly for a monopolist to make threats or include deceptive statements in its advertising. Exclusionary conduct that affects customers' expectations of the viability of the rivals also could be virtually "costless" exclusion.¹⁸⁰

IV. PITFALLS IN THE PROFIT-SACRIFICE STANDARD

In a recent article, Professor Mark Patterson concludes that the profit-sacrifice test permits an "objective assessment" of the monopolist's

¹⁷⁶ In *Alcoa*, Judge Hand rejected the "sole purpose" version of the profit-sacrifice standard, stating that, "Only in case we interpret 'exclusion' as limited to maneuvers not honestly industrial, but actuated solely by a desire to prevent competition, can such a course indefatigably pursued, be deemed not 'exclusionary.'" In Judge Hand's view, this standard would fail to protect competition, but rather "would in our judgment emasculate the Act; would permit just such consolidations as it was designed to prevent." *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 431 (2d Cir. 1945).

¹⁷⁷ *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 597 (1985) (emphasis added).

¹⁷⁸ Brief for the United States, *supra* note 8, at n.2.

¹⁷⁹ *Union Oil Co. of Cal.*, FTC Docket No. 9305 (July 6, 2004), available at 2004 WL 1632816; see also Creighton et al., *supra* note 25.

¹⁸⁰ A slight variation of the allegations in *Lorain Journal* illustrates this point. *Lorain Journal Co. v. United States*, 342 U.S. 143 (1951). Suppose that a monopolist newspaper is facing a new entrant in the advertising market and the newspaper announces that it will charge a price above the monopoly level if advertisers do not advertise exclusively in the newspaper. In light of this exclusivity policy, many (if not all) advertisers may choose to forgo buying advertising from the entrant, even if the entrant offers a large enough discount to offset the newspaper's "tax" on non-exclusivity and even if they think that successful entry would force the newspaper to abandon the exclusivity policy. This is because many (if not all) customers might fear that other advertisers would choose not to buy from the entrant, causing the entrant to fail to achieve minimum viable scale and thus be forced to exit from the market. For further analysis, see Eric B. Rasmusen et al.,

conduct, in contrast to other monopolization tests that “require hypothetical reconstructions of the market in the absence of the monopolist’s challenged conduct or difficult causation inquiries.”¹⁸¹ This analysis is flawed. Proper implementation of the profit-sacrifice standard is complex and would lead to subjectivity in practice precisely because the profit-sacrifice test requires the court to determine the outcome in a hypothetical market. The hypothetical market of the profit-sacrifice test is not simply the actual market before the challenged conduct was initiated. The outcome in this hypothetical market also is not the same as the outcome in the real-world market absent the challenged conduct. Instead, the profit-sacrifice standard requires an assessment of the defendant’s likely conduct in the hypothetical absence of an ability to raise prices. In contrast, the consumer welfare effect standard looks to the effect of the conduct on the market outcome in the actual market or in a hypothetical (but normally functioning) market absent the conduct.

The profit-sacrifice test is an unreliable legal standard because it is difficult to implement properly. Specific problems arise in several ways: analyzing situations where recoupment and predatory periods are simultaneous, choosing the correct benchmark price and quantity, and gathering adequate information to use the profit-sacrifice test. These pitfalls can cause either false negatives or false positives.¹⁸²

A. SIMULTANEOUS RECOUPMENT AND THE MEASUREMENT OF PROFIT

In a successful predatory pricing scenario there typically are two distinct phases, the “predatory” period in which the firm reduces price (and, in doing so, sacrifices profits) and the “recoupment” period in which the firm increases price and market share, more than offsetting the profit sacrifice.¹⁸³ However, in RRC exclusionary conduct cases, such as purchases of exclusionary rights from input suppliers and refusals to deal, there often are not two distinct periods. Recoupment in the form of higher prices and market share can occur simultaneously with the exclusionary conduct.¹⁸⁴ If there is no distinct period in which temporal profit sacrifice can be identified, use of the profit-sacrifice test could

Naked Exclusion, 81 AM. ECON. REV. 1137 (1991); Ilya Segal & Michael Whinston, *Naked Exclusion: Comment*, 90 AM. ECON. REV. 296 (2000); see also Salop & Romaine, *supra* note 14; Elhauge, *supra* note 34.

¹⁸¹ Patterson, *supra* note 34, at 37, 43.

¹⁸² Some of these pitfalls do not apply to the no economic sense formulation.

¹⁸³ See, e.g., *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993). A type of simultaneous recoupment actually was alleged in *Brooke Group*. For a critical discussion of those claims, see Elzinga & Mills, *supra* note 62, at 569–70, 575–76.

¹⁸⁴ See Salop & Scheffman, *supra* note 22, at 267; Krattenmaker & Salop, *supra* note 22, at 224; see also Elhauge, *supra* note 34, at 282–92.

lead to false negatives by failing to identify significant competitive injury. In contrast, the consumer welfare effect test would account for simultaneity by evaluating the impact on prices and consumer welfare in every period.

This simultaneity represents a pitfall for the profit-sacrifice standard but one that can be corrected because there is a *conceptual* profit sacrifice even if there is no *temporal* profit sacrifice. The *direct effect* of the exclusionary conduct can involve profit sacrifice, meaning that the language of profit sacrifice still can be used to describe the conduct. In principle, an analyst or a court could find other evidence to substitute for the temporal comparison of profits.¹⁸⁵ And, in fact, the no economic sense variation avoids this pitfall.¹⁸⁶

B. MONOPOLY MAINTENANCE AND THE BENCHMARK PRICE

In monopoly maintenance cases, the dominant firm does not use exclusionary conduct literally to raise its profits. Instead, it maintains its profits at the supracompetitive level and avoids profit reductions, for example, by preventing price competition. As a result, successful exclusionary conduct would not be accompanied by any temporal increase in overall profits nor any temporal increase in price. This fact alone could lead a court to the erroneous conclusion that the firm has not engaged in profit sacrifice, thus running the risk of significant false negatives or under-deterrence.

Monopoly maintenance cases also involve a knotty problem of selecting the but-for price benchmark for implementing the profit-sacrifice test. This is because the proper benchmark is not the current price, which is set at the monopoly level and generates the monopoly profits that the monopolist is trying to protect. This is a variant of the classic *Cellophane* Fallacy error made by the Court in *du Pont*,¹⁸⁷ probably the most well-

¹⁸⁵ For example, in *Aspen Skiing*, the Court looked to Ski Co.'s conduct in other markets where it apparently lacked any purpose to destroy competition. The Court also reasoned from first principles that the failure to sell daily tickets to Highlands at its standard retail price represented a clear profit sacrifice. *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 603–04, 603 n.30 (1985). However, as discussed below, this analysis potentially ignores the higher profits that the defendant would have made in additional weekly tickets at the non-exclusionary price, or it characterizes those profits as anticompetitive as a matter of assumption.

¹⁸⁶ Werden, *supra* note 10, at 424–25. The no economic sense variation avoids this pitfall because it does not focus on the profit chronology.

¹⁸⁷ *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377 (1956). For the classic statement of the *Cellophane* Fallacy, see Donald Turner, *Antitrust Policy and the Cellophane Case*, 70 HARV. L. REV. 281 (1956). See also Salop, *First Principles*, *supra* note 146, at 196; Elhaage, *supra* note 34, at 286.

known example of a false negative. The proper competitive benchmark for the profit-sacrifice test is the market price that would occur absent the alleged exclusionary conduct.

This benchmark error is illustrated by extending the previous example of inducing refusals to deal by input suppliers. When the conduct was used to achieve monopoly power, there was profit sacrifice.¹⁸⁸ Transforming this case into the context of monopoly maintenance results in a finding of *no* profit sacrifice if the initial monopoly price is set as the benchmark. For example, suppose that a firm initially is a monopolist selling 600 units at a price of \$100 when it faces a threat of new entry. The firm anticipates that successful entry would cause the price to fall to a more competitive level of \$60 and reduce its sales volume down to 500 units. The firm also realizes that it is able to prevent this entry by paying \$3000 to the suppliers of a critical input to refuse to deal with the entrant.

In this example, if profit sacrifice is calculated by using the \$60, post-entry price as the price benchmark, then profit sacrifice would be found. This is the correct answer. The \$60 price is the proper benchmark because the market price would be \$60 absent the exclusionary conduct.¹⁸⁹ However, a court could err and instead use the \$100 monopoly price as the benchmark.

Such “grandfathering” of the monopoly profits mistakenly equates legitimately achieved monopoly power with permission to engage in anticompetitive exclusionary conduct to maintain the monopoly. The fact that the firm achieved the monopoly through superior skill, foresight, and industry does not give the firm a right to maintain that monopoly by exclusionary conduct in the face of entry. But, applying the profit-sacrifice test with the monopoly price as the benchmark would do just that. As a result, the profit-sacrifice test can yield a false negative.

This error would be less likely under the no economic sense version of the test in which the benchmark is intended to be the no-exclusion price, not the current monopoly price. However, even with that formulation, a court could erroneously evaluate the economic rationality of the conduct at current prices, without respect to the potential downward price impact of forgoing the conduct.

¹⁸⁸ See *supra* Part II.B.1.

¹⁸⁹ Melamed seems to agree with this analysis. Melamed, *Unifying Principles*, *supra* note 11, at 399 (“sacrifice test requires determination of what the price would have been if rivals’ costs had not been increased”).

These errors in the monopoly maintenance case would not be made with the consumer welfare effect standard because it focuses on identifying the market price that would occur in the market absent the alleged anticompetitive conduct. If that price is lower than the current price, then the anticompetitive nature of the conduct would be seen. If the conduct also led to a product improvement or induced beneficial services, those consumer benefits could be compared to the price effect to evaluate the net impact on the quality-adjusted price.

C. THE COMPLEXITY OF DEFINING THE BENCHMARK OUTPUT

The choice of the benchmark output for the profit-sacrifice standard also is subject to controversy. The defendant's benchmark output could be assumed to remain constant at the pre-exclusion level. Or, the benchmark output could be the output that the defendant would sell after the RRC conduct but assuming that the market prices did not change and the disadvantaged rivals remained viable.

The general definition of the standard does not resolve this controversy. As stated by Werden, "Applying the no economic sense test also may require sorting the profit gains from challenged conduct into a component attributable to legitimate competition on the merits and a component attributable to the elimination of competition."¹⁹⁰ This methodology requires the analyst to specify the meaning of "elimination of competition" and whether that includes conduct that harms competitors but not competition (i.e., consumers). Thus, if the conduct does not permit the defendant to raise (or maintain) price, but does permit it to take output from a competitor, should that additional output be counted as legitimate or not?

For example, consider RRC conduct in which a firm pays input suppliers to refuse to deal with a competitor selling a differentiated product in a market with prohibitive entry barriers facing others. Suppose that this conduct raises the disadvantaged competitor's marginal costs. This exclusionary conduct would permit the defendant to raise price, which would harm consumers, assuming that the conduct does not significantly eliminate free riding or contribute significantly to efficiency in some way.

Suppose that the profit-sacrifice standard were to specify a benchmark in which the victim's costs are raised, but the hypothetical market price remains constant at the pre-exclusion level and the defendant's output is

¹⁹⁰ Werden, *supra* note 10, at 420–21. See also *supra* text accompanying note 174.

assumed to remain constant.¹⁹¹ Under this benchmark, the RRC conduct would violate the test. However, if the benchmark output is assumed to be the output level of the defendant after the RRC conduct, but at the benchmark price and assuming that the entrant remains viable, then this output would be higher and the RRC conduct may not be found to involve profit-sacrifice.¹⁹²

This divergence in outcome also is not correlated with whether or not there is consumer harm. If the defendant gains no power to raise price, for example, because there is sufficient competition from other non-excluded competitors, the conduct can still fail the profit-sacrifice test when output is held constant.¹⁹³ Modest efficiency benefits (e.g., cost savings) from the conduct would not necessarily change these results.¹⁹⁴

¹⁹¹ Werden adopts this benchmark when it is found that “the defendant diverted the sales by directly impeding the ability of rivals to make those sales.” *Id.* at 421. Werden views this situation as a rare case.

¹⁹² The product design hypothetical also can illustrate this point. The profit-sacrifice test would assume that the quality-adjusted price remains constant. At that higher price, the firm might increase its profits by increasing its output and market share. Thus, even if the cost of the design change exceeds the increase in product value, the firm’s profits still might rise. As a result, its conduct might not violate the profit-sacrifice test even though the unit cost of the design change exceeds its per unit incremental value. For example, suppose that the cost of the new higher-quality product is \$6 per unit and the consumer value of the product improvement (and the benchmark price increase for the profit-sacrifice test) is \$5. However, even when the price rises by \$5, suppose that the dominant firm is able to increase its sales volume from 100 to 140 units because rivals are disadvantaged. If the monopolist’s initial profit margin were \$10 and that margin fell to \$9 after the design change, the additional 40 units would increase the firm’s profits by \$360 (i.e., \$9 × 40 units). This would more than offset the \$100 decrease in profits from the \$1 margin reduction on the 100 initial units, so the firm’s profits would rise on balance by \$260 (i.e., \$360 – \$100), not fall by \$100. This is a case in which the conduct generates both “legitimate” and anticompetitive profits, so it is not clear that Werden would view the no economic sense test as “feasible.” Werden, *supra* note 10, at 420–21.

¹⁹³ In this case, there is raising rivals’ costs but no increased market power. Under the two-step market power harm analysis set out in Krattenmaker & Salop, *supra* note 22, this conduct would not violate the antitrust laws. The only consumer harm would be the small reduction in variety or perhaps an insignificant price increase. The usual focus of consumer injury in antitrust is the harm from higher prices, not simply the reduction in choice. If reduction in choice were sufficient without more to support an antitrust violation, then a horizontal merger of differentiated product suppliers would be anticompetitive if a single brand were eliminated. Closing a supermarket that is convenient to a nearby apartment building would be sufficient for a finding a liability in a supermarket merger. Vertical mergers similarly would be more prone to challenge. See generally Riordan & Salop, *supra* note 104.

¹⁹⁴ For example, consider a firm’s investment in a variable cost reduction. Holding the benchmark price constant at the level before the cost reduction, suppose that the firm cannot recover its investment costs without increasing its output at the expense of its competitors. On the one hand, if the profit-sacrifice test treats the benchmark output as fixed at the pre-exclusion level, then this cost-reducing conduct would be condemned by the profit-sacrifice test. On the other hand, the conduct would not be condemned if the profits on the defendant’s increased output are counted as legitimate.

Alternatively, if the conduct would lead to higher prices in the real world, the conduct could pass the profit-sacrifice test when the benchmark output is set at the higher level, even if there are no efficiency benefits and the exclusion is costly to the defendant. Thus, whichever output benchmark is chosen will lead to problematic results in some cases.¹⁹⁵ Of course, choosing the output benchmark on the basis of an extrinsic conclusion of whether or not the conduct is considered “competition on the merits” is circular, as discussed previously.¹⁹⁶ It is the role of the standard to define competition on the merits, not the other way around.

The choice of assumption for the benchmark output also would create a controversy between the opposing economic experts and would add another level of complexity into the profit-sacrifice test. If these disagreements could be resolved, this source of subjectivity would be eliminated, but resolution is unlikely. This is because the profit-sacrifice standard has a number of alternative formulations and exclusionary conduct is diverse, which makes resolution a long and arduous process. Rather than embark on this process and the likely errors attendant to it, a better approach would be to adopt the consumer welfare effect standard.

D. INFORMATION BURDENS ON THE DEFENDANT

The consumer welfare effect standard is sometimes criticized for creating uncertainty for firms that do not know whether their conduct is permissible. In a recent article, Melamed argues that antitrust law “needs to temper its enthusiasm for theoretical precision with an appropriate accommodation for the practical limitations upon firms that must comply with the law.”¹⁹⁷ He suggests that the profit-sacrifice test is easier for firms to implement in the business planning process than is the consumer welfare effect standard.¹⁹⁸

This uncertainty is greatly exaggerated. Most cases involve either conduct that excludes and lacks any legitimate business justification (leading to unvarnished consumer harm) or conduct that only minimally impairs rivals and has substantial efficiency justifications (leading to no consumer

¹⁹⁵ Ordover and Willig analyze only conduct that causes rivals to exit. For that conduct, they assume that the rival remains able to produce without incurring new start-up costs. Ordover & Willig, *Predation*, *supra* note 36, at 13. This formulation does not make it clear what they would assume about RRC conduct that does not cause exit. Werden’s price benchmark is set “absent a tendency to eliminate competition.” Werden, *supra* note 10, at 433. His output assumption is not stated explicitly. *See also* Patterson, *supra* note 34.

¹⁹⁶ *See* Elhauge, *supra* note 34, at 272, 293. Werden, *supra* note 10, at 418 & nn.21–25 (prudential safe harbors).

¹⁹⁷ Melamed, *Exclusionary Conduct*, *supra* note 11, at 7.

¹⁹⁸ *Id.*

harm). The truly hard cases are only a small subset. And, there will be hard cases for any legal standard because some firms have the corporate DNA or the incentive to skate close to the line, wherever the line is.¹⁹⁹ At the same time, the subjectivity and unresolved issues in implementing the profit-sacrifice standard indicates that it is not simpler for firms to understand and use.

These issues can be illustrated with the examples discussed earlier. Suppose that a firm is contemplating an incompatible design change. According to Melamed, with the profit-sacrifice test, the company can evaluate a simple question that occurs naturally in its business planning: will the design change either save it operating expenses that are less than the cost of the change or generate incremental revenues (i.e., in excess of revenues in the but-for world) that exceed the cost of the change? If so, Melamed argues, and if the defendant had a reasonable contemporaneous basis for thinking so, then the design change entails no profit-sacrifice. In contrast, the consumer welfare effect standard requires the company to ask how the design change affects the welfare of its customers and whether the design change affects rivals' costs. According to Melamed, this latter set of questions is more difficult for the firm to answer.

A closer examination reveals that the profit-sacrifice test is not easier for the firm to implement for this conduct. To carry out the profit-sacrifice test, it is not enough to evaluate the incremental cost and revenue of the design change. The firm also must be able to predict the outcome of the design change in a *hypothetical, but-for world* in which the design change does not affect the competitiveness of rivals. Making such an assumption and analyzing market outcomes under this assumption are not part of normal business planning. Business planning does not focus on hypothetical markets invented by antitrust practitioners and courts in which firms hypothetically lack the ability to raise prices, when in fact the firms do have such power in the real world. Nor does business planning focus on hypothetical markets in which competitors act in economically irrational ways by failing to reduce their output when their costs are increased.

For example, consider the design change conduct discussed earlier in which the design change increases the value of a dominant firm's product by \$5 per unit by improving the functionality of the product, but inextricably also makes competitors' products incompatible with the dominant firm's. Suppose that the dominant firm's marketing depart-

¹⁹⁹ Priest & Klein, *supra* note 159.

ment predicts that, as a result of barriers to competition created by incompatibility of the dominant firm's new product with competitors' products, the profit-maximizing strategy would be to raise its price by \$50, while selling the same quantity of the product. Suppose that the dominant firm makes the design change, raises price by \$50, and then is sued for monopolization.

On these facts, there is no reason why the dominant firm's managers would have been unable to make the relevant real-world price/quality comparison for the consumer welfare effect standard at the time of the design change. In addition to knowing the size of the likely real-world price increase, the firm only needs to know whether its quality-adjusted price will increase or decrease. Moreover, this also is information that the firm would need to know to maximize its real-world profits. This is not a situation where the consumer welfare effect standard places a higher burden on the firm. Implementing the profit-sacrifice test requires similar information. The firm must know the value consumers place on the product improvement in order to compare it to costs. That is, the firm needs to know its quality-adjusted variable cost.²⁰⁰

In addition, the consumer welfare effect standard does not require the firm to know what is impossible to foresee. The consumer welfare effect standard only requires the firm to make a good-faith effort to estimate the expected impact of its conduct on consumers. If the reasonably foreseeable expected value of the conduct to consumers is positive but it turns out *ex post* that consumers are harmed, the defendant would not be liable. Perfect foresight is not required.

The criticism of the information requirements of the consumer harm standard also ignores the fact that this type of competitive effect analysis is routinely applied in merger analysis.²⁰¹ The antitrust agencies, outside attorneys, and economic consultants (and the courts in litigated cases) evaluate the likely competitive outcomes of mergers arising from both unilateral and coordinated effect theories, taking into account the potential for merger-specific cost savings, product improvements, and increases in innovation efficiency, as well as the constraining impact of likely

²⁰⁰ For some other implementations of the profit-sacrifice test, the firm also might need to know the profit-maximizing price and quantity increase in the hypothetical, but-for world in which compatibility with competitors' products hypothetically were maintained, so that the competitors remained viable. That price increase may or may not be equal to the \$5 value of the product improvement; it would depend on additional details about the demand curve. That is, the counterfactual, but-for world would need to be conceptualized, and the hypothetical revenue changes would need to be developed. Then, the increased revenue must be compared to the increased costs of the improved product.

²⁰¹ See generally Merger Guidelines, *supra* note 53.

repositioning, entry, and expansion by fringe firms. This evidence is used to gauge the likely impact of the merger on prices and quality. If a consumer welfare effect rule of reason analysis can be implemented for mergers, there is no reason why it cannot be implemented for Section 2 exclusionary conduct cases.

In any event, it is not clear why a modest increase in the information burden placed on the firm should determine the antitrust standard. Instead, the proper test is the one that leads to the consumer welfare maximizing outcome, taking those costs into account. In many other areas, the legal system requires firms to bear information costs to ensure that their conduct is consistent with the social interest. For example, merging firms are required to bear the costs of the Hart-Scott-Rodino (HSR) pre-merger review process to ensure that anticompetitive mergers are not consummated. In product liability law, escaping liability for design defects requires the manufacturer to know consumer expectations and to compare the benefits of the challenged design against the risk of danger inherent in such design.²⁰² That information is required because it is needed to evaluate the impact of the product design on consumer welfare. The consumer welfare effect test for Section 2 would have a similar goal: to ensure that consumers are not harmed by exclusionary conduct.

The resulting burden on firms and their legal counselors would be modest at best. The fraction of firms that have monopoly power or a significant likelihood of achieving monopoly power from allegedly exclusionary conduct is small. Entry is easy in most markets and easy entry would trump these allegations. Antitrust lawyers provide counseling to firms regarding thousands of mergers per year, and the required competitive analysis for mergers is not systematically more difficult than the analysis required here.

Melamed also overlooks another important issue with respect to the defendant's relative burdens under the two standards. Whereas the burden of production under the consumer welfare effect standard clearly will lie with the plaintiff, the burden with respect to profit sacrifice could well be allocated to the defendant.²⁰³ This is because the information

²⁰² See *Barker v. Lull Eng'g Co.*, 573 P.2d 443, 452 (Cal. 1978); see also *Shanks v. Upjohn Co.*, 835 P.2d 1189 (Cal. 1992); *Ontai v. Straub Clinic & Hosp., Inc.*, 659 P.2d 734 (Haw. 1983). This risk/benefit analysis could be quite complicated and would include the likely incidence of injuries from the use of its product, taking into account its likely sales and the manner in which the product is used in practice, perhaps in conjunction with other products.

²⁰³ Werden argues that the burden should and would be placed on the plaintiff. Werden, *supra* note 10, at 426-27, 433 & n.97.

required to determine whether or not there is profit sacrifice is controlled by the defendant in that it primarily involves information regarding the defendant's costs and demand.²⁰⁴ In this regard, the *Covad* court permitted the plaintiff to withstand a motion to dismiss simply because the complaint included the magic word "predatory."²⁰⁵ In contrast, under a Section 2 consumer welfare effect standard, the plaintiff could only shift the burden of production to the defendant if it could present sufficient evidence to support the allegation that the defendant's conduct resulted in injury to consumers and rivals.

VI. UNILATERAL REFUSAL TO DEAL BY A VERTICALLY INTEGRATED MONOPOLIST

The Court in *Trinko* suggested the relevance of the profit-sacrifice standard for unilateral refusals to deal. Applying this standard would require the determination of price and output benchmarks. The output benchmark might be controversial because there are two markets (or market segments) involved in the analysis. For example, in *Aspen Skiing*, by refusing to sell daily lift tickets to the plaintiff, Ski Co. likely increased the retail sales of its own weekly tickets. Even if one were to assume (in the hypothetical world according to the profit-sacrifice benchmark) that this conduct would not allow Ski Co. to increase the price of its weekly tickets, the additional weekly ticket sales *at current prices* might have made the refusal to deal profitable. Thus, if the output benchmark for the profit-sacrifice test does not hold the defendant's output constant at the pre-conduct level, but permits its output to expand *at the pre-exclusion price*, then Ski Co.'s exclusionary conduct might not have been found to fail the profit-sacrifice test. It is not clear whether the Court purposely chose to ignore this additional source of profits or whether the defendant simply overlooked the argument.²⁰⁶

²⁰⁴ A decision-theoretic analysis implies that it would make no sense to place the burden on plaintiffs, who have inferior access to the relevant information. For example, in the quick-look standard, the defendants have the burden of justifying concerted conduct that would raise prices absent a showing of competitive benefits, such as cost savings flowing from the concerted conduct. See *NCAA v. Bd. of Regents*, 468 U.S. 85, 114 (1984); see also Gavil, *Dominant Firm Distribution*, *supra* note 34, at 69–73. Of course, the defendant's control over the information also might give the defendant an upper hand in the litigation by allowing it better to shape the presentation of this information to the court.

²⁰⁵ As noted earlier, the *Covad* court stated, "But, *Covad* has alleged that Bell Atlantic's refusal to deal was 'predatory,' which suffices to withstand a motion to dismiss because, in the vernacular of antitrust law, a 'predatory' practice is one in which a firm sacrifices short-term profits in order to drive out of the market or otherwise discipline a competitor." *Covad Communications Co. v. Bell Atl.*, 398 F.3d 666, 676 (D.C. Cir. 2005).

²⁰⁶ See *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 599, 607–10 (1985). For example, suppose that the sale of the tickets to the plaintiff would have led a fraction of the skiers to ski for two days on the plaintiff's mountain and one day on the

In evaluating profit-sacrifice in *Trinko*, Verizon clearly wanted to count the profits on its increased output of retail sales flowing from its refusal to deal. Verizon argues in its brief that it “leases out those lines at an average of \$19.14 per line, giving up the average of \$41.98 per line revenue it obtains selling at full retail prices (and sacrificing the customer relationship that might lead to sales of more services).”²⁰⁷ Verizon’s proposed methodology would count (as legitimate) the profits on the additional retail customers absorbed as a result of the refusal to deal.²⁰⁸ It is not clear whether Verizon persuaded the Court and the DOJ to count these profits or whether the plaintiff failed to demonstrate that the regulated price exceeded even Verizon’s marginal costs.²⁰⁹

If output levels are permitted to be adjusted in this way in cases of unilateral refusals to deal by vertically integrated firms like Verizon, it also would be necessary to estimate the cross-elasticity of demand between the defendant and rival firms. For example, Verizon’s calculation above assumes that it would capture all of the rival’s output. However, if the products are differentiated and market demand is not perfectly inelastic (i.e., if total market output is not constant), then this assumption is not economically correct. A better assumption is that the integrated firm would capture only a fraction of the sales lost by the unintegrated rival.

In a monopoly maintenance case involving a unilateral refusal to deal by a vertically integrated input market monopolist (or dominant firm), the profit sacrifice test also requires a court to determine an input price benchmark.²¹⁰ This same determination is required in price squeeze cases, where courts must define the input price level that is unlawfully exclusionary.²¹¹ If the firm supplies the input to non-competitors or

defendant’s mountain, whereas the refusal to deal led those skiers to ski for three days on the defendant’s mountain. For a similar point, see Elhauge, *supra* note 34, at 286–87. Professor Patterson suggests that the Court’s language supports the view not to count this source of profits as legitimate. Patterson, *supra* note 34, at 39. However, in rendering its decision, the Court instead could have been relying on the fact that Ski Co. was willing to sell those daily tickets to tour operators, and those sales would have led to the same type of substitution to the competitor’s mountain.

²⁰⁷ Brief for Petitioner at 27 n.23, *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004) (No. 02-682).

²⁰⁸ In their amicus brief, Professors Baumol, Ordover, Warren-Boulton, and Willig suggest that the proper measure of profitability for the sacrifice test would include the profits (*at competitive prices*) on the customers shifted. Baumol et al., *supra* note 151, at 15.

²⁰⁹ Brief for the United States, *supra* note 8; see also Melamed, *Unifying Principles*, *supra* note 11, at 392 n.49. Melamed was one of Verizon’s attorneys.

²¹⁰ Of course, if supplying the input would be technologically infeasible, then the court would not reach this pricing issue.

²¹¹ See, e.g., *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 437–38 (2d Cir. 1945) (price is exclusionary if it is “higher than a ‘fair price,’”); *Town of Concord v. Boston Edison Co.*, 915 F.2d 17, 21 (1st Cir. 1990) (Breyer, J.) (criticizing the *Alcoa* standard).

previously supplied the foreclosed competitor, then this input price might be used. However, if the integrated firm has a legitimate input monopoly and has never sold the input to anyone, there would be no observable market input price to use. In addition, it may not be clear whether the cause of the refusal to deal is the defendant's attempt to maintain its output market monopoly or whether the cause is a simple bargaining failure in the negotiations over the sale of the input.²¹²

One might suggest that the benchmark price for the input be the price to which the parties would have bargained "absent any lessening of competition." But this phrase does not create a meaningful price benchmark, for every price above the input supplier's marginal cost necessarily lessens competition by raising the rival's costs. Charging \$6 for the input instead of \$5 "lessens competition," even if the buyer could successfully compete with the integrated monopolist if the price were \$50. At the other extreme, a prohibitively high input price is economically equivalent to an absolute refusal to deal. Although this reasoning might suggest a benchmark input price equal to marginal cost, a marginal cost benchmark would not count input profits as "legitimate." This benchmark, in turn, would lead to the same objections as any price regulation of a monopolist, including that it would interfere with the firm's incentives to innovate.²¹³

See also Illinois Cities of Bethany v. Federal Energy Regulatory Comm'n, 670 F.2d 187 (D.C. Cir. 1981).

²¹² This analysis also suggests an important distinction between *non-negotiable* refusals to deal and situations where the vertically integrated defendant has made a bona fide offer to supply the input at some price but the unintegrated firm has rejected its offer. (The term *non-negotiable* refers to a refusal to deal regardless of the price offered by the competitor.) Bargaining failure is a more likely cause if the parties each have made legitimate price offers that the other has not accepted than if the refusal to deal is non-negotiable. Non-negotiable refusals to deal raise greater suspicions that the primary motivation for the refusal to deal is anticompetitive. *Aspen* involved a non-negotiable refusal to deal with respect to the daily lift tickets and the revenue split for the weekly ticket. In the latter situation, the defendant apparently disguised its unwillingness to negotiate by making an offer that the plaintiff "could not accept." *Aspen Skiing*, 472 U.S. at 592.

²¹³ For the classic analysis of this issue, see Phillip Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1989). This innovation defense obviously must be limited. If the only concern were innovation incentives, then refusing to deal would be per se legal. Indeed, any constraint on the dominant firm's conduct that reduces its profits could, in principle, adversely impact its innovation incentives. There is no reason to think that this extreme position makes economic sense, particularly because it ignores the innovation incentives of the competitors and the welfare of consumers. See F.M. Scherer, *Technological Innovation and Monopolization* 63 (American Antitrust Inst. Working Paper 05-07, 2005), available at <http://www.antitrustinstitute.org/recent2/431.pdf> (analyzing the impact of judicial remedies on incentives for innovation, and concluding that "[f]rom the great cases reviewed here, it would appear that dominant firms have accumulated far more monopoly power than is necessary to motivate and sustain the most rapid and beneficial rate of technological progress.").

To implement the profit-sacrifice test (or the no economic sense variant), a better price benchmark would be the input price that compensates the integrated firm for output sales lost to the input purchaser.²¹⁴ This *protected-profits* benchmark input price would be calculated as the defendant's (variable) input cost plus the expected reduction in output profits from selling a unit of the input to the plaintiff.²¹⁵

In situations where the two firms produce and sell identical, fungible products, this protected-profits benchmark input price equals the Baumol-Willig Efficient Components Pricing Rule (ECPR) developed in the regulatory context.²¹⁶ The ECPR price benchmark equals the difference between the integrated firm's output price and its incremental costs of producing the downstream output (not including the cost of the input).²¹⁷

When the two firms sell differentiated products, the benchmark price would have to be adjusted to take into account the fact that not all of the purchaser's sales would displace output sales of the integrated firm.²¹⁸

²¹⁴ If the vertically integrated monopolist is more efficient in the downstream market than the unintegrated firm, this price may not permit the purchaser to earn positive profits to be viable. If selling the input to the purchaser would raise the defendant's own costs, for example, because of the defendant's technology or because the defendant's reputation would suffer, then the benchmark would be appropriately adjusted upwards to take these additional costs into account.

²¹⁵ This reduction in profits would be the defendant's profits from selling an additional unit of the output (i.e., the output price less its input and output variable costs) *times* the likely output sales lost by the defendant to the plaintiff for every unit of input sold to the plaintiff. When the firms are selling products that are perfect substitutes, this displacement ratio equals unity. When the products are not perfect substitutes, this displacement ratio is less than unity. This profit reduction can be estimated from the type of cost and demand information routinely used in merger analysis.

²¹⁶ Robert D. Willig, *The Theory of Network Access Pricing*, in ISSUES IN PUBLIC UTILITY REGULATION 109 (Harry M. Trebing ed., 1979); William J. Baumol, *Some Subtle Issues in Railroad Regulation*, 10 INT'L J. TRANSP. ECON. 341 (1983); William J. Baumol & J. Gregory Sidak, *The Pricing of Inputs Sold to Competitors*, 11 YALE J. REG. 171 (1994); Janusz A. Ordover & Robert D. Willig, *Access and Bundling in High-Tech Markets*, in COMPETITION, INNOVATION AND THE MICROSOFT MONOPOLY: ANTITRUST IN THE DIGITAL MARKETPLACE 103 (Jeffrey A. Eisenach & Thomas M. Lenard eds., 1999).

²¹⁷ For example, suppose that the integrated firm is initially selling its output at the monopoly price of \$100. Suppose that it is earning \$50 per unit because its marginal cost for producing the input is \$10 and its other marginal costs (not including the cost of the input) are \$40, so that its output marginal cost equals \$50 per unit (i.e., \$10 + \$40). If the entrant sells a fungible product, so that every unit of input sold to the entrant entails a one-unit loss in output sales by the integrated firm, then the protected-profits benchmark price would be \$60, where this \$60 figure is comprised of the \$10 input cost plus the \$50 (i.e., \$100 - \$10 - \$40) profit per unit on sales lost to the entrant.

²¹⁸ Mark Armstrong & John Vickers, *The Access Pricing Problem with Deregulation*, 46 J. INDUS. ECON. 115 (1998); Mark Armstrong, Chris Doyle & John Vickers, *The Access Pricing Problem: A Synthesis*, 44 J. INDUS. ECON. 131 (1996); William J. Baumol, Janusz A. Ordover & Robert D. Willig, *Parity Pricing and Its Critics: A Necessary Condition for Efficiency in the*

As a result, the protected-profits input price benchmark would be lower than the standard ECPR calculated above.²¹⁹ This lower benchmark price coupled with the product differentiation often would lead to more vigorous price competition in the output market, even if the purchaser has equal or even somewhat higher costs than the integrated firm.

In order to avoid the *Cellophane* Fallacy, this benchmark price would not be set to permit the integrated firm to maintain its monopoly profits in the output market.²²⁰ Instead, it only would compensate the defendant for profits on those output sales directly lost to the competitor, not for the reduced profits on the rest of its output caused by the price reductions arising from the entry of the competitor. For the same reason, the ECPR benchmark does not permit the integrated firm to charge a higher input price to a more efficient competitor that sells a fungible product.²²¹

The consumer welfare effect standard also requires a price benchmark for unilateral refusals to deal in order to avoid claims that all refusals to deal are anticompetitive and to avoid the plaintiff gaining artificial bargaining power. The court might utilize the input price previously charged or the “protected-profits” input price benchmark for this purpose.²²² This means that the analysis of unilateral refusals to deal has similarities in the two standards.

Provision of Bottleneck Services to Competitors, 14 YALE J. REG. 145, 154–55 (1997). These authors sometimes refer to a *modified* ECPR. To avoid possible confusion, I am not using that terminology.

²¹⁹ For example, in the context of *Trinko*, if Verizon would refuse to provide DSL inputs to AT&T, some additional customers would buy retail broadband service from Verizon. But some others would choose to obtain cable or wireless broadband service from other providers or stay with their dial-up service. Extending the example in the previous note, suppose that only half of the entrant’s sales come at the expense of the integrated firm and half come from firms producing other products. In this situation, the displacement ratio would equal one-half. Thus, the protected-profits benchmark input price would be \$35, that is, the \$10 input cost plus \$25, where the \$25 figure reflects the \$50 (i.e., \$100 – \$10 – \$40) per unit profits on lost output sales, discounted by one-half to take into account the fact that the input sales lead to the integrated firm losing half as many output sales to the new entrant.

²²⁰ The ECPR has been criticized in the regulatory context for falling victim to the *Cellophane* Fallacy by taking the output price as given at the monopoly level. See, e.g., Nicholas Economides & Lawrence J. White, *Access and Interconnection Pricing: How Efficient Is the “Efficient Component Pricing Rule”?* 40 ANTITRUST BULL. 557 (1995). Baumol and Willig appear to agree with this criticism, but argue that the ECPR should be used after the retail price is properly adjusted. Baumol et al., *supra* note 151, at 155.

²²¹ Similarly, when the products are differentiated, the protected-profits benchmark price would not allow the integrated firm to extract the entire profit that could be earned by the competing firm.

²²² An alternative benchmark would be the input price that would be charged by a hypothetical standalone (i.e., unintegrated) supplier with the same degree of legitimate market power in the input market as the integrated firm. To operationalize this benchmark, suppose hypothetically that the integrated firm is assumed to be divided up into two

However, evidence of profit sacrifice would not be sufficient for liability under the consumer welfare standard. It also would be necessary to explain how the refusal to deal would harm consumers; that is, it would be necessary to show that sales to the competitor at the benchmark price would lead to consumer benefits. This is not inevitable, particularly when the integrated firm lacks market power in the output market.²²³

Under certain other limited circumstances, a failure to show profit sacrifice at the protected-profits input price benchmark might not be fatal to the plaintiff's case under the consumer welfare standard. For example, if the defendant's monopoly power in the input market was not achieved legitimately, then no cognizable interest would be protected by permitting the expansion (or maintenance) of monopoly power in the downstream market through a refusal to supply the input. In this case, there may be no need to support the level of investment incentives provided by the protected-profits benchmark.

Similarly, consider the situation where the integrated firm has a natural monopoly in the input and the firm is characterized as controlling an "essential facility." If the market is not regulated by a specialized regulatory agency, a court may take on that regulatory burden under the essential facilities doctrine.²²⁴ In this case, however, the court also would

independent, unintegrated firms—a standalone input supplier and a standalone output producer. (For example, this would be the type of structure following a hypothetical "vertical divestiture" implemented against AT&T in the 1980s by the DOJ under AAG William Baxter.) This "standalone" input price benchmark would be the profit-maximizing price that the standalone input supplier would charge the entrant. When the entrant is selling a fungible product and has the same costs as the integrated firm, this benchmark price equals the ECPR. When the products are differentiated, the benchmark changes and does not equal the protected-profits benchmark. Moreover, calculating this benchmark in practice would be significantly more difficult than the protected-profits benchmark, making it less practical for courts.

²²³ For example, suppose that the only fertilizer dealer in an isolated farming area is also a farmer and refuses to sell fertilizer to the competing farmers in the area. Suppose that the cost to these competing farmers of shipping in fertilizer from elsewhere is significantly more expensive and would lead these competitors to exit. That refusal to deal may involve a sacrifice of profits by the integrated farmer and the conduct might not make "economic sense" in the way that the term is used in the no economic sense standard. But, if the relevant output market is national, then this refusal to deal likely would not have any discernable impact on prices or anticompetitive effect on consumers. As a result of this lack of market power in the output market, a court would not find the defendant liable in this case under the consumer welfare effect standard. (In contrast, an inference of consumer harm might make more sense if the integrated firm has monopoly power in both markets.)

²²⁴ *MCI Communications Corp. v. AT&T*, 708 F.2d 1081, 1132–33 (7th Cir. 1983). In this regard, the *Trinko* Court said that its opinion did not "repudiate" the "'essential facilities' doctrine crafted by some lower courts." *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 399 (2004). It suggested, however, that the doctrine would be relevant only when access to the facility is not regulated. *Id.*

have to determine the price benchmark that properly balances the short-term benefits of price and entry competition in the output market along with the appropriate investment incentives for the integrated firm and its competitors.²²⁵

VII. CONCLUSION

In the end, the benefits of the profit-sacrifice standard are overstated, and the flaws are understated. It is said to be simpler to implement than the consumer welfare effect standard, which is claimed to be very complex. Yet, the profit-sacrifice standard is highly complex. For some exclusionary conduct, there is no temporal profit sacrifice, so profit sacrifice must be gauged conceptually with the use of a benchmark price that must be constructed. Sometimes this benchmark price is the current price, but sometimes it is not. Similarly, the output benchmark for the profit-sacrifice standard may or may not hold the defendant's output constant, and whichever output benchmark is chosen will cause erroneous outcomes in certain cases.

For example, for monopoly maintenance cases, the profit-sacrifice test would require the court to predict the price that would occur absent the exclusionary conduct. But, if this price can be predicted confidently, then the court would be able to use the consumer welfare effect test. If the exclusionary conduct leads to a higher price or prevents the market price from falling, then there is presumption of consumer harm. It would make more sense for the court to evaluate whether the defendant's product has improved sufficiently, as a result of the exclusionary conduct, to outweigh the price increase.

The consumer harm standard is said to condemn beneficial competitive conduct, such as a cost-reducing investment that happens to cause rivals to exit from the market (and ultimately leads to higher prices). In fact, if the harmful effect on consumers is not reasonably foreseeable in probabilistic terms at the time of the investment, there would be no violation of the consumer effect standard. Only investments that are harmful on the basis of an *ex ante* effect analysis would be condemned. Nor would false positive errors be avoided by the profit-sacrifice standard. Some cost-reducing investments that benefit consumers clearly would be condemned under the profit-sacrifice standard.

²²⁵ In this analysis, the court could recognize the potential for adverse innovation effects on the defendant, but might reason that a more interventionist antitrust policy would increase total innovation by driving increased innovation by the new entrants. *See Baker, Promoting Innovation, supra* note 24, at 514. In addition, if the entrant would be producing a differentiated product, a refusal to deal could cause additional consumer harm.

Although critics claim that the consumer harm standard is too complex and errs in practice, the same basic standard is used routinely and successfully in HSR merger reviews, Section 7 cases, and Section 1 rule of reason cases. Making it the standard for Section 2 would unify antitrust law and make the doctrine more coherent. The profit-sacrifice test may be a useful piece of evidence in conjunction with other evidence, but when it is the sole liability standard, or a required prong of the liability standard, the profit-sacrifice test is likely to cause significant judicial errors without adding any benefits. In that broader role, it does more harm than good, relative to the consumer welfare effect standard.