

PATENT HOLDUP AND OLIGOPSONISTIC COLLUSION IN STANDARD-SETTING ORGANIZATIONS

*J. Gregory Sidak**

ABSTRACT

Current controversies over patent policy place standard-setting organizations (SSOs) on a collision course with antitrust law. Recent theoretical research conjectures that, in an SSO, patent owners can “hold up” patent users in the sense of demanding high royalties for a patented input after the SSO has adopted the patented technology as an industry standard and manufacturers within the SSO have incurred sunk costs to design end products that incorporate that standard. Consistent with this conjecture, actual SSOs have recently sought no-action letters from the Antitrust Division for a variety of amendments to SSO rules that would require or request, at the time a standard is under consideration, the *ex ante* disclosure by the patent owner of the maximum royalty that the patent owner would charge under the regime of fair, reasonable, and nondiscriminatory licensing. This price information—which is characterized as the “cost” of the patented input—would, under at least one recent SSO rule modification, be a permissible topic for potential users of the patent to discuss when deciding whether to select it in lieu of some alternative standard. This exchange of information among horizontal competitors would occur ostensibly because the cost of the patented technology had been characterized as simply one more technical attribute of the standard to be set, albeit an important technical attribute. The Antitrust Division and the Federal Trade Commission have jointly stated that such discussion, by prospective buyers who are competitors in the downstream market, of the price of a patented invention that might become part of an industry standard should be subject to antitrust scrutiny under the rule of reason rather than the rule of *per se* illegality. The rationale that the antitrust agencies

* Chairman, Criterion Economics, L.L.C., Washington, D.C. E-mail: jgsidak@criterioneconomics.com. For their helpful comments, the author thanks John Barton, Timothy Brennan, George Cary, John Golden, Louis Kaplow, Michael Meurer, Roger Noll, Bruce Owen, A. Mitchell Polinsky, Mark Ramsayer, Greg Rosston, Steven Shavell, Kathryn Spier, Dennis Weisman, and participants of the law and economics workshops at Harvard Law School and Stanford Law School and of the 2008 George Mason University/Microsoft Corporation Annual Conference on the Law and Economics of Innovation on the subject, “Patents and the Commercialization of Innovation.” The author is an adviser to Qualcomm and other companies in North America, Europe, Asia, and Australia on patent and antitrust matters.

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offer for applying the rule of reason to such conduct is that such horizontal collaboration might avert patent holdup. The Antitrust Modernization Commission (AMC) similarly endorsed the view that rule-of-reason analysis is appropriate for *ex ante* discussion of royalty terms by competing buyers of patented technology. This rule-of-reason approach, however, is problematic because it conflicts with both the body of economic research on bidder collusion and with the antitrust jurisprudence on information exchange and facilitation of collusion. Put differently, because of their concern over the possibility of patent holdup, the U.S. antitrust agencies and the AMC in effect have indicated that they may be willing in at least some circumstances to forgo enforcement actions against practices that facilitate oligopsonistic collusion by encouraging the *ex ante* exchange of information among competitors concerning the price to be paid for a patented input as an implicit condition of those competitors' endorsement of that particular patented technology for adoption in the industry standard. However, neither the proponents of these SSO policies nor the antitrust agencies and the AMC have offered any theoretical or empirical foundation for their implicit assumption that the expected social cost of patent holdup exceeds the expected social cost of oligopsonistic collusion. This conclusion does not change even if one conjectures that such collusion will benefit consumers by enabling licensees to pass through royalty reductions in their pricing of the downstream product incorporating the patented technology. Proper economic evaluation of the plausibility of the pass-through conjecture will require information about the calculation of royalty payments; the demand and supply elasticities facing the licensees; and the structure of any industries further downstream between the manufacturer and the final consumer. Consequently, the magnitude of this effect will likely be a matter of empirical dispute in every case. Moreover, such a justification for tolerating horizontal price fixing finds no support in antitrust jurisprudence. Given the analytical and factual uncertainty over whether patent holdup is a serious problem, it is foreseeable that antitrust questions of first impression will arise and affect a wide range of high-technology industries that rely on SSOs. However, there is no indication that scholars and policy makers have seriously considered whether oligopsonistic collusion in SSOs is a larger problem than patent holdup.

JEL: D4; K20; K21; L1; L22; L24; L4; O3

I. INTRODUCTION

In a standard-setting organization (SSO), or a standards development organization (SDO), owners and users of patents agree to establish standards that make possible the production of interoperable end products that use patented technologies as inputs. A notable example is the cellular telephone, for which applicable standards rely on hundreds, if not thousands, of patented inputs. An influential article by Professors Mark Lemley and Carl Shapiro conjectures that the owner of a patented input can “hold up” firms that wish to use that input to manufacture end products.¹ Lemley and

¹ Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007) [hereinafter *Patent Holdup*]. See also Mark A. Lemley & Carl Shapiro, *Reply: Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 2163 (2007) (responding to John M. Golden, *Commentary: “Patent Trolls” and Patent Remedies*, 85 TEX. L. REV. 2111 (2007)) [hereinafter *Reply to Golden*].

Shapiro describe patent holdup as occurring when the patent holder uses a court's issuance of an injunction (or merely the threat of an injunction) to block an infringer's use of the patented invention unless the infringer, who has made sunk investments in expectation of using the patented invention, pays a royalty that is, from the infringer's perspective, excessively high. Lemley and Shapiro argue that the phenomenon of patent holdup justifies changing patent law, through legislation and judicial interpretation, to limit the availability of patent injunctions. These proposals envision public collective action to address patent holdup.²

Private collective action is another way to respond to the patent-holdup conjecture. Although the Lemley–Shapiro analysis is not confined to SSOs, such organizations present the more interesting case of possible patent holdup because they are institutions that evolved explicitly for the purpose of coordinating *ex ante* agreements among multiple actors to harness the productive potential of complementary technologies. For example, a standard over cellular telephone technology allows communications over different networks and subscriber devices, so that those different networks and devices can interoperate. An SSO introduces the possibility that its members will privately act, through the SSO's collective decision making process, to adopt or reject a particular standard that incorporates particular technology. An implicit assumption of the nascent debate over patent holdup has been that collective action privately undertaken by SSOs to resist holdup should be permitted, if not actively encouraged. The argument is that licensees are justified in conducting *ex ante* joint negotiations because of the incremental market power conferred on holders of essential patents by virtue of inclusion of their patents in the standard. Stated differently, *ex ante* joint negotiations are supposedly a welfare-enhancing means to take advantage of competition for inclusion of a technology in a standard that ends when the SSO adopts or implements the standard. This changed role for the SSO regarding *ex ante* joint negotiation of royalties is significant because collaborative

For my reply, see J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 713 (2008) [hereinafter *Reply to Lemley and Shapiro*]. Throughout this article, I refer to the “patent-holdup conjecture” in the strict Popperian sense of an *a priori* hypothesis that must survive rigorous attempts at falsification (both theoretical and empirical) before it can be accepted as plausibly true (that is, having what Popper called verisimilitude or “truthlikeness”). See KARL R. POPPER, *CONJECTURES AND REFUTATIONS: THE GROWTH OF SCIENTIFIC KNOWLEDGE* (1963); KARL R. POPPER, *OBJECTIVE KNOWLEDGE: AN EVOLUTIONARY APPROACH* (1972).

² The methods of public collective action can address unlikely decision makers. In January 2009, for example, a coalition including manufacturers of digital televisions petitioned the Federal Communications Commission (FCC) to regulate royalties charged for patented inputs for such televisions on the rationale that holdup was occurring. See Coalition United to Terminate Financial Abuse of the Television Transition L.L.C., Petition for Rulemaking and Request for Declaratory Ruling (filed before the FCC Jan. 2, 2009).

selection of an interoperable technology does not require oligopsonistic price setting. Price is not a technical characteristic of a technology.

Some scholars share my skepticism about the existence and empirical significance of patent holdup.³ The legal and economic literature on this subject continues to develop, and the intellectual debate over patent holdup would be unlikely to be resolved soon, if left to ripen undisturbed by the exigencies of real-world controversies. For sake of argument, I will assume, contrary to my skepticism, that patent holdup can occur, and that it causes demonstrable social harm when it does occur. The contribution of this article is not to add to the existing debate with respect to patent law but to consider an important but neglected antitrust implication of that debate. Simply put, *ex ante* collective action that is privately undertaken in an SSO to counteract potential patent holdup may facilitate, if not serve as an outright façade for, horizontal price fixing by oligopsonists of the patented input. It is well established in antitrust jurisprudence that the rule of *per se* illegality applies to competitor exchanges of contemporaneous or forward-looking information on pricing. It is not obvious why a more lenient rule should apply when competing buyers of a patented input discuss the price that they believe the patented input should fetch now or in the future. It is also not obvious why policies of antitrust prosecutorial discretion should favor licensees of patented technologies over licensors.

Consistent with the recent research on patent holdup, actual SSOs have recently sought no-action letters from the Antitrust Division of the Department of Justice for a variety of amendments to SSO rules that would require or encourage, at the time that a standard is under consideration, the *ex ante* disclosure by the patent owner of the maximum royalty that the patent owner would charge under an agreed-upon regime of fair, reasonable, and nondiscriminatory (FRAND) licensing. This price information would, under at least one recent SSO rule modification, be a permissible topic for potential users of the patent to discuss, although the policy created some ambiguity by also purporting to prohibit joint discussion of “specific license terms.” This exchange of information among horizontal competitors would occur ostensibly because the “cost” of the patented technology—namely, its royalty rate—would be characterized as simply one more technical attribute of the standard to be set, albeit an important technical attribute.

³ See Golden, *supra* note 1; Damien Geradin & Anne Layne-Farrar, *The Logic and Limits of Ex Ante Competition in a Standard Setting Environment*, 3 COMPETITION POL’Y INT’L 79 (2007); Damien Geradin & Miguel Rato, *Can Standard Setting Lead to Exploitative Abuse? A Dissonant View on Patent Holdup, Royalty Stacking and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101 (2007); Damien Geradin, Anne Layne-Farrar & Jorge Padilla, *Royalty Stacking in Mobile Telecommunications: A Closer Look at the Evidence*, 21 INFO. ECON. & POL’Y (forthcoming 2009); Damien Geradin, Anne Layne-Farrar & Jorge Padilla, *Competing Away Market Power? The Ex Ante Auction Model for the Control of Market Power in Standard Setting Organizations*, 4 EUR. COMPETITION J. 443 (2008).

The Antitrust Division has issued business review letters permitting the mandatory or voluntary disclosure of royalty and other licensing terms, and the Division and the Federal Trade Commission (FTC) have jointly stated that discussion among horizontal competitors who will need a license should be subject to antitrust scrutiny under the rule of reason rather than the rule of *per se* illegality. The rationale offered by the antitrust agencies for that legal standard is that such horizontal collaboration may be a justifiable response to the perceived problem of patent holdup. In 2007, the Antitrust Modernization Commission (AMC) similarly endorsed the view that rule-of-reason analysis is appropriate for *ex ante* discussion of royalty terms by competing buyers of patented technology. It bears emphasis that—unlike the conduct at issue in the FTC’s enforcement actions in *Rambus*,⁴ *Dell*,⁵ and *Unocal*⁶—the holdup scenario envisioned here does *not* arise from the patent holder’s misrepresentation or knowing, intentional failure to disclose to the SSO that the patent holder owns intellectual property rights in essential technologies.⁷ Rather, the assertion of patent holdup addressed here arises because the patent holder does not forbear from charging the highest royalty that it can, once its technology has been knowingly chosen by the SSO for its standard. This reasoning conflicts with the Supreme Court’s reasoning in *Trinko* that “[t]he opportunity to charge monopoly prices—at least for a short period—is what attracts ‘business acumen’ in the first place . . . [and] induces risk taking that produces innovation and economic growth.”⁸

The rule-of-reason approach of the Antitrust Division, FTC, and AMC is also problematic because it conflicts with both the body of economic research on bidder collusion and with the antitrust jurisprudence on information exchange and facilitation of collusion. Put differently, because of their concern over the possibility of patent holdup, the antitrust agencies and the AMC in effect have indicated that they may be willing in at least some circumstances to forgo enforcement action against practices that facilitate oligopsonistic collusion. Those practices encourage the *ex ante* exchange of information among competitors concerning the price to be paid for a patented input as an implicit condition of those competitors’ endorsement of that particular patented technology for adoption in the industry standard. Neither the proponents of those practices nor the antitrust agencies and the AMC, however, have offered any theoretical or empirical foundation for their implicit assumption that the expected social cost of patent holdup exceeds the expected social cost of oligopsonistic collusion.

⁴ In the Matter of Rambus, Inc., No. 9302 (F.T.C. Aug. 2, 2006), *rev’d sub nom.* Rambus Inc. v. FTC, 522 F.3d 456 (D.C. Cir. 2008).

⁵ In the Matter of Dell Computer Corp., 121 F.T.C. 616 (May 20, 1996).

⁶ In the Matter of Union Oil Co. of Cal., No. 9305 (F.T.C. July 27, 2005).

⁷ See *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297 (3d Cir. 2007).

⁸ *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko*, 540 U.S. 398, 407 (2004) (quoting *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966)).

This conclusion does not change even when the enforcement agencies assert that such collusion will benefit consumers by enabling licensees to pass through royalty reductions in their pricing of the downstream product incorporating the patented technology. The magnitude of this effect is a matter of theoretical and empirical dispute. Moreover, such a justification for tolerating horizontal price fixing finds no support in antitrust jurisprudence.

Lemley and Shapiro also make a conjecture about “royalty stacking.” They hypothesize that, if multiple licensors of complementary inputs each tried to hold up licensees by demanding high royalties, the downstream product could become uneconomic to produce. However, neither the antitrust agencies nor the AMC have identified royalty stacking (as opposed to patent holdup *per se*) as a justification for coordinated action among competing buyers in an SSO. And, in any event, the existence and severity of royalty stacking are still conjectures rather than empirically substantiated facts. Put differently, royalty stacking is, fittingly, a conjecture stacked upon another conjecture. The probability that royalty stacking will occur with respect to a given downstream product is necessarily less than or equal to the probability that patent holdup will occur with respect to an essential patent reading on the standard for that downstream product. From a lawyer’s perspective, therefore, royalty stacking cannot be bootstrapped into a more plausible theory than patent holdup for justifying private collective action in restraint of trade. Consequently, both patent holdup and royalty stacking would encounter a court’s considerable skepticism under existing antitrust jurisprudence. Because of the doubly speculative nature of the royalty-stacking conjecture, I focus in this article on the antitrust implications of the patent-holdup conjecture. If the patent-holdup conjecture collapses under antitrust scrutiny, then so must the royalty-stacking conjecture.⁹

Given the analytical and factual uncertainty over whether patent holdup is a serious problem, and given the divergence of desired interpretations of antitrust law concerning SSO self-help responses to possible patent holdup, it is foreseeable that antitrust litigation on questions of first impression will arise and affect a wide range of high-technology industries that rely on SSOs. On the heels of the September 2007 *Microsoft* ruling by the Court of First Instance, broadening a monopolist’s duty to share its intellectual property

⁹ The analysis does not change if, instead of discussing the rates that would be paid to individual licensors, the patent licensees instead discussed the aggregate of such rates charged by all licensors of essential patents. In the latter case, the price paid for any given essential patent is still determined by oligopsonistic collusion rather than competitive bidding: competing buyers have collectively agreed not to exceed a global spending cap. If Ford, General Motors, and Chrysler collectively agreed not to pay more than \$1,000 per vehicle for tires, wheels, and transmissions, they would have reached an agreement in restraint of trade concerning the price to be paid for tires, wheels, and transmissions. Nothing in the section 1 of Sherman Act implies that horizontal price fixing by either buyers or sellers becomes lawful when rivals manifest their agreement in restraint of trade in a price for a bundle of services.

under European competition law,¹⁰ the European Commission initiated an Article 82 antitrust case against Qualcomm on October 1, 2007, in response to complaints of other firms (including vertically integrated firms that own and sometimes license patents covering competing and complementary technology and that make or sell products using such technology) that the level of its patent royalties for WCDMA technology for cellular telephones constitutes an abuse of dominance.¹¹ This view of European competition law, like the proposals of Lemley and Shapiro to attenuate patent rights under American law, would fundamentally alter the nature of negotiations between patent owners and patent users in SSOs. However, in neither jurisdiction is there any indication that scholars—or enforcement agencies bringing cases against patent licensors or issuing statements of an intention not to prosecute *ex ante* negotiations among licensees—have considered the possibility that oligopsonistic collusion in SSOs is a larger problem than patent holdup.

Part II of this article explains the Lemley–Shapiro patent-holdup conjecture. It then explains the legal and economic arguments that cast doubt on the plausibility of that conjecture.

¹⁰ Microsoft Corp., Case T-201/04, Judgment of the Court of First Instance (Sept. 17, 2007). The CFI ruled that a dominant firm might, “in exceptional circumstances,” violate Article 82 by refusing “to license a third party to use a product covered by an intellectual property right.” *Id.* at II-65 ¶ 331. In the case of intellectual property having any significant commercial value, however, the exceptional circumstances are so broad as to swallow the general rule that even a monopolist may unilaterally refuse to deal with a third party. The three (disjunctive) exceptional circumstances that the CFI identified are that (1) “the refusal relates to a product or service indispensable to the exercise of a particular activity on a neighbouring market,” (2) “the refusal is of such kind as to exclude any effective competition on that neighbouring market,” and (3) “the refusal prevents the appearance of a new product for which there is potential consumer demand.” *Id.* at II-65 to II-66 ¶ 332. It appears that the European Commission is already in the process of invoking one or more of these exceptions to cast an allegation of patent holdup as an abuse of dominance under Article 82.

¹¹ European Commission, Antitrust: Commission initiates formal proceedings against Qualcomm, MEMO/07/389 (press release) (Oct. 1, 2007) available at <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/07/389&format=HTML&aged=0&language=EN>. The EC stated:

The alleged infringement concerns the terms under which Qualcomm licenses its patents essential to the WCDMA standard. The investigation will focus on the issue of whether the licensing terms and royalties imposed by Qualcomm are, as alleged by the complainants, not fair, reasonable and non-discriminatory. In a context of standardization, a finding of exploitative practices by Qualcomm in the WCDMA licensing market contrary to Article 82 of the EC Treaty may depend on whether the licensing terms imposed by Qualcomm are in breach of its FRAND commitment.

Id. In a statement certain to provoke controversy, the EC matter-of-factly defined FRAND: “The economic principle underlying FRAND commitments is that essential patent holders should not be able to exploit the extra power they have gained as a result of having technology based on their patent incorporated in the standard.” *Id.* The EC’s casual pronouncement of a definition of FRAND in a press release will be monumentally controversial because the economic meaning of FRAND goes to the heart of any legal theory that competitive harm has resulted from breach of a patent holder’s FRAND commitment.

Part III shifts the perspective to antitrust law. It critiques the reasoning by which the Antitrust Division, the FTC, and the AMC have concluded that rule-of-reason analysis should apply to collective action privately undertaken among buyers in an SSO, purportedly to prevent patent holdup. These three bodies have failed to give appropriate attention to the possibility that the risk of oligopsonistic collusion in SSOs is significant. It bears emphasis that use of the rule of reason need not be a rubber stamp for *per se* legality. Narrowly read, the antitrust agencies' endorsement of the rule of reason in this context may reflect nothing more than a current underweighting of the risk of and harm from oligopsonistic collusion in SSOs. It may indicate only that those agencies are not prepared to assume that such risk and harm will always outweigh any countervailing justifications. This article argues that the antitrust agencies should revise that current perspective. If, in the alternative, the statements of prosecutorial discretion from the antitrust agencies are read to support a broader conclusion on the presumptive legality of oligopsonistic collusion, they should be repudiated on the ground that they are antithetical to the purpose of antitrust law as articulated by the Supreme Court.

Part III further argues that existing antitrust jurisprudence indicates why the rule of *per se* illegality is the more appropriate rule to apply to negotiations among competitors in an SSO over the maximum level of royalties to be charged by a patent holder seeking adoption of its technology into the standard. The proper concern is not, as the proponents of buyer collusion evidently believe, how the exchange of information among competitors will affect the division of rents between licensors and licensees; the proper concern is whether that exchange of information will expand output, increase both allocative and dynamic efficiency, and increase consumer welfare. In the SSO context, is the objective of negotiations among competitors over licensing terms and royalties to reduce input prices through combined buyer power? Or is this coordinated action necessary to achieve some output-expanding objective that advances consumer welfare, and for which the royalty negotiations are merely an ancillary restraint of trade? If patent holdup is the only concern—if the only question is how rents will be distributed between patent licensors and patent licensees—then the negotiations among competitors over royalty rates are properly considered horizontal price fixing subject to the *per se* rule of illegality.

Part IV asks whether any of the preceding analysis of the patent-holdup argument requires modification if the justification offered for the SSO policies in question is the assertion by licensees that the lower licensing fees resulting from negotiations between colluding oligopsonists and owners of competing patented technologies will be passed on to consumers. This assertion is difficult to evaluate in the abstract. Proper economic evaluation of the plausibility of the assertion will require information about the calculation of royalty payments; the demand and supply elasticities facing the licensees; and the structure of any industries further downstream between the manufacturer and the final consumer, such as final-assemblers

or retailers (in the computer industry) or network operators (as in wireless telephony). The complexity of those inquiries underscores why, as a matter of established antitrust jurisprudence, the passing on of cost reductions achieved solely by virtue of oligopsonistic collusion is not—and should continue not to be—a legally cognizable mitigation, justification, or excuse for horizontal price fixing.

II. THE PATENT-HOLDUP CONJECTURE

Lemley and Shapiro present a theory of patent holdup and draw from it policy recommendations to limit injunctive relief against alleged patent infringers. However, a subsequent decision by the Supreme Court makes it harder for a patent holder to get an injunction for infringement and, consequently, reduces substantially the plausibility of the patent-holdup conjecture.

A. The Lemley–Shapiro Model

Lemley and Shapiro analyze the case of a patent holder and a potential infringer who is producing a product that complies with a standard incorporating the patented product or component. Because the patent is only possibly valid and infringed, the potential infringer faces only the possibility of an injunction rather than the certainty of one. (The same could be said of *any* property interest, of course.) Lemley and Shapiro argue that this injunctive relief, particularly when sought or obtained to prevent infringement or when combined with a patented component that accounts for only a small portion of the infringer’s product, results in a negotiated royalty rate that exceeds a defined hypothetical benchmark. Lemley and Shapiro theorize that a patent holder can use merely the threat of obtaining an injunction to negotiate royalty rates that exceed the defined hypothetical benchmark.¹²

¹² It bears emphasis that the Antitrust Division defines patent holdup differently from the Lemley–Shapiro model. The Division asks whether the royalty *ex post* could have been reasonably anticipated *ex ante*. See Hill B. Wellford, Counsel to the Assistant Attorney General, Antitrust Division, U.S. Department of Justice, Address at the Second Annual Seminar on IT Standardization and Intellectual Property, China Electronics Standardization Institute, Antitrust Issues in Standard Setting, Mar. 29, 2007, at 11. The Division says that, when royalty terms are known *ex ante*, there can be no patent holdup. *Id.* at 11–12. Thus, the Division’s “reasonably could have been anticipated” test, unlike the Lemley–Shapiro test, does not depend on a “hypothetical benchmark.” It is therefore erroneous to equate the Antitrust Division’s understanding of patent holdup with Lemley’s and Shapiro’s. Put differently, the Division’s definition is easily reconcilable with the economic efficiency of voluntary exchange, whereas the Lemley–Shapiro model devolves into an *ex post* variant of cost-of-service regulation predicated on a hypothetical cost model. In this respect, the Lemley–Shapiro approach resembles the hypothetical cost model, used to estimate total element long-run incremental cost (TELRIC), which was employed by the FCC to price unbundled access to the local exchange network after the Telecommunications Act of 1996. When he was chief economist in the Antitrust Division in 1996, Shapiro endorsed the use of

Lemley and Shapiro analyze a bargaining model where a patent holder and a downstream firm negotiate a royalty rate. The patent holder can threaten to seek an injunction at the time of bargaining and use this possibility to its advantage. A patent holder approaches a downstream firm that is already selling a product that incorporates a feature or component covered by the patent holder's patent. The two parties engage in Nash bargaining, where the negotiated rate depends on each party's threat point. Lemley and Shapiro calculate a hypothetical "benchmark" royalty by considering the case of a surely valid patent and conclude that the hypothetical benchmark would be the product of the patent holder's bargaining power, denoted B in the model, and the marginal value added by the patented component, V . The hypothetical benchmark royalty rate is therefore BV in the case of a surely valid patent. When the patent is not surely valid, but instead is valid with only some probability θ , the hypothetical benchmark royalty falls to θBV . Lemley and Shapiro regard the probability θ as a measure of patent strength.

The holdup scenario is considered in the context of two strategies by the downstream firm. The first strategy, "litigate," has the downstream firm litigating the infringement suit and redesigning the product only upon a loss; the second strategy, "redesign and litigate," has the downstream firm redesigning its product during the patent litigation and before the court enters judgment on the question of the patent's validity.

The "litigate" strategy is attractive to a downstream firm that faces either weak patents or high redesign costs relative to the lost profits that would follow a defeat in the litigation. If the court upholds the validity of the patent, Lemley and Shapiro use the model to calculate the "percentage gap" or "royalty overcharge" between the hypothetical benchmark royalty and the royalty that would result if a downstream firm were required to redesign its product after litigating. It is important to discern the pejorative connotation of their choice of words: Even a patent whose validity has been *confirmed* by a court can give rise to "overcharges." Of course, in the United States there is no basis in either antitrust or patent law for denying a lawful monopolist the right to charge as high a price as the market will bear. The grant of a patent is not conditioned on constraining the patent owner to charge those who infringe the patent a royalty rate that is no higher than the rate that a court would deem to be reasonable. A patent holder is not a public utility.

a hypothetical engineering cost model to generate estimates of TELRIC to set regulated prices for unbundled network element subject to mandatory unbundling (compulsory licensing). At the time, many believed—naively, it is now clear to say in retrospect—that TELRIC is the simple extension of total *service* long-run incremental cost (TSLRIC). In 1996, Shapiro characterized the Antitrust Division's comments to the FCC on the pricing of unbundled network elements as "happily endors[ing] the TSLRIC concept." See Transcript of FCC Panel Discussion Forum: In the Matter of: Economics of Interconnection 9 (May 20, 1996).

The “overcharge” in the “litigate” scenario derived by Lemley and Shapiro depends on two considerations—the need for the downstream firm to incur redesign costs, and the loss of a sales margin attributable to the injunction that follows the patent suit. The second component can grow very large if the mark-up for the downstream product is high relative to the incremental value, V , of the patented input used in that product. Lemley and Shapiro conclude that “the negotiated royalty rate for a single patent tends to be greatly elevated above a reasonable benchmark level if the value of the patented feature is small relative to the total value associated with the product. The intuition is that the accused infringer will lose the full value of its product, not merely the value of the patented component, if it is enjoined and has to redesign the product to avoid infringement.”¹³

In contrast, a downstream firm prefers the “redesign and litigate” strategy if it faces a strong patent, or when redesign costs are low relative to the loss in revenue that would follow a defeat in court. If the patent is surely valid, Lemley and Shapiro reason that the negotiated royalty would be the first component of the two that comprised the negotiated royalty in the “litigate” strategy above. That is, the negotiated royalty would be the amount of duplicative costs incurred by the downstream firm in redesigning its product using another input. There is no second term in this case because the downstream product is never removed from (or delayed from entering) the market. Of course, not all patents are surely valid. For patent strength $\theta < 1$, the negotiated royalty would be this same cost divided by θ . The intuition is that the downstream firm will have wasted money on redesigning the product if the patent on the input is found to be invalid or if there was no infringement.¹⁴ The downstream firm would therefore be willing to pay more than the value of the patented feature but less than the cost of redesigning the product.

The scenarios discussed so far have assumed that the downstream firm learns of the patented feature only after committing itself to an initial product design. Thereafter, the downstream firm must negotiate a royalty rate with the patent holder. Lemley and Shapiro also consider the case where negotiations

¹³ *Id.* at 2001–02.

¹⁴ This use of θ is confusing. The variable is the probability of patent validity. But the “no infringement” scenario would entail a legal conclusion regarding the defendant’s actions toward a *valid* patent—such as the conclusion that the defendant’s product acts outside the scope of the valid patent. The Lemley–Shapiro analysis depends on whether the patent can be enforced. But if Lemley and Shapiro are emphasizing lack of validity specifically, then it is inappropriate for them to let θ serve a larger purpose in their model. If one’s objective is to drive the probability of an enforceable property right in an invention as low as possible, there are numerous policy levers that one might choose to manipulate.

Moreover, it is important to observe that Lemley and Shapiro evidently ascribe no private or social benefit to these redesign efforts. This implicit assumption is questionable. Whether it is induced by a carrot or a stick, a public policy aimed at stimulating inventive activity presumably will generate *some* positive externality.

occur *before* the initial downstream product design. This second scenario has far greater practical significance in light of the common existence in high-technology industries of SSOs in which member firms disclose patented technology relevant to a particular standard and agree to license that technology to other members of the SSO at FRAND rates.¹⁵

Proceeding on the assumption that the downstream firm benefits from this pre-design posture only insofar as it may possibly design around the patent, Lemley and Shapiro argue that the negotiated royalty rate is independent of the patent strength, θ . If negotiations over licensing fail, the downstream firm designs around the patent regardless, which involves losing any marginal value associated with the patented feature, and not only when the patent is invalid.¹⁶ Lemley and Shapiro show—counterintuitively, to say the least—that the percentage “overcharge” in this case increases as the actual strength of the patent decreases.¹⁷ That is, the more likely the patent is invalid, the more likely it is that any royalty payment made is an overcharge. The intuition for this counterintuitive result, write Lemley and Shapiro, “is that the accused infringer has chosen to give up without a fight, effectively agreeing to treat a possibly invalid patent as certainly valid, and so the chance that it would have invalidated the patent will not be reflected in the negotiated royalty.”¹⁸

The bargaining model presented by Lemley and Shapiro therefore posits that, in a case where the patented feature adds little marginal value to the product as a whole, the negotiated royalty rate will be some large multiple of the hypothetical “reasonable benchmark” level. Further, for stronger patents, the downstream firm will likely choose to “redesign and litigate,” paying an inflated royalty rate (that is, a rate that exceeds the input’s hypothetical benchmark royalty rate, as defined by Lemley and Shapiro) because the downstream firm will incur redesign costs with certainty if negotiations fail.¹⁹

¹⁵ See Daniel B. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 5 (2005); Geradin, Layne-Farrar & Padilla, *Royalty Stacking in High Tech Industries*, *supra* note 3. Even the disclosure requirement can pose a significant cost for patent holders. See Benjamin Chiao, Josh Lerner & Jean Tirole, *The Rules of Standard-Setting Organizations: An Empirical Analysis*, 38 RAND J. ECON. 905, 911–12 (2007).

¹⁶ This aspect of the model explicitly relies on the earlier analysis of probabilistic patents in Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75 (2005).

¹⁷ Again, this terminology admits an implicitly pejorative connotation. The “overcharge” that Lemley and Shapiro discuss in this context is only an “overcharge” if one considers any deviation from their hypothetical benchmark to constitute an “overcharge.” In some sense, *any* positive royalty would constitute an “overcharge” because the marginal cost to the patent holder is zero. The same Orwellian distortion of language occurred in the intellectual battle over TELRIC pricing in telecommunication in the late 1990s.

¹⁸ Lemley & Shapiro, *Patent Holdup and Royalty Stacking*, *supra* note 1, at 2005.

¹⁹ Lemley and Shapiro also present three conjectures concerning negotiated royalties when many patents cover aspects of a particular product: rent splitting, shutdown, and Cournot complementarity. The first conjecture is that, after each successive royalty agreement, the

B. Addressing the Patent-Holdup Conjecture through Public Collective Action: Recommendations to Limit Injunctive Relief

Lemley's and Shapiro's primary policy prescription is to change patent law through public collective action. That is, they recommend that courts or Congress limit injunctive relief—by staying the force of any injunction—in cases where the patented component represents only a small share of the overall value of the infringer's product. Public collective action of this sort can be viewed as an alternative to private collective action taking the form of changes to SSO rules that aim to drive down royalties on patents that are essential to the standard. As part of their prescription for a change in public policy, Lemley and Shapiro would also impose as prerequisites for injunctive relief that the patent holder practice, or intend to practice, the patent in some way, and that the infringing party has not developed the patented technology independently of the patent holder.

Their other recommendations include setting royalty rates with the next-best alternative design in mind, such that royalties should be smaller when the next-best alternative is almost as valuable to the downstream firm as the infringed design. Of course, if the next-best alternative is a close substitute for the technology covered by the infringed patent, then it is hard to understand why the infringer's predicament has anything to do with holdup. The existence of a substituting complement constrains the patent holder's ability to charge a royalty that includes a component that exploits the downstream firm's sunk costs associated with the SSO's adoption of a particular standard.²⁰ The infringer's predicament in this case—to the extent that it exists—does not result from being held up by the patent holder; rather, it is the direct consequence of the infringer's own informed choice.²¹

remaining margin to the downstream firm is smaller, such that future royalty agreements will have smaller gains to divide. The second conjecture is that a downstream firm will not produce an unprofitable product, so the royalty rates will never be so extreme as to violate the break-even constraint. The third conjecture posits that each patent holder is "marking up" the royalty on the patent, which raises the downstream price and reduces demand for the product.

²⁰ See Sidak, *Reply to Lemley and Shapiro*, *supra* note 1, at 745 (discussing Giuseppe Dari-Mattiacci & Francesco Parisi, *Substituting Complements*, 2 J. COMPETITION L. & ECON. 333 (2006)).

²¹ One might object that an improvident choice by the infringer somehow lacks informed consent. But this argument collapses upon closer examination. The patent-holdup argument posits that two or more alternatives available before the choice of a standard were functionally equivalent (or sufficiently close) but incompatible. Conceivably, two technologies could have been close alternatives and even substitutes *ex ante* in the sense that both could achieve the same performance. But once one alternative is adopted in a standard and costs are sunk in building to it, it is no longer economic for licensees to switch to the alternative. The improvidence in this scenario comes not from the choice of one alternative over another, but from the failure of the licensees to recognize, before making sunk investments that are specific to the standard, that the patented input is sufficiently valuable

1. *Staying Injunctive Relief When the Input Covered by the Patent Represents a Small Share of Value of the Final Product*

In the standard case considered by Lemley and Shapiro, the value of the patented invention is a small fraction of the value of the final product. Indeed, one driving force behind the holdup outcome is that the infringing firm will lose revenues in the face of an injunction.²² In the limit, as the value of the patented feature approaches zero, any royalty paid to the patent holder, according to Lemley and Shapiro, is an “overcharge based on holdup.”²³

The “preferred solution” of Lemley and Shapiro in holdup cases is to stay injunctive relief until the infringing party has an opportunity to design around the patented feature.²⁴ In cases where the patent is valid and infringed, the infringing party will now have the use of the patented feature for a “reasonable” time necessary to redesign the final product to remove the patented feature. Lemley and Shapiro propose that this solution would eliminate holdup flowing from the disparity between the value of the final product and the value associated with the patented feature.²⁵ They also argue that staying any injunction would remove, or at least delay, a cost associated with the “redesign and litigate” strategy—namely, the cost of redesigning. If the patent is found valid and infringed, the infringer will not need to incur redesign costs until after litigation. If the patent is invalid, the redesign costs will not have been wasted.²⁶

The proposed staying of permanent injunctions is primarily aimed at eliminating “patent trolls” that hold up potentially infringing firms by threatening to seek injunctive relief against a product that is “predominantly non-infringing.”²⁷ Lemley and Shapiro argue that, because the goal of injunctive relief is to protect the patent holder’s market and ensure a return on investment, injunctive relief should not be available when the patented item or feature is only a small piece of a much more complicated product.

If it is settled that no injunction will be issued for the time that it takes an infringer to redesign its product, there is little incentive for an infringer to

to the downstream product that the patent’s owner can command a high royalty. But that would be true of the owner of *any* functionally equivalent patent chosen.

²² See Lemley & Shapiro, *Patent Holdup and Royalty Stacking*, *supra* note 1, at 2001–02.

²³ *Id.* at 2003.

²⁴ *Id.* at 2037–38.

²⁵ *Id.* at 2038.

²⁶ *Id.* Lemley and Shapiro ignore the possibility that the downstream firm can defend itself by preemptively filing for, or acquiring, adjacent patents that may succeed in invalidating or limiting the patent of the upstream patent holder who is suing for infringement. More generally, the downstream firm has an incentive *ex ante* to aggregate patents related to the patented inputs so as to (1) defend against possible infringement and (2) raise costs for competing downstream firms that are contemplating using an unpatented alternative to the patented input.

²⁷ *Id.* at 2008.

commence redesign efforts during the patent litigation. That is, Lemley's and Shapiro's policy recommendation essentially eliminates the "redesign and litigate" strategy because no firm would redesign at the outset of litigation, before uncertainty over validity is resolved, when it can costlessly wait until later to redesign.²⁸ Lemley and Shapiro "consider this a plus"²⁹ because redesign costs will only be incurred when necessary and the patent holder will receive a reasonable royalty for any infringing sales that take place during the stay of the injunction when redesign is occurring.

By removing the patent holder's threat of injunctive relief, therefore, an infringing firm will not lose sales during any period of redesign, will not need to decide early during litigation whether to redesign regardless of the ultimate validity or invalidity of the patent, and, in the case of a valid and infringed patent, will only pay a reasonable royalty on its sales during the stay of injunctive relief.³⁰

2. Denying Injunctive Relief When the Patent Holder Is a Non-Practicing Entity

Lemley and Shapiro would allow injunctive relief *only* when the patentee practices the patent in competition with the accused infringer. They consider the goal of the injunctive relief sections of the patent law to be to ensure that people who need injunctive relief to protect their markets or ensure a return on their investment can receive it. In contrast to the recommendation that injunctions be stayed "in holdup cases," Lemley and Shapiro "consider the presumptive right to injunctive relief to be an important part of the patent law," and they agree that, "[i]n most cases, there will be no question as to the patentee's entitlement to an injunction."³¹ (This statement significantly undercuts the force of any concern over holdup, because "in most cases" there is no holdup at all.)

The result that non-practicing entities should not be entitled to injunctive relief flows by negative implication from the policy recommendations of Lemley and Shapiro. They defend the right of injunctions for practicing entities, and by implication argue that non-practicing "patent trolls" are prime candidates for denial of injunctive relief.³² "Practicing" in this context includes selling the patented product, selling a different product in the same market, exclusively licensing the patent to someone in the market, or preparing to do any of these things through research and development or

²⁸ *Id.* at 2038.

²⁹ *Id.*

³⁰ As I argue elsewhere, this combination of factors grants the infringer a free option because the "reasonable" royalty rate is unlikely to compensate the patent holder for the full opportunity cost of involuntary exchange. See Sidak, *Reply to Lemley and Shapiro*, *supra* note 1, at 735–42.

³¹ Lemley & Shapiro, *Patent Holdup and Royalty Stacking*, *supra* note 1, at 2035.

³² See *id.* at 2035–36.

otherwise.³³ Lemley and Shapiro thus envision the definition of a patent troll to include firms and other institutions holding important patents that do not produce downstream products but instead recover their R&D costs through broad licensing that maximizes downstream competition. Stanford University, for example, is a patent troll under this interpretation because it holds the patent to Google's search engine.³⁴

It is difficult to understand the logic behind distinguishing, for purposes of granting injunctive relief, between patent owners that practice their patents and patent owners who license their patents. The availability of injunctions reflects a public policy determination that the prospect of receiving uncertain damages established by a court or jury will not provide sufficient incentives for innovation. But this reasoning applies regardless of whether the patent owner practices or licenses the patent.

A practical problem with this distinction drawn by Lemley and Shapiro is that it requires a de facto oversight of market structure by the court. The court would need to determine whether certain business activities by the patent owner constitute licensing the technology (an upstream activity) or practicing the technology (a downstream activity). In a technologically dynamic industry, this kind of determination is harder than may first appear. By comparison, the consent decree that broke up the Bell System forbade the regional Bell operating companies (RBOCs) from "manufacturing" telecommunications equipment. The court reviewing waiver requests from this line-of-business restriction had to decide, for example, whether software developed by the RBOCs to improve the functionality of the switches in their local exchange networks constituted the forbidden manufacturing of equipment or merely the permissible management of those networks.³⁵ To reduce the cost and uncertainty of such litigation, the patent owner in the world envisioned by Lemley and Shapiro would be compelled to vertically integrate into some degree of practicing the patent. That outcome is inefficient. The decision to vertically integrate into practicing the patent (by manufacturing a downstream product) should be made by management on the basis of the underlying economic conditions in the two levels of activity. Downstream vertical integration should not be driven by an asymmetry in the availability of injunctive relief.

Finally, it does not enhance investment in innovation to have an injunction rule that diminishes the value of the alienability of the patented technology. The right to sell a patent is worth less if the right to have that patent

³³ *See id.*

³⁴ Stanford University has granted Google an exclusive license through 2011. *See* Google Inc., Annual Report (Form 10-K), at 14 (Feb. 15, 2008).

³⁵ *See, e.g.,* MICHAEL K. KELLOGG, JOHN THORNE & PETER W. HUBER, *FEDERAL TELECOMMUNICATIONS LAW* 656 (2d ed. 1999) (discussing district court rulings on requests for waiver of the manufacturing line-of-business restriction in the AT&T divestiture consent decree).

protected through an injunction is contingent on the nature of the prospective buyer's activities (if any) in the downstream market.

C. Does *eBay* Moot the Patent-Holdup Conjecture?

The Supreme Court's 2006 decision on patent injunctions in *eBay Inc. v. MercExchange, L.L.C.*³⁶ undercuts the patent-holdup conjecture, if it does not moot the conjecture entirely. In *eBay*, the Supreme Court unanimously held that courts may not issue injunctions as a matter of course in patent cases after a finding of infringement. Instead, the Court instructed lower courts to weigh the same four equitable factors that they consider when determining whether to grant permanent injunctions in non-patent cases. Consequently, the patent holder's threat of enjoining an alleged infringer's use of the patented technology—which is critical to the plausibility of the Lemley–Shapiro conjecture—is less credible now than it was before *eBay*.

eBay is an online consumer-to-consumer marketplace and auction house, and MercExchange holds business method patents, including one designed to facilitate internet selling.³⁷ MercExchange unsuccessfully attempted to license its patent to eBay and thereafter filed a patent infringement suit against eBay and its wholly owned subsidiary, Half.com, in the Eastern District of Virginia.³⁸ A jury upheld the patent's validity and found the defendants liable for infringement. MercExchange moved for permanent injunctive relief. The district court denied the motion, noting that “a plaintiff's willingness to license its patents' and 'its lack of commercial activity in practicing the patents' [is] sufficient to establish that the patent holder would not suffer irreparable harm if an injunction did not issue.”³⁹ The Federal Circuit reversed, applying instead its “general rule that courts will issue permanent injunctions against patent infringement absent exceptional circumstances.”⁴⁰

The Supreme Court reversed. Relying on the Patent Act's language that an injunction “*may*” issue upon a finding of infringement, and noting the general rule that “a major departure from the long tradition of equity practice should not be lightly implied,” the Court found that Congress did not intend for courts in patent cases to depart from traditional equity practice.⁴¹ The Court ruled that the Federal Circuit's reliance on the patent holder's statutory “right to exclude” was misplaced. This right did not justify a presumption in favor of permanent injunctive relief, the Court noted, because “a creation of a right is distinct from the provision of remedies for violations

³⁶ 126 S. Ct. 1837 (2006).

³⁷ *Id.* at 1839.

³⁸ *Id.*

³⁹ *Id.* at 1840 (quoting *MercExchange, L.L.C. v. eBay, Inc.*, 275 F. Supp. 2d 695, 712 (E.D. Va. 2003)).

⁴⁰ *Id.* at 1839 (quoting *MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323 (Fed. Cir. 2005)).

⁴¹ *Id.* (emphasis added).

of that right.”⁴² The Court restated that, under the traditional standard for determining whether to issue injunctive relief, the burden is on the patent holder to establish that “(1) it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.”⁴³ Noting that neither the district court nor the Federal Circuit applied this four-factor test, the Court vacated the Federal Circuit’s holding and instructed the district court to apply the test to determine whether injunctive relief is warranted.⁴⁴

Justice Kennedy also wrote a concurrence—joined by Justices Stevens, Souter, and Breyer—that is particularly relevant to an analysis of patent holdup because it described the practice of “firms us[ing] patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees.”⁴⁵ Justice Kennedy cautioned that courts should be particularly vigilant in applying the four-factor test when it is possible that the patent holder seeks an injunction “simply for undue leverage in negotiations” with the alleged infringer (for example, in cases where “the patented invention is but a small component of the product the [infringer] seeks to produce”).⁴⁶

Before *eBay*, permanent injunctions were, for the most part, issued as a matter of course after a finding of infringement. However, *eBay* makes clear that patent holders will no longer be granted injunctive relief with such ease. Indeed, on remand, the district court in *eBay* applied the four-factor test and again denied MercExchange’s motion for permanent injunctive relief.⁴⁷ Moreover, post-*eBay*, several district courts have found injunctive relief inappropriate after applying the four-factor test.⁴⁸ Notably, a number of these

⁴² *Id.* at 1840.

⁴³ *Id.* at 1839.

⁴⁴ *Id.* at 1841.

⁴⁵ *Id.* at 1842.

⁴⁶ *Id.* (Kennedy, J., concurring).

⁴⁷ *MercExchange, L.L.C. v. eBay, Inc.*, 500 F. Supp. 2d 556, 568 (E.D. Va. 2007).

⁴⁸ *See, e.g.*, *Tiber Laboratories, L.L.C. v. Hawthorn Pharmaceuticals, Inc.*, 525 F. Supp. 2d 1373, 1381 (N.D. Ga. Sept. 12, 2007) (extending *eBay*’s reasoning to *preliminary* injunctions and denying patentee’s motion for such relief); *Praxair, Inc. v. ATMI, Inc.*, 479 F. Supp. 2d 440, 444 (D. Del. 2007) (denying patentee’s motion for permanent injunctive relief); *Voda v. Cordis Corp.*, 2006 WL 2570614, at *6 (W.D. Okla. Sept. 5, 2006) (same); *Paice, L.L.C. v. Toyota Motor Corp.*, 2006 WL 2385139, at *6 (E.D. Tex. Aug. 16, 2006) (same) (vacated in part on other grounds); *z4 Technologies, Inc. v. Microsoft Corp.*, 434 F. Supp. 2d 437, 439 (E.D. Tex. 2006) (same); *Respironics, Inc. v. Invacare Corp.*, No. 04-0336, 2008 WL 111983 (W.D. Pa. Jan. 8, 2008); *ResQNet.com, Inc. v. Lansa, Inc.*, 533 F. Supp. 2d 397 (S.D.N.Y. Feb. 1, 2008); *Nichia Corp. v. Seoul Semiconductor, Ltd.*, No. 06-0162 MMC, 2008 WL 346416 (N.D. Cal. Feb. 7, 2008); *Cygnus Telecomm. Tech., L.L.C. v. Worldport Commc’ns, Inc.*, Nos. C-02-00144 RMW, C-02-00142 RMW, 2008

courts appear to have followed Justice Kennedy's instruction to be wary of granting injunctions where there is the potential for patent holdup. Accordingly, these courts are less likely to find that a patentee has met its burden of proving that monetary damages are insufficient where the infringing party is not the patentee's direct competitor and where the patented device is one component in the infringer's overall product.⁴⁹

The patent-holdup conjecture builds on the critical assertion that a patent holder can credibly threaten alleged infringers with injunctions. Clearly, *eBay* reduces the credibility of that threat, such that patent holders have less leverage in royalty negotiations with alleged infringers, particularly where the alleged infringer seeks to use the patented device as a component in a product rather than directly compete against the patent holder in the market for the patented product. Consequently, after *eBay*, it is less plausible for oligopsonistic licensees to argue that their joint negotiation of royalties is a necessary restraint of trade that is merely ancillary to their objective of averting patent holdup.

III. CURRENT ENFORCEMENT POLICY ON COORDINATED NEGOTIATIONS OF PATENT LICENSING TERMS BY COMPETING BUYERS IN AN SSO

If patent holdup actually occurs, and if collective action by private parties could prevent it, then some measure of social welfare (net of transactions costs) would necessarily increase. But what if those private parties simultaneously create a new social cost as a direct result of their collective action?

The most obvious social cost would be the loss in dynamic efficiency from reduced incentives for patent owners to invest in innovation. Dynamic inefficiency arises when the level of investment in research and development that maximizes the net value to society is not undertaken. When buyers of a product collaborate to force the seller's price below the cost of producing

WL 506182 (N.D. Cal. Feb. 22, 2008); *Advanced Cardiovascular Systems, Inc. v. Medtronic Vascular, Inc.*, 579 F. Supp. 2d 554 (D. Del. Sept. 26, 2008); *Am. Calcar, Inc. v. Am. Honda Motor Co., Inc.*, No. 06cv02433, 2008 WL 5155342 (S.D. Cal. June 6, 2008); *Orion IP, L.L.C. v. Mercedes-Benz USA, L.L.C.*, 2008 WL 5378040, No. 6:05 CV 322 (E.D. Tex. Dec. 22, 2008); *Telcordia Techs., Inc. v. Cisco Systems, Inc.*, No. C.A.04-876-GMS, 2009 Markman 32,717 (D. Del. Jan. 6, 2009).

⁴⁹ See, e.g., *Paice, L.L.C. v. Toyota Motor Corp.*, 2006 WL 2385139, at *5 (E.D. Tex. Aug. 16, 2006) (denying patentee's motion for permanent injunctive relief because, among other things, patentee "does not compete for market share with the [infringing product]"); *z4 Technologies, Inc. v. Microsoft Corp.*, 434 F. Supp. 2d 437, 440, 441 (E.D. Tex. 2006) (citing Justice Kennedy's concurrence and concluding that a permanent injunction is inappropriate because, among other things, Microsoft does not produce or individually sell or license the patented product, and the product is but a "small component" of Microsoft's own software).

the service, the profit that the seller anticipates (and the profit that other firms anticipate) from supplying the service is reduced. Consequently, firms may decide to devote research and development efforts to other services rather than to the service that is priced below cost. Although such a reallocation of investment in research and development will increase profit for buyers in the short run, it may reduce the net benefits that accrue to society as a whole. This argument is a respectable one and has received the enthusiastic support of the Antitrust Division.⁵⁰ But the argument may prove difficult to substantiate or refute empirically, because it necessarily concerns effects that will occur prospectively, over an extended period of time. Consequently, the argument about dynamic efficiency often devolves—in regulation, in antitrust cases, and in intellectual property disputes—into a battle of opposing *a priori* arguments from which little consensus emerges.

Meanwhile, conspicuously absent from the debate over patent holdup is any sustained analysis of the loss in allocative efficiency from oligopsonistic collusion forming within SSOs under the guise of preventing possible patent holdup. Compared with arguments about innovation and dynamic efficiency, the predictable welfare effects of collusion surely provoke less disagreement, even when buyers rather than sellers are the colluders in question. Oligopsonistic collusion is a social cost to be weighed against the benefits that assertedly will accrue to the eradication of patent holdup.

A. Information Exchange and Collusion under Oligopsony

A monopsony is a market in which a single firm purchases the entire market supply of the good—typically, but not necessarily, the supply of an input used to make an end product sold to consumers.⁵¹ A monopsonist by definition influences the market price for the inputs that it exclusively purchases. Consequently, it can profitably restrict its purchases of an input to reduce the price that it pays. For an input supplier with the standard upward-sloping supply curve, monopsony results in a lower market price for the

⁵⁰ Former Assistant Attorney General Thomas O. Barnett championed the role of dynamic efficiency in antitrust analysis: “[A]ntitrust enforcers must be careful not to pursue immediate, static efficiency gains at the expense of long-term, dynamic efficiency improvements, since the latter are likely to create more consumer welfare than the former.” Thomas O. Barnett, *Maximizing Welfare Through Technological Innovation*, 15 GEO. MASON L. REV. 1191, 1199 (2008). Barnett believes that “[d]ynamic efficiency—particularly leapfrog dynamic efficiency—accounts for the lion’s share of efficiency/welfare gains.” *Id.* at 1194.

⁵¹ See, e.g., DENNIS CARLTON & JEFFREY PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* 107 (4th ed. 2005); ROGER D. BLAIR & JEFFREY L. HARRISON, *MONOPSONY: ANTITRUST LAW AND ECONOMICS* 73–75 (1993); Roger D. Blair & Jeffrey L. Harrison, *Antitrust Policy and Monopsony*, 76 CORNELL L. REV. 297 (1991); Roger G. Noll, *Buyer Power and Antitrust: “Buyer Power” and Economic Policy*, 72 ANTITRUST L.J. 589 (2005).

input and a lower quantity demanded than would occur in a market in which buyers lacked market power.

An oligopsony is a market in which each of several firms purchases a substantial share of the market supply for an input.⁵² A market in which a small number of buyers perfectly colluded with respect to their purchases of a given input would cause the same effects as a monopsonist.⁵³ The welfare losses from monopsony and oligopsonistic collusion may be less familiar in antitrust law than are the welfare losses from monopoly and cartels, and monopsony and oligopsony might never be mentioned in a typical antitrust course.⁵⁴ Nonetheless, the Supreme Court long ago held, in *Mandeville Island Farms v. American Crystal Sugar Co.*, that oligopsonistic collusion is *per se* unlawful under the Sherman Act: “It is clear that the agreement is the sort of combination condemned by the Act, even though the price-fixing was by purchasers, and the persons specially injured under the treble damage claim are sellers, not customers or consumers.”⁵⁵ Citing *Mandeville Island Farms*, Judge Richard Posner similarly wrote in 1984 in *Vogel*

⁵² See Roger D. Blair & Christine Piette Durrance, *The Economics of Monopsony*, in ABA SECTION OF ANTITRUST LAW, ISSUES IN COMPETITION LAW AND POLICY 393 (2008); James M. Dowd, *Oligopsony Power: Antitrust Injury and Collusive Buyer Practices in Input Markets*, 76 B.U. L. REV. 1075, 1084 (1996). The most incisive analysis of the law on monopsony and collusive oligopsony is by Gregory Werden of the Antitrust Division. See Gregory J. Werden, *Monopsony and the Sherman Act: Consumer Welfare in a New Light*, 74 ANTITRUST L.J. 707 (2007).

⁵³ In a detailed survey of the legislative history of the Sherman Act and the subsequent case law, Werden concludes that “the Congress responsible for the Sherman Act and the courts that have interpreted it were far from indifferent to the plight of sellers exploited by buyer cartels or monopsonies.” *Id.* at 708.

⁵⁴ Perhaps that neglect is ending. See EINER ELHAUGE & DAMIEN GERADIN, *GLOBAL ANTITRUST LAW AND ECONOMICS* 232–47 (2007) (analyzing buyers’ cartels under both American and European law). Werden found that “[d]uring 1997–2006, the Department of Justice brought sixty-nine criminal cases against buyer cartels, all of which involved collusion among bidders in auctions.” Werden, *supra* note 52, at 716. Moreover, he found that “[b]uyer cartel cases constituted 20 percent of total criminal Sherman Act cases during the period.” *Id.* at 716 n.42. Monopsony cases routinely are litigated in federal district court. For recent examples, see *Campfield v. State Farm Mut. Auto. Ins. Co.*, 532 F.3d 1111 (10th Cir. 2008); *Omnicare, Inc. v. UnitedHealth Group, Inc.*, 524 F. Supp. 2d 1031 (N.D. Ill. 2007).

⁵⁵ 337 U.S. 219, 235 (1948). The Court’s most recent monopsony case, *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*, 127 S. Ct. 1069, 1075 (2007), was really a predation case in which overbuying of the input was allegedly the method by which to harm the monopsonist’s competitors in the downstream market. See *id.* at 1075 (“The reduction in input prices will lead to ‘a significant cost saving that more than offsets the profit[s] that would have been earned on the output.’ If all goes as planned, the predatory bidder will reap monopsonistic profits that will offset any losses suffered in bidding up input prices.”); see also Steven C. Salop, *Anticompetitive Overbuying by Power Buyers*, 72 ANTITRUST L.J. 675 (2005). Nonetheless, *Weyerhaeuser* contains the following relevant observation: “The kinship between monopoly and monopsony suggests that similar legal standards should apply to claims of monopolization and to claims of monopsonization.” 127 S. Ct. at 1076. Analogously, horizontal fixing of output prices should be treated the same as horizontal fixing of input prices.

v. American Society of Appraisers that “buyer cartels, the object of which is to force the prices that suppliers charge the members of the cartel below the competitive level, are illegal *per se*.”⁵⁶ He explained that, “[j]ust as a sellers’ cartel enables the charging of monopoly prices, a buyers’ cartel enables the charging of monopsony prices.”⁵⁷ The Ninth Circuit echoed this message in 2000,⁵⁸ and the Second Circuit did likewise in 2001.⁵⁹ Herbert Hovenkamp has similarly endorsed the conclusion that *per se* illegality is appropriate for a buyer cartel, such as the cartel of local sugar refiners purchasing sugar beets in *Mandeville Island Farms*: “in this case there is literally no injury to consumers, who are the main concern of the antitrust laws, but the injury is to the farmer/producers who are forced to accept lower profits and to make inefficient substitutions to other products.”⁶⁰

⁵⁶ 744 F.2d 598, 601 (7th Cir. 1984). See also *Int’l Outsourcing Servs., L.L.C. v. Blistex, Inc.*, 420 F. Supp. 2d 860, 864 (N.D. Ill. 2006) (“[A] ‘buyers’ cartel’ . . . occurs when a group of buyers band together in order to fix a maximum price (below competitive levels) that they will pay for an item. Buyers’ cartels engaged in price fixing have been held to be illegal under the Sherman Act even though their goal is to lower the price of the input.”).

⁵⁷ *Vogel*, 744 F.2d at 601.

⁵⁸ In *Knevelbaard Dairies v. Kraft Foods, Inc.*, the Ninth Circuit rejected the argument by the buyers, a group of cheese makers, that the harm caused to the input suppliers (dairies) by horizontal collusion over the purchase price of the input was not cognizable antitrust injury:

They say, in substance, that a conspiracy to depress prices would not harm consumers but benefit them, because reduced milk acquisition costs would mean lower cheese manufacturing costs and, therefore, lower prices for cheese products. They contend that “the alleged conduct actually increased competition in the milk market,” and that “injury from selling at lower, more competitive prices is simply not enough.” . . . The fallacy of this argument becomes clear when we recall that the central purpose of the antitrust laws, state and federal, is to preserve competition. It is competition—not the collusive fixing of prices at levels either low or high—that these statutes recognize as vital to the public interest. The Supreme Court’s references to the goals of achieving “the lowest prices, the highest quality and the greatest material progress,” (quoting *Northern Pac. Ry. v. United States*, 356 U.S. 1, 4 (1958)), and of “assuring customers the benefits of price competition,” (quoting *Associated Gen. Contractors v. Cal. State Council of Carpenters*, 459 U.S. 519, 538 (1983)) do not mean that conspiracies among buyers to depress acquisition prices are tolerated When horizontal price fixing causes buyers to pay more, or sellers to receive less, than the prices that would prevail in a market free of the unlawful trade restraint, antitrust injury occurs Most courts understand that a buying cartel’s low buying prices are illegal and bring antitrust injury and standing to the victimized suppliers. Clearly mistaken is the occasional court that considers low buying prices pro-competitive or that thinks sellers receiving illegally low prices do not suffer antitrust injury.

232 F.3d 979, 986-89 (9th Cir. 2000). The Ninth Circuit was applying California’s Cartwright Act, but it relied on federal antitrust precedent to interpret that state law.

⁵⁹ *Todd v. Exxon Corp.*, 275 F.3d 191, 201 (2d Cir. 2001) (“a horizontal conspiracy among buyers to stifle competition is as unlawful as one among sellers”).

⁶⁰ HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 2011b1, at 128–29 (2d ed. 2005). Hovenkamp further observes: “The ‘deadweight’ loss is equal to that produced by the orthodox sellers’ cartel, except that those experiencing the losses are growers rather than consumers.” *Id.*

A substantial economic literature exists on cartels, price fixing, and bid-rigging. Daniel Graham and Robert Marshall studied cartel behavior and cartel formation in seminal research published in 1987.⁶¹ Formation of the “optimal cartel” and the seller’s best response to the existence of a buyers’ cartel was studied by Preston McAfee and Robert McMillan.⁶² Economists have also developed the theory of the cartel’s optimal response to a member that deviates from the collusive arrangement.⁶³

Despite the depth of research on cartel behavior that is present in the economics literature, economists have often struggled with the task of cartel detection. As early as 1960, economists noticed that competitors often submit similar prices for similar goods, but it is difficult to determine whether those prices result from collusion or competition.⁶⁴ The mere fact that two or more firms apparently act in a similar manner cannot be deemed evidence of a collusive arrangement. Because firms in an oligopsony market act strategically, those firms naturally attempt to understand how their actions affect their rival firms.⁶⁵ “Conscious parallelism” is not an overtly collusive arrangement, because the firms in question act independently to take into account the expected responses of their rivals when making their own market decisions.⁶⁶

Although conscious parallelism can naturally occur in an oligopsonistic market, economists have reservations about the sharing of information among rivals. Economists have generally found that information sharing maximizes total welfare only when firms share information in an effort to act competitively.⁶⁷ To that end, the economic literature on information sharing has acknowledged that consumers and producers typically have conflicting interests.⁶⁸ For one to determine whether information sharing improves economic welfare as a whole, one must weigh producer benefits against the

⁶¹ Daniel Graham & Robert C. Marshall, *Collusive Bidder Behavior at Single-Object Second-Price and English Auctions*, 95 J. POL. ECON. 1217 (1987).

⁶² R. Preston McAfee & John McMillan, *Bidding Rings*, 82 AM. ECON. REV. 579 (1992).

⁶³ See Robert Porter, *Optimal Cartel Trigger Price Strategies*, 29 J. ECON. THEORY 313 (1983).

⁶⁴ See, e.g., Vernon A. Mund, *Identical Bid Prices*, 68 J. POL. ECON. 150, 150–51 (1960).

⁶⁵ See, e.g., CARLTON & PERLOFF, *supra* note 51, at 107–19.

⁶⁶ See, e.g., *id.* at 127 (equating tacit coordination with a form of conscious parallelism, which itself refers to a strategic interaction between firms in an imperfectly competitive market); see also Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 HARV L. REV. 665 (1962) (arguing that the Sherman Act does not reach conscious parallelism).

⁶⁷ See, e.g., Richard N. Clarke, *Collusion and the Incentives for Information Sharing*, 14 BELL J. ECON. 383, 383, 392 (1983) (explaining that in an uncertain economic landscape, all firms do not have an incentive to share information unless they are engaged in a cartel); Larry M. DeBrock & James L. Smith, *Joint Bidding, Information Pooling and the Performance of Petroleum Lease Auctions*, 14 BELL J. ECON. 395, 395–96, 404 (1983) (explaining how pooling cost and value estimates on oil tracts can reduce uncertainty and allow firms to bid in government auctions more accurately).

⁶⁸ See, e.g., Michael Raith, *A General Model of Information Sharing in Oligopoly*, 71 J. ECON. THEORY 260, 280–81 (1995).

potential harm to consumers from a collusive arrangement that could commence from information sharing under oligopsony.⁶⁹ Economists have cautioned that an information sharing arrangement in which all buyers participate can be considered *prima facie* evidence of collusion because it is typically not beneficial for all buyers to participate in an information sharing arrangement unless that arrangement involves collusion.⁷⁰ That economic conclusion is consistent with the legislative history of the Sherman Act.⁷¹ It is also consistent with the Supreme Court's statements, in cases involving collusion among sellers, that the exchange of price information among competitors can violate section 1 of the Sherman Act even when the existence of an agreement to fix prices has not been proven.⁷²

B. Antitrust Division Prosecution of Oligopsonistic Collusion

Consider, in contrast to the current controversy over royalties for patented WCDMA technology, a different fact pattern that also concerns cellular telephony. A country holds a spectrum auction. To produce the next generation of cellular telephony, spectrum is a necessary input, along with equipment such as handsets, which incorporate numerous patents. Because of the problem of the winner's curse—a kind of market failure—one could plausibly argue that telecommunications carriers are indeed paying “too much” for licenses in the open simultaneous multi-round (SMR) ascending auctions typically used by the FCC. To put the issue in context, as a result of the high prices paid for 3G spectrum in Europe, telecommunications companies that won spectrum auctions assumed enormous debt loads.

⁶⁹ *Id.* at 261, 280–81.

⁷⁰ Clarke, *Collusion and Information Sharing*, *supra* note 67, at 392.

⁷¹ In his examination of monopsony in the legislative history of the Sherman Act, Werden notes that Senator John Sherman remarked during consideration of the legislation that “trusts and combinations . . . depress the price of what they buy . . .” Werden, *supra* note 52, at 714 (quoting 21 CONG. REC. 2461 (1890) (statement of Sen. John Sherman) (quoting Sen. James Z. George)). Other senators specifically denounced oligopsonistic collusion in the form of “a combination in the city of Chicago which . . . keeps down the price of cattle.” *Id.* at 715. (quoting 21 CONG. REC. 2470 (1890) (statement of Sen. John H. Reagan)). Werden finds that concern that oligopsonistic collusion was depressing the price of cattle prompted a congressional report in 1890, just months before passage of the Sherman Act. *Id.* at 715 (citing S. REP. 829, 51st Cong. 4, 33 (1890)). Furthermore, in 1902 the Attorney General successfully secured a preliminary—and, later, permanent—injunction against the beef trust in a case in which its members were alleged to have agreed “to refrain from bidding against each other when making purchases of . . . livestock, and by these means inducing and compelling the owners of such livestock to sell the same at less prices than they would receive if such bidding were competitive.” *Id.* at 716 n.40 (quoting *United States v. Swift & Co.*, 122 F. 529, 530 (C.C.N.D. Ill. 1903), *aff'd*, 196 U.S. 375 (1905)).

⁷² See *United States v. Container Corp.*, 393 U.S. 333 (1968). For similar lower court decisions, see *United States v. Foley*, 598 F.2d 1323 (4th Cir. 1979); *United States v. Champion Int'l*, 557 F.2d 1270 (9th Cir. 1977); *ESCO Corp. v. United States*, 340 F.2d 1000 (9th Cir. 1965).

Their bond ratings, stock prices, and purchases of equipment for wireless networks all fell sharply. In turn, equipment manufacturers suffered an enormous collapse in their stock prices. To the extent that spectrum policy manifests a kind of high-tech industrial policy, the European 3G auctions turned out to be roughhewn industrial policy indeed.

The government's spectrum authority could expand the supply of spectrum (and thus lower its market-clearing price to mitigate the bidder's curse) by allocating a larger slice of frequency to the auction. But suppose that it does not do so, because one objective of the spectrum auction is to generate revenue for the treasury. Alternatively, the government could change the design of the spectrum auction, intentionally choosing a bidding mechanism that auction theory reveals to leave a larger amount of surplus for bidders. For example, in the United States, the FCC could refrain from using an open SMR ascending auction. Again, suppose that the government does not do so.

Suppose that the activity fee (for the right to keep bidding in successive rounds) and reserve price for spectrum are so high that only a small number of competing telecommunications companies intend to participate in the auction. In other words, the government spectrum monopolist faces oligopsonists. Regarding the government's management of the spectrum auction as unreasonable, these oligopsonistic competitors enter bids in any given round of the auction that are strangely precise to the penny, such as \$82,495,011.34 or \$78,387,018.12. Peter Cramton and Jesse Schwartz call this practice "code bidding."⁷³ They found that in the FCC's simultaneous open bidding for PCS spectrum, a bidder sometimes would "tag" the last few digits of its bid with the market number of a related license so as to signal its bidding intentions to its competitors. Cramton and Schwartz found that firms that used code bidding paid significantly less for their spectrum.

In 1998, the Antitrust Division settled a civil suit against Omnipoint, a wireless carrier, under section 1 of the Sherman Act on the theory that the firm "submitted bids that ended with three-digit numerical codes to communicate with rival bidders and that, through the use of these coded bids, Omnipoint and one of its rivals reached an agreement to refrain from

⁷³ See Peter Cramton & Jesse A. Schwartz, *Collusive Bidding in the FCC Spectrum Auctions*, 1 CONTRIBUTIONS TO ECON. ANALYSIS & POL'Y, issue 1, art. 11 (Dec. 2, 2002), available at <http://www.bepress.com/bejeap/contributions/vol1/iss1/art11>. See also R. Engelbrecht-Wiggans & C. Kahn, *Low Revenue Equilibria in Simultaneous Ascending Price Auctions*, 51 MGMT. SCI. 356 (2005); Paul Milgrom, *Putting Auction Theory to Work: The Simultaneous Ascending Auction*, 108 J. POL. ECON. 245 (2000); S. Brusco & G. Lopomo, *Collusion via Signaling in Simultaneous Ascending Bid Auctions with Heterogeneous Objects, with and without Complementarities*, 69 REV. ECON. STUD. 407 (2002); Paul Klemperer, *What Really Matters in Auction Design*, 16 J. ECON. PERSPECTIVES no.1, at 169 (2002); Patrick Bajari & Jeremy T. Fox, *Complementarities and Collusion in an FCC Spectrum Auction* (Oct. 3, 2005), NBER Working Paper No. W11671, available at <http://ssrn.com/abstract=819832>.

bidding against one another,” such that “Omnipoint and its competitor paid less for certain PCS licenses, resulting in a loss of revenue to the Treasury of the United States.”⁷⁴ In 2006, on the basis of the economic research conducted on bidder collusion in spectrum auctions, the Bureau of Competition within the FTC advised the FCC that such collusion remains a serious risk:

The possibility of bidders using collusive strategies in SMR type auctions is well established in the theoretical economics literature. In addition, several empirical economics papers have provided strong evidence that signaling behavior consistent with collusive strategies has occurred in past FCC spectrum auctions The combination of evidence from the theoretical and empirical economics literature suggests that concern over the competitive environment in SMR spectrum auctions is certainly warranted.⁷⁵

In short, the Antitrust Division and at least the economists at the FTC take seriously the risk that information exchange among competing bidders can facilitate collusive bidding for spectrum, and these antitrust enforcers do not consider it an excuse for such collusion that it is directed at reducing the price of an essential input for mobile communications—radio spectrum—that is supplied by a monopolist (the federal government) and that, for technological reasons, lacks *any* substitute. The Antitrust Division’s Omnipoint prosecution is consistent with a long line of public and private antitrust cases (unrelated to SSOs) in which courts have scrutinized oligopsonistic collusion under the rule of *per se* illegality.⁷⁶

⁷⁴ United States v. Omnipoint Corp., Civil Action No. 1:98CV02750, Competitive Impact Statement at 1 (D.D.C. Nov. 10, 1998) (proposed final judgment), available at <http://www.usdoj.gov/atr/cases/f2000/2066.htm>.

⁷⁵ Reply Comment of the Staff of the Bureau of Economics of the Federal Trade Commission, at 3, In the Matter of Auction of Advanced Wireless Services Licenses Scheduled for June 29, 2006, Federal Communications Commission, AU Docket No. 06-30 (undated), available at <http://www.ftc.gov/os/2006/03/ReplyoftheFTCBureauofEconomicsOnFCCAWSAuctionAUDocket06-30.pdf>. The Bureau’s letter contains the following tortured disclaimer: “This letter expresses the views of the Federal Trade Commission’s Bureau of Economics. The letter does not necessarily represent the views of the Federal Trade Commission (Commission) or of any individual Commissioner. The Commission has, however, voted to authorize us to submit these comments.” *Id.* at 1 n.1.

⁷⁶ For example, in September 2007, the Northern District of Illinois, ruling on a motion to dismiss, applied the *per se* rule to a seller’s allegation that a buyers’ cartel of managed health care companies violated section 1 of the Sherman Act by conspiring to suppress the reimbursement rates for the seller’s pharmacy services. *Omnicare, Inc. v. UnitedHealth Group, Inc.*, 524 F. Supp. 2d 1031 (N.D. Ill. 2007). The court held that the complaint properly stated a cause of action predicated on the theory that the defendants formed a buyers’ cartel for the *per se* unlawful purpose of lowering the price paid for the plaintiff’s pharmacy services. In addressing the requirement that the agreement result in an unlawful restraint of trade in the relevant market, the court held that the *per se* rule, rather than the rule of reason, should apply to a complaint alleging the existence of a buyers’ cartel conspiring to fix the price terms on which the buyers deal with a seller. Such agreements have “strong enough anti-competitive tendencies to be labeled a *per se* violation.” *Id.* at 1039–40. The court said that “a buyers’ cartel is the mirror image of a sellers’ cartel,” *id.* at

In a spectrum auction like this one, the only seller was the FCC. In contrast, in standard setting there will typically be competition *for the market*—that is, competition among multiple owners of alternative patented technologies that could satisfy the standard. If it is unlawful for buyers to collude over the price that they will pay to a monopolist, it cannot be any less unlawful for them to collude over the price that they will pay to the firm that beats out other firms and has its technology chosen (by those same buyers) as the desired standard.

C. Judicial Recognition of the Risk of Oligopsonistic Collusion within SSOs

When an SSO establishes a standard that requires the use of an input that is protected by a patent, downstream manufacturers that belong to the SSO must purchase a license from the patent owner to use the input. Those downstream manufacturers share a common objective of minimizing the cost of patent licenses associated with their required inputs. “When intellectual property rights are at stake,” Lemley has observed, “standard-setting organizations sometimes act as a buyers’ cartel (or, more precisely, a licensee cartel).”⁷⁷ That result, he elaborates, poses a serious antitrust problem:

It is well established in antitrust law that monopsony and buyers’ cartels are just as pernicious to competition as are monopoly and sellers’ cartels. The risks mirror the risks from sellers’ cartels—prices will be artificially depressed rather than artificially raised. Legal treatment of monopsony likewise mirrors the treatment of monopoly The fact that [a] horizontal agreement injure[s] sellers rather than buyers, and [drives] prices down rather than up, [does] not save it from *per se* condemnation.⁷⁸

1040, and that the “excessively low prices from members of the buyers’ cartel” are cognizable antitrust injury for the seller. *Id.* The court noted that, because the *per se* rule applies to a buyers’ cartel’s price-fixing scheme, a plaintiff seller could establish an antitrust injury without showing that the defendants possessed market control or affected the entire seller’s market. *Id.* at 1041–42.

For other examples of judicial application of the *per se* rule to oligopsonistic collusion, see *Mandeville Island Farms v. Am. Crystal Sugar Co.*, 337 U.S. 219 (1948); *In re National Macaroni Mfrs. Ass’n*, 65 F.T.C. 583 (1964), *enforced*, 345 F.2d 421 (7th Cir. 1965).

The Antitrust Division and thirteen state attorneys general challenged a merger in October 2008 on the grounds that it would promote monopsony. See *United States v. JBS S.A.*, Complaint (N.D. Ill. filed Oct. 20, 2008). The complaint alleged in part that the proposed merger of two beef packers “likely would diminish the vigor with which [beef] . . . packers . . . will compete to purchase fed cattle.” *Id.* at 3 ¶ 6.

⁷⁷ 2 HERBERT HOVENKAMP, MARK D. JANIS & MARK D. LEMLEY, *IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW* § 35.6b, at 35–54 (2009).

⁷⁸ *Id.* (citing *In re National Macaroni Mfrs. Ass’n*, 65 F.T.C. 583 (1964), *enforced*, 345 F.2d 421 (7th Cir. 1965)). Lemley observes that in *Macaroni* the FTC “successfully argued that the standards were intended to artificially depress the price of durum wheat, a traditional ingredient in pasta.” *Id.*

Given this potential for standard setting to facilitate collusion among patent licensees, recent policy proposals and revised patent policies by SSOs might be cast as attempts by licensees in SSOs to acquire market power *vis-à-vis* owners of patented technology. The question for antitrust enforcers and courts is whether SSO policies that increase the likelihood that patent licensees will acquire market power violate antitrust law. Do changes in SSO policies that increase information exchange among licensees facilitate collusion among buyers of patented technology?

In 2001, a district court took seriously this risk of oligopsonistic collusion when, in *Sony Electronics, Inc. v. Soundview Technologies, Inc.*, it denied a motion to dismiss a claim that SSO members conspired to fix the price that they would pay for a patented input.⁷⁹ Soundview's technology was essential to a standard adopted by the Electronics Industry Association (EIA) for the V-chip. Soundview alleged that EIA members conspired to suppress the royalty for Soundview's technology, setting the rate at 5 cents per television.⁸⁰ Sony, a manufacturer of televisions, moved to dismiss on the rationale that Soundview failed to allege actionable antitrust injury.⁸¹ The court disagreed and found that licensees exerting oligopsony power to reduce patent royalties is an actionable antitrust injury.⁸² In denying the motion to dismiss, the court explained in detail that an oligopsony in an SSO could drive royalty rates below an efficient level.⁸³ The court reasoned that oligopsonistic collusion reduces the return to a patent holder and, in a dynamic sense, reduces the incentives to innovate or enter technology markets in the first place.⁸⁴

Several important points regarding *Soundview* are easy to overlook. First, although the court in *Soundview* was deciding a motion to dismiss, the precise harm alleged was collusion by licensees in a standard-setting process. The case is noteworthy because it suggests the power that licensees can exert on patent holders in an SSO.⁸⁵ Some dispute the significance of *Soundview*,

⁷⁹ *Sony Elecs., Inc. v. Soundview Techs: Sony Elecs., Inc. v. Soundview Techs., Inc.*, 157 F. Supp. 2d 180 (D. Conn. 2001).

⁸⁰ *Id.* at 183. The original action was a declaratory judgment action brought by Sony and the EIA. Soundview counterclaimed on antitrust grounds.

⁸¹ *Id.* at 183–84.

⁸² *Id.* at 184–88.

⁸³ *Id.* at 184–85.

⁸⁴ *Id.*

⁸⁵ Sony was one of the alleged conspirators. When one compares the size of the companies in the buyers' group with the size of the patent holder, Soundview, the risk of licensee collusion becomes more plausible. *See also* *Golden Bridge Tech., Inc. v. Nokia, Inc.*, 416 F. Supp. 2d 525, 530 (E.D. Tex. 2006) (patent holder adequately alleged a "classic group boycott" when members of an wireless communications standards group deleted the holder's technology from the standard); *Addamax Corp. v. Open Software Found., Inc.*, 888 F. Supp. 274, 278 (D. Mass. 1995) (considering allegations that a standard setting defendant "rigged its procurement system to favor specific companies and technologies" and "forces suppliers to sell their product to [the standard setting organization] and its sponsors under disadvantageous conditions").

both on the grounds that the alleged collusion took place after the standard was set⁸⁶ and because they assume, incorrectly, that the court applied the rule of reason.⁸⁷ The fact that the buyer collusion allegedly occurred after the standard's adoption does not imply that similar collusion occurring before or during the standard-setting process would be innocuous.

Second, the notion that the *Soundview* court applied the rule of reason is misguided.⁸⁸ The court was deciding a motion to dismiss and analyzing antitrust injury. Whether the *per se* rule or the rule of reason should apply was not before the court. Moreover, given the court's analysis of the harm from oligopsonistic collusion, there is no basis to extrapolate that the rule of reason, rather than the *per se* rule, would ultimately be applied to oligopolistic collusion.⁸⁹

D. Is the Supply Curve for Patented Inputs Flat?

Some argue that the supply curve for a patented technology is flat, such that oligopsonistic buyers cannot suppress the price of a patented input by restricting their quantity demanded. (For brevity, I will call them the flatteners.) Consequently, the argument continues, the risk of oligopsonistic collusion in

⁸⁶ See Gerald F. Masoudi, Deputy Assistant Att'y Gen'l, Antitrust Division, U.S. Dep't of Justice, *Efficiency in Analysis of Antitrust, Standard Setting, and Intellectual Property*, Address at High-Level Workshop on Standardization, IP Licensing, and Antitrust, Tilburg Law & Economic Center, Tilburg Univ. (Jan. 18, 2007), at 9, available at <http://www.usdoj.gov/atr/public/speeches/220972.pdf>. Proponents of this view might argue that, after standardization, one can find no compelling justification for buyer collusion, such as the avoidance of patent holdup. But that argument is not convincing. The asserted benefit to consumers from buyer collusion (the pass-through of reduced royalties) is a marginal effect, not an inframarginal effect. In this sense, one can see that the pass-through argument differs fundamentally from the royalty-stacking argument, which asserts an inframarginal effect—the claim is not simply that the price of the downstream product will be high, but that it will be so high as to render its production infeasible on the ground that the aggregate production costs, inclusive of patent royalties, will exceed consumers' aggregate willingness to pay. This distinction between the postulated effects of buyer collusion, both marginal and inframarginal, underscores that the patent-holdup and royalty-pass-through arguments are overbroad across time, as well as across other fact patterns. The asserted benefits of such collusion are not unique to the period of *ex ante* negotiation. For example, the buyers could negotiate a royalty of \$1.00 before the adoption of the standard, but subsequently demand that the patent owner reduce the royalty to \$0.50 on the same rationale that consumers would benefit from a pass-through of any "cost savings" at any time. Similarly, the argument is overbroad with respect to a different set of facts that give rise to the post-adoption market power in the upstream market. That market power need not arise from a patent. It can arise from a commitment by downstream firms to use a particular asset to which its owner has the legal right to exclude unauthorized use through the issuance of an injunction.

⁸⁷ See Robert A. Skitol, *Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard Setting*, 72 ANTITRUST L.J. 727, 737 (2005).

⁸⁸ See *id.* ("In essence, the court treated the claim as requiring rule of reason analysis including consideration of actual competitive effects.").

⁸⁹ Cf. *Golden Bridge Technology, Inc. v. Nokia, Inc.*, 416 F. Supp. 2d 525, 532 (E.D. Tex. 2006) ("The *per se* rule can apply to a standard setting organization . . .").

standard setting organizations is remote. For example, Joseph Farrell, John Hayes, Carl Shapiro, and Theresa Sullivan argue that the “classic monopsony concern is absent here: there is no upward-sloping supply curve where the supplier is providing intellectual property.”⁹⁰ Similarly, Hillary Greene asserts that intellectual property exhibits a flat marginal cost curve and that patented goods therefore exhibit a flat supply curve.⁹¹ She concludes that the usual reduction in supply that results from monopsony will not happen when the product being sold is intellectual property. Applying this conjecture to the issue of oligopsonistic collusion in SSOs, she argues that “[w]ithout this reduction in supply, there will be no static resource allocation issue or short-run inefficiency, only a redistribution of surplus from the sellers to the buyers will result”⁹² and that this outcome will lead to “conspiratorial relationships” developing with greater frequency when intellectual property is used by standard setting organizations.⁹³ However, this assertion that the supply curve for a patented input is flat is based on flawed assumptions and

⁹⁰ Joseph Farrell, John Hayes, Carl Shapiro & Theresa Sullivan, *Standard Setting, Patents, and Hold-up*, 74 ANTITRUST L.J. 603, 632 (2007).

⁹¹ Hillary Greene, *Buyer Price-Fixing and Intellectual Property*, 2008 DUKE L. & TECH. REV., at ¶ 42, available at <http://intprop.law.duke.edu/documents/2008/Greene%20CLE%20Article.pdf> (“Pure IP (e.g. the underlying knowledge in a patent) does not involve a cost when used. Thus, for example, the per-use cost of employing pure IP does not increase with the number of uses of that IP. Stated alternatively, IP exhibits a flat zero marginal cost.”); see also *id.* at ¶ 45 (“Intellectual property is not unique among different forms of property in exhibiting a flat supply curve.”). See also MICHAEL A. CARRIER, *INNOVATION FOR THE 21ST CENTURY: HARNESSING THE POWER OF INTELLECTUAL PROPERTY AND ANTITRUST LAW* ch. 13 (Oxford University Press, forthcoming 2009) (arguing the supply curve of intellectual property is flat).

⁹² Greene, *supra* note 91, at ¶ 44. Gregory Werden notes that, although a monopsonist who faces input suppliers that have upward-sloping supply curves “necessarily creates a wealth transfer from the input suppliers to the monopsonist as well as an inefficiency resulting from the fact that too little of the input is used,” a flat supply curve produces a different result: “Monopsony would have neither effect if the supply of the input were perfectly elastic so a higher price would not be necessary to induce an increase in the quantity supplied. In that event, the monopsonist would not be able to drive down the price of the input by purchasing less.” Werden, *supra* note 52, at 710. If one extreme is the flat supply curve for the input supplier, then the other extreme is a perfectly vertical supply curve. Werden observes that, in cases of monopsony or collusive oligopsony, “supply is completely inelastic in one common scenario—an auction to sell anything produced in the past, such as a work of art.” *Id.* at 711 n.12. If the selection of a patented technology is analogized to the auctioning of something produced in the past, then this extreme case of completely inelastic supply would not eliminate the price-suppressing effect of a monopsony or buyer cartel: “There can be no quantity effects in such a scenario: the outcome of an auction cannot affect the number of Van Gogh paintings. Collusion among bidders nevertheless causes a transfer of wealth from the current owner of the property to the new owner.” *Id.*

⁹³ Greene, *supra* note 91, at ¶ 52 (“Finally, for example, conspiratorial relationships that normally would be extremely unlikely might, nonetheless, arise in response to an unusual circumstance such as the innovation in question is mandated as part of a government regulation or as part of an industry standard.”).

leads to incorrect conclusions. To understand the defects of this argument, it is necessary to revisit the theory of monopsony.

In a competitive market, all parties are price takers: they accept prices as given. Each party is assumed to be small, such that its individual actions do not noticeably affect market outcomes. Figure 1 depicts the demand and supply curves that describe the behavior of buyers and sellers in a competitive market. The demand curve describes how many units consumers will purchase at any given price, and the supply curve describes how many units producers will supply at any given price. Consumers purchase a good when the marginal value that they attach to one more unit of the good is greater than or equal to the price of one more unit of the good, and producers sell that same good when their marginal cost of producing the good is less than or equal to the good's market price.

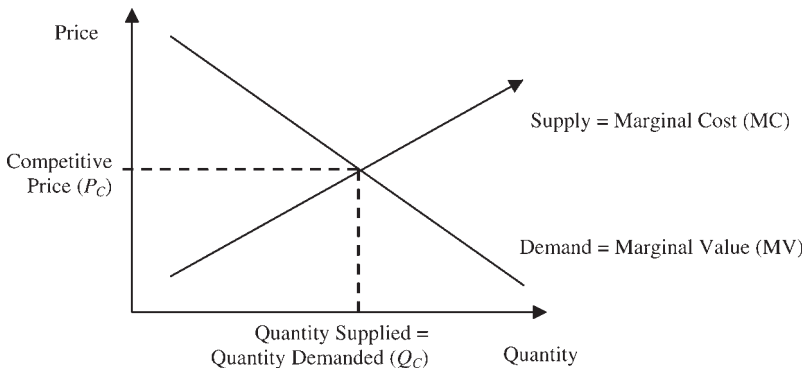


Figure 1. Competitive demand and supply.

For the competitive result to obtain, there must be many sellers and purchasers of the goods in the market. In the case of a single purchaser for the entire market—a monopsonist—the purchaser directly affects market prices with its purchase choices and must consider price when choosing a quantity to purchase. In particular, as Figure 2 depicts, the monopsonist chooses a

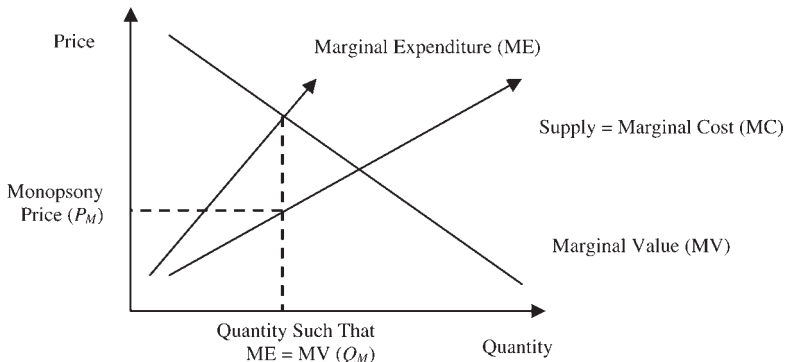


Figure 2. Monopsony demand and competitive supply.

quantity such that the marginal expenditure (also commonly called the marginal outlay) required to purchase one more unit of the good is equal to the marginal value received from consuming one more unit of the good. Note that the marginal expenditure (ME) curve always lies to the left of the supply curve. The monopsonist then offers the price P_M that is necessary to induce producers to produce the chosen quantity, Q_M . (P_M is found by intersecting Q_M with the supply curve, MC.)

The standard example of a monopsony is a town with a single firm as the only local employer. Although the firm can operate at the socially optimal point by hiring employees such that marginal benefit is equal to marginal cost, the firm can achieve economic profits by reducing the number of employees. By reducing the number of employees, the firm can reduce the amount paid to each employee. As long as the firm's total savings in reduced wages exceeds the marginal benefit of hiring the next employee, the firm will have incentives to hire fewer employees and pay them all less than in perfect competition. The different quantities purchased and prices paid in monopsony and in perfect competition are illustrated in Figure 3.

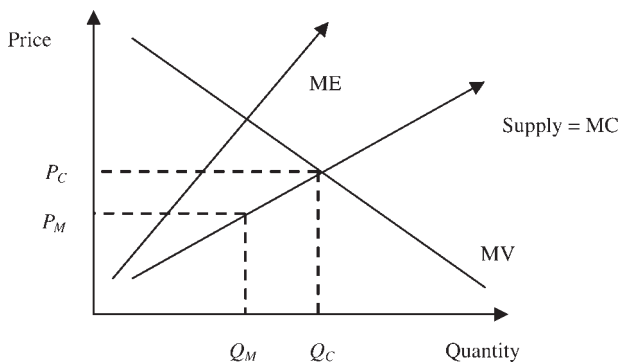


Figure 3. Prices and quantities for competitive buyers and for a monopsonist.

The purchasing behavior of a monopsonist raises antitrust concerns for two reasons. First, it reduces the quantity supplied (creating deadweight loss, the situation where there are forgone potential gains from trade). Second, it transfers wealth (in the amount of $P_C - P_M$ for every unit of the good sold) from the seller to the monopsonistic buyer. When an SSO determines a particular patent to be used as the standard by all firms, the firms in the market begin to act as a consortium and become in effect a monopsonistic purchaser of the patent license.

The argument that the supply curve for technology patent holders is flat stems from the consideration of a static model for a single patent before the formation of an SSO. The patent holder incurs all research and development

costs in a period before the market exists, such that these will be considered sunk costs. The model is illustrated in Figure 4.

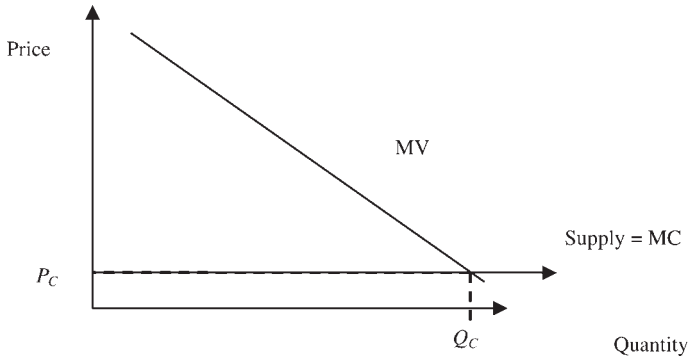


Figure 4. Demand and competitive supply according to the “flat supply curve for patents” conjecture.

According to the “flat supply curve for patents” conjecture, technology patent holders will license the patent to all interested purchasers at P_C , which is equal or approximate to zero. Once the SSO has formed and selected the patent as the standard to be used, the consortium of purchasers could not benefit from monopsony power, as the marginal expenditure curve would be coincident with the marginal cost curve. This result would obtain because the decision to purchase another patent license does not affect the price for other licenses purchased.

One does not observe this result, however, and the failure of the “flat supply curve for patents” conjecture is due to its underlying assumptions. The first is that technology patents are effective substitutes for each other such that competition forces the price for licensing the patent to equal marginal cost. This assumption defies the theoretical basis for intellectual property rights and the creation of temporary barriers to entry. The effect of a patent is to grant an exclusive right to the owner of a differentiated

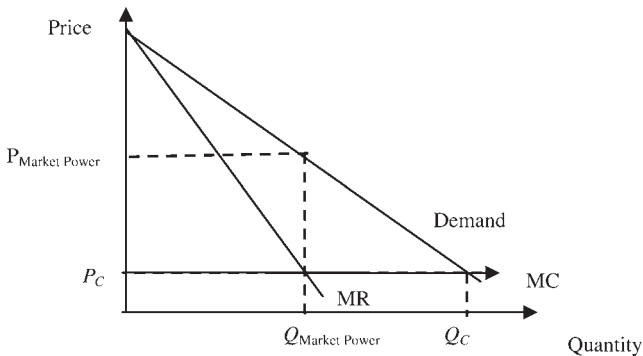


Figure 5. Equilibrium pricing in a market for a patent when the innovator has market power.

product such that it will have some ability to price patent licenses above marginal cost. Without this ability, the innovator of technology would compete with perfect substitutes, price at marginal cost (which is below average total cost), and never be able to recoup its initial investment. By creating an imperfectly substitutable product protected by a patent, the innovator will price above marginal cost as shown in Figure 5.

The outcome in Figure 5 would accurately represent the static market for an imperfectly substitutable product for which the innovator incurs all investment in a period before sale of the product in the market and requires no recurring capital investment. This model, however, does not accurately describe the market for innovation. Innovation markets are not one-time deals but rather extended relationships between the innovators and the purchasers of technology patents.⁹⁴ When a new technology is developed and patented, it is not the end of innovation in that area. Technology patents used by product manufacturers are created with the expectation that they will be replaced when obsolete. Researchers therefore continue to improve upon the previous design, and those sequential stages of R&D require the input of more capital in each successive period such that fixed costs of investment are incurred not in a single period but repeatedly throughout the existence of the market.

The flat-supply-curve conjecture is obscure because the flatteners are unclear about the relevant measure of output that they use to plot a supply curve. If quantity means the number of licenses of a specific patent, then the flatteners are making a trivial point about the sunk costs of innovation and the subsequent ability to disseminate the patented technology at zero marginal cost. But that scenario is highly stylized. Implicitly, it assumes that the innovator is not a Thomas Edison—a serial inventor—but rather a one-off tinkerer, like the eccentric, former landlord of mine who, having supposedly invented the serpentine device that cleans the bottom of swimming pools, retired on the royalties. In my landlord's case, a buyer cartel of swimming pool equipment manufacturers would not reduce his supply of licenses for his patented swimming pool cleaner: sunk costs are sunk costs, the marginal cost of another license is zero (if one ignores transactions costs), and my landlord would prefer some royalty income to none. However, this reasoning becomes incorrect if the appropriate measure of output for plotting the supply curve is the number of patents. More precisely, the more informative measure of output is the number of commercially useful inventions subsequently produced by a

⁹⁴ See Richard Schmalensee, *Standard-Setting, Innovation Specialists, and Competition Policy*, at 25 (Aug. 12, 2008), available at <http://ssrn.com/abstract=1219784>.

serial inventor. Today, that serial inventor is likely to be a company with a substantial research and development budget.⁹⁵

The second improper assumption in the “flat supply curve for patents” conjecture can be observed in the scenario of a market with multiple patent holders offering substitutable patents. Innovators do not create a single patent and then license it in the market during a single period. Rather, they have continued relationships with patent users and continue to invest capital in successive periods to improve upon prior patents or create novel technologies. In this multiperiod relationship, the licensing of a patent to one user will likely affect the innovator’s ability to license that patent to another user.

The shape of the supply curve is informed by the prevalence of “most-favored nation” clauses in licensing agreements. These clauses undermine the “flat supply curve” conjecture and, standing apart, actually create an upward-sloping supply curve. For the kinds of technologies that concern SSOs, it would be atypical for innovators to create a single patented input and then license it in the market during a single period, with no expectation of making improvements on the patent and participating in subsequent rounds of standards setting. To the contrary, it is more reasonable to believe that licensors in an SSO will have continued multi-period relationships with their existing licensees. In those relationships, the licensing of a patent to one user can affect the terms on which the patent holder can license that patent to another user because many licensing agreements include most-favored nation clauses. Such clauses are a commitment to forbear from differential pricing across licensees, such that a loss of revenue will accrue from all prior licensing agreements if the licensor issues a new lower-priced license to the marginal customer. A patent holder will begin to start issuing lower-priced licenses (which translates into issuing them at a higher cost to the patent holder) when substitutable technologies begin to crowd the market. One should view this loss of revenue associated with the marginal unit as an additional marginal cost. These steadily increasing marginal costs of licensing the patent to incremental users create an exponentially upward sloping supply curve in most-favored nation environments.

When an SSO determines a particular patent to be used as the standard, downstream firms begin to act as a consortium and become in effect a monopsonistic purchaser of the patent license. The SSO puts the innovator at a “strategic disadvantage in negotiation,” which could lead to the adoption of inferior technologies.⁹⁶ The main economic harm of this monopsonistic model is an important dynamic inefficiency that the “flat supply curve for patents” conjecture overlooks. When considering the long run, the number of

⁹⁵ In January 2009, for example, Pfizer announced that it would lay off 800 researchers. See Duff Wilson, *Pfizer to Cut Researchers as It Hones Its Focus*, N.Y. TIMES, Jan. 14, 2009, at B3.

⁹⁶ See Schmalensee, *supra* note 94, at 25.

patents available is no longer fixed. The number of patents available from each firm in the future (along with the potential quality of those patents) is a function of the current price for patented technology. When the current price that licensees pay for patented technology is low, firms will pursue only easily attainable technologies, because those technologies are the only ones for which the firm expects a positive return on its sunk investment in innovative activity. The patent owner will pursue difficult or speculative inventions only if the expected licensing fees that can be derived from a successful, valuable patent are high enough to recoup the sunk cost of innovation in both the patent owner's successful and unsuccessful inventions.

In a regulatory setting, Alfred Kahn has described this phenomenon as "anticipatory retardation," where network operators pursue only "the most recent technology . . . when market prices [are] significantly high to enable them to recoup a disproportionately large portion of their capital costs in the early years."⁹⁷ Daniel Spulber and I made the same argument in the mid-1990s about the mandatory pricing of competitor access to telecommunications networks at prices that regulators believed approximated long-run average incremental cost.⁹⁸

The linkage between price suppression and anticipatory retardation has deep intellectual roots. Kahn credits Yale economist William Fellner for originating this insight in the 1950s.⁹⁹ Fellner's observation, in turn, reflects the influence of Joseph Schumpeter's classic work from 1942, *Capitalism, Socialism, and Democracy*:

⁹⁷ ALFRED E. KAHN, LESSONS FROM DEREGULATION: TELECOMMUNICATIONS AND AIRLINES AFTER THE CRUNCH 29 (2004). See also ALFRED E. KAHN, WHOM THE GODS WOULD DESTROY, OR HOW NOT TO REGULATE 4 (2001). Dennis Weisman has stated the problem more fundamentally:

In what is arguably the fundamental theorem of economics, we recognize that economic resources invariably flow to their most profitable rates of return. An immediate corollary to this theorem is that firms do not invest in markets unless they believe there is a reasonable opportunity to recover their costs. This implies that while barriers to entry may sustain supra-competitive prices (prices above competitive levels), the complete absence of all barriers to entry will tend to discourage investment and retard innovation.

DENNIS L. WEISMAN, PRINCIPLES OF REGULATION AND COMPETITION POLICY FOR THE TELECOMMUNICATIONS INDUSTRY 20 (2006).

⁹⁸ See J. GREGORY SIDAK & DANIEL F. SPULBER, REGULATORY TAKINGS AND THE REGULATORY CONTRACT: THE COMPETITIVE TRANSFORMATION OF NETWORK INDUSTRIES IN THE UNITED STATES 403–26 (1998) (explaining the disincentive for an incumbent network owner to continue to invest in its network if regulators compel the firm to supply entrants with access to the network at a regulated price that immediately approximates the forward-looking total element long-run (average) incremental cost, or TELRIC, of a hypothetically efficient network built from scratch).

⁹⁹ KAHN, LESSONS FROM DEREGULATION, *supra* note 97, at 29 (citing William Fellner, *The Influence of Market Structure on Technological Progress*, in READINGS IN INDUSTRIAL ORGANIZATION AND PUBLIC POLICY 287–91 (Richard E. Irwin ed., 1958)).

Economists are at long last emerging from the stage in which price competition was all they saw. As soon as quality competition and sales effort are admitted into the sacred precincts of theory, the price variable is ousted from its dominant position . . . But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition which counts, but the competition from the new commodity, the new technology, the new source of supply, the new type of organization (the largest-scale unit of control for instance)—competition which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives.¹⁰⁰

Thus, the number of patents supplied by a given firm over time increases with the current price received for its patented technology. Technology patent holders continue to invest capital in each successive period so long as there is an expectation that this investment will lead to future returns. If patent holders could only expect to be able to license their patents to users at marginal cost, they would neither be able to recover their initial investments nor have capital to invest in the present and future periods. The inability to cover costs will reduce incentives to invest and thereby slow technological innovation. For innovation to be sustainable, the patent owner must price above marginal cost and along an upward-sloping supply curve.

The loss of subsequent inventions is also a long-run concern. Richard Schmalensee is surely justified in warning that “a basic reason . . . to be concerned with the outcome of collective negotiation of [licensing fees] is the likely retardation of the pace of technical progress.”¹⁰¹ Suppose that an inventor is capable of producing n patented inventions, but stops at $j < n$ because the revenues received fall below the sunk cost of pursuing another iteration of inventive activity. The reduction in output reflected by the $n - j$ forgone inventions is a loss in economic welfare, whether one chooses to label it dynamic inefficiency or static inefficiency. With respect to a given inventor and a given customer or set of customers, it may be appropriate to view innovation as a long-term relationship in which the customer expects and relies on a stream of improvements on the patented technology by the inventor. So the n patented innovations might be regarded as consisting of the patent owner’s initial invention plus $n - 1$ improvements upon that patented technology. It does not change matters if firms other than the initial inventor supply the succeeding improvements on the original patent. Rather, this phenomenon would simply mean that a race exists between the originator and other firms to produce patentable improvements. That is, there is competition *for* the market, even if

¹⁰⁰ JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* 84 (1942) (1974 ed.).

¹⁰¹ Schmalensee, *supra* note 94, at 25. He elaborates:

[W]hile short run . . . efficiency is important, it is surely ultimately less important than long-run dynamic efficiency: the production of valuable new knowledge. Prospective reductions in the returns to knowledge generation via reductions in prospective patent [licensing fees] unambiguously reduce the incentive to generate new knowledge and thus adversely affect long-run dynamic efficiency.

Id. at 26.

there is not competition *within* the market after a particular patented technology is chosen by the SSO.

E. The Antitrust Analysis Statutorily Specified in the Standards Development Organizations Advancement Act

The Standards Development Organization Advancement Act (SDOAA) of 2004 extends to SDOs the same protections that Congress provided to joint ventures in the National Cooperative Research and Production Act of 1993.¹⁰² In pertinent part, the SDOAA states that “the conduct of . . . [an SDO]” that is “engaged in a standards development activity . . . shall be judged” using the rule of reason.¹⁰³ Moreover, the Act limits liability resulting from standards development activities to actual (rather than treble) damages and recovery of attorney’s fees.¹⁰⁴ Those limitations on liability are conditioned on an SDO, within 90 days after commencing a standards development activity, simultaneously filing with the Attorney General and the FTC a notification disclosing the SDO’s name and principal place of business and any “documents showing the nature and scope of such activity.”¹⁰⁵

The SDOAA defines an SDO as an “organization that plans, develops, establishes, or coordinates voluntary consensus standards using procedures that incorporate the attributes of openness, balance of interests, due process, an appeals process, and consensus in a manner consistent with the Office of Management and Budget Circular Number A-119,” and the act excludes from that definition “the parties participating in the [SDO].”¹⁰⁶ In turn, OMB Circular A-119, which directs agencies of the federal government to use voluntary consensus standards in lieu of government-specific standards, defines “consensus” as “general agreement, but not necessarily unanimity, and includes a process for attempting to resolve objections by interested parties, as long as all comments have been fairly considered, each objector is advised of the disposition of his or her objection(s) and the reasons why, and the consensus body members are given an opportunity to change their votes after reviewing the comments.”¹⁰⁷ The SDOAA next defines “standards development activity” as “any action taken by [an SDO] for the purpose of developing, promulgating, revising, amending, reissuing, interpreting, or otherwise maintaining a voluntary consensus standard, or using such standard in conformity

¹⁰² 15 U.S.C. §§ 4301–4305 (2004); *see also* Press Release, Department of Justice, Justice Department Implements the Standards Development Organization Advancement Act of 2004 (June 24, 2004), *available at* http://www.usdoj.gov/atr/public/press_releases/2004/204345.htm.

¹⁰³ 15 U.S.C. § 4302.

¹⁰⁴ *Id.* § 4303(a).

¹⁰⁵ *Id.* §§ 4303(a), 4305(a)(2).

¹⁰⁶ *Id.* § 4301(a)(8).

¹⁰⁷ OMB CIRCULAR NO. A-119, § 4(a)(1)(v) (Feb. 10, 1998), *available at* <http://www.whitehouse.gov/omb/circulars/a119/a119.html>.

assessment activities, including actions relating to the intellectual property policies of the [SDO].”¹⁰⁸

Notably, however, the SDOAA explicitly excludes the following activities from its coverage: exchanges of “*information among competitors relating to cost, sales, profitability, prices, marketing or distribution of any product, process, or service that is not reasonably required for the purpose of developing or promulgating a voluntary consensus standard, or using such standard in conformity assessment activities*”; agreements among competitors to “allocate a market”; or “any agreement or conspiracy that would *set or restrain prices of any good or service.*”¹⁰⁹ Accordingly, the Act’s rule of reason and limited liability provisions do not apply to claims alleging that an SDO exchanged information among competitors relating to cost or distribution of a good or service, conspired to allocate market share, or agreed to restrain or set the price of a good or service. Consequently, if these activities are *per se* illegal under standard antitrust principles, they continue to be so even when the actor is an SDO. Moreover, the Act explicitly excludes from its coverage entities participating in an SDO.¹¹⁰ Thus, the conduct of individual SDO members—such as downstream manufacturers that are patent licensees—is likewise subject to *per se* liability and treble damages to the extent that such conduct is *per se* illegal under standard antitrust principles.

The framework that Congress created in the SDOAA is consistent with a cautious approach to the risk of oligopsonistic collusion in SSOs. That approach differs markedly—and inexplicably—from the subsequent statements of prosecutorial discretion by the Antitrust Division and FTC.

F. Antitrust Division and FTC Statements of Prosecutorial Discretion Concerning Coordinated Negotiation of Royalties before Adoption of a Standard

In April 2007, the Antitrust Division and the FTC jointly issued a report on antitrust and intellectual property that discussed, among many other topics, whether the potential for patent holdup justifies coordinated action by competing buyers in an SSO concerning the licensing terms for a patented input before the adoption of any standard.¹¹¹ The antitrust agencies concluded that

¹⁰⁸ 15 U.S.C. § 4301(a)(7).

¹⁰⁹ *Id.* § 4301(c)(1)-(3) (emphasis added).

¹¹⁰ *Id.* §§ 4301(a)(8), 4303(e) (stating that the limited liability provisions “shall not be construed to modify the liability under the antitrust laws of any person (other than [an SDO]) who (1) directly . . . participates in a standards development activity with respect to which violation of any of the antitrust laws is found, (2) is not a fulltime employee of the [SDO] that engaged in such activity, and (3) is, or is an employee or agent of a person who is, engaged in a line of commerce that is likely to benefit directly from the operation of the standards development activity with respect to which such violation is found”).

¹¹¹ U.S. DEPARTMENT OF JUSTICE AND FEDERAL TRADE COMMISSION, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 53–56 (Apr. 2007) [hereinafter DOJ/FTC IP REPORT].

“joint *ex ante* activity to establish licensing terms as part of the standard setting process will not warrant *per se* condemnation” because it “*might* mitigate the potential for IP holders to hold up those seeking to use a standard.”¹¹² The AMC reached the same conclusion in its final report, also issued in April 2007. It explicitly addressed joint negotiations and collaboration between SSO members and holders of patented technologies essential or relevant to the standard at issue.¹¹³ (One commissioner of the AMC, however, vigorously dissented,¹¹⁴ and the Vice-Chairman qualified her endorsement by emphasizing that “the Commission is not recommending that such joint negotiation is a preferred approach under the antitrust laws or a necessary one to avoid ‘hold up’ issues.”¹¹⁵) Like the Antitrust Division and the FTC, the AMC worried about possible patent holdup and concluded that *ex ante* “joint negotiations with intellectual property owners by members of a standard setting organization with respect to royalties prior to the establishment of the standard, without more, should be evaluated under the rule of reason.”¹¹⁶

Despite its apparent relevance to the debate over patent holdup, the SDOAA is virtually ignored in both reports. The Antitrust Division and FTC summarize the SDOAA in a footnote but provide no further discussion of the law’s significance.¹¹⁷ The AMC’s report mentions the SDOAA only as one of many antitrust exemptions.¹¹⁸ The Antitrust Division, FTC, and

¹¹² *Id.* at 55 (emphasis added). Similarly, in January 2008, Philip Lowe, Director General of the EC’s Directorate General for Competition, said that *ex ante* mechanisms employed by standardization bodies have “the potential to bring strong pro-competitive benefits by competing the price down to the market level before the standard is set.” Philip Lowe, Director General, Directorate General for Competition, European Commission, Address to the IBC Conference on Pricing and the Dominant Company, The Commission’s Current Thinking on Article 82, 10 (Jan. 31, 2008), *available at* http://ec.europa.eu/comm/competition/speeches/text/2008_01_en.pdf.

¹¹³ ANTITRUST MODERNIZATION COMMISSION, FINAL REPORT AND RECOMMENDATIONS 117 (Apr. 2007) [hereinafter AMC REPORT].

¹¹⁴ *Id.* at 403, 405–11 (dissenting statement of Commissioner Makan Delrahim, a former Assistant Attorney General, Antitrust Division, U.S. Department of Justice).

¹¹⁵ *Id.* at 139 n* (statement of Commissioner Deborah A. Garza, Vice-Chairman of the AMC).

¹¹⁶ *Id.* at 121.

¹¹⁷ DOJ/FTC IP REPORT, *supra* note 111, at 50–51 n.99. The extent of the antitrust agencies’ discussion is to summarize:

In 2004, Congress enacted legislation to limit the potential antitrust liability of SSOs that meet certain open-process standards. The Standards Development Organization Advancement Act of 2004 provides that the antitrust rule of reason applies to these SSOs while they are engaged in standards development activities. It also provides special rules for attorney fees in any antitrust case challenging the standards development activity of an SSO. In addition, qualifying SSOs may limit their antitrust liability for standards development activities to actual, as opposed to treble, damages if they file a proper notification with the Agencies.

Id.

¹¹⁸ AMC REPORT, *supra* note 113, at 355.

AMC do not indicate that the SDOAA informed their analysis of patent holdup in any manner. Nor do they indicate that the SDOAA informed the analysis of any secondary authority upon which their reports rely.¹¹⁹

Both reports point only to the *possibility* of holdup as justification for applying rule-of-reason analysis to joint licensing negotiations. That justification, however, is tantamount to an admission of a naked restraint of trade. The negotiations exist precisely to lower the price that licensees pay to use patented technologies in the standardized product. It bears emphasis that the theoretical and empirical verifiability of patent holdup is irrelevant because, even if Lemley and Shapiro are correct on theoretical and empirical grounds that patent holdup is a real possibility, it nonetheless remains the case that a desire to reduce royalty rates paid on patented inputs does not constitute a legitimate—let alone sufficient—justification for competitors to coordinate their bidding to suppress the price of those inputs.¹²⁰

It is difficult to reconcile the Antitrust Division's prosecution of Omnipoint in 1998 and the FTC Bureau of Competition's continuing concern in 2006 over oligopsonistic collusion in FCC spectrum auctions with the position taken by the Antitrust Division and the FTC in 2007 that the rule of reason should apply to explicit *ex ante* discussions of royalty levels among oligopsonists in an SSO. The same concern about high input prices (holdup) could be offered as a justification for code bidding among competing purchasers of spectrum rights, as could a similar argument about how unreasonably high spectrum prices would harm owners of patented inputs for cellular telephony that exhibit complementarity of demand with respect to spectrum (royalty stacking). Yet, in the SSO context, the Antitrust Division and the FTC evidently regard bidder collusion as unlikely even if

¹¹⁹ Evidently, the academic literature also ignores how the SDOAA might affect an antitrust analysis of *ex ante* discussions of licensing terms as a response to licensees' concern over patent holdup. For example, the Hovenkamp–Janis–Lemley treatise only summarizes the SDOAA. See 2 HOVENKAMP, JANIS & LEMLEY, *supra* note 77, §§ 35.8, 36.4c. Moreover, as of the end of 2008, neither Lemley nor Shapiro appeared to have examined the SDOAA in writings on patent holdup and royalty stacking. The few law review articles that do discuss the SDOAA are uninformative on this question. See, e.g., Matthew Topic, *The Standards Development Organization Advancement Act of 2004: A Victory for Consumer Choice?*, 12 J. TECH. L. POL'Y 45 (2007); Matthew N. Kriegal, Note, *Would You Go to Work if You Weren't Paid? The Problem of Incentives for Participants in Standards Development Organizations*, 84 WASH. U. L. REV. 211 (2006).

¹²⁰ The Supreme Court's 2007 decision in *Bell Atlantic Corp. v. Twombly*, 127 S. Ct. 1955 (2007), probably would not affect the legal analysis of buyer collusion in SSOs. *Twombly* concerned the factual specificity required in an antitrust complaint to distinguish lawful parallel but unilateral action of competitors from unlawful collusive behavior. Certainly, it is easier to infer agreement among competing buyers of a particular patented technology who jointly participate in the standard-setting process of an SSO to which they are members than it was to infer agreement among the incumbent local exchange carriers, whose conduct the Supreme Court found, on the bare pleadings in *Twombly*, to be indistinguishable from unilateral conduct.

competitors, when choosing one technology over a different one for inclusion into the industry standard, explicitly exchange views on the proper price to pay in the future to use the chosen patented technology.

G. The Antitrust Agencies' General Assessment That the Risk of Oligopsonistic Collusion in SSOs Is Small

The Antitrust Division and the FTC (as well as the AMC) have identified two antitrust risks that could arise when potential licensees discuss royalties. Despite those risks, all three bodies concluded in 2007 that the potential benefit of eliminating the possibility of holdup by patent holders justifies the application of the rule of reason rather than the rule of *per se* illegality to *ex ante* joint negotiations over licensing terms in an SSO.¹²¹

The first risk identified is the possibility that such discussions will extend to naked restraints on the price that those licensees will charge consumers of the final goods incorporating the standard and its patented technologies.¹²² In 2005, former Chairman Deborah Majoras of the FTC stated: “If in conducting joint *ex ante* royalty discussions, manufacturing rivals cross over the line from discussing the price of technology they will ‘buy,’ if they choose a particular standard and start discussing—and fixing—the price of the products they sell, summary condemnation is almost certainly warranted.”¹²³ This statement is disturbing. There is no basis in antitrust law for regarding collusion by buyers as less important than collusion by sellers. So why subject the former to rule-of-reason analysis while summarily condemning the latter as *per se* unlawful? The Supreme Court rejects that asymmetry.¹²⁴ It is an indication that the public discourse over patent holdup has gone astray that the

¹²¹ AMC REPORT, *supra* note 113, at 121; DOJ/FTC IP REPORT, *supra* note 111, at 55.

¹²² AMC REPORT, *supra* note 113, at 121; DOJ/FTC IP REPORT, *supra* note 111, at 50.

¹²³ Deborah Platt Majoras, Chairman, Federal Trade Commission, Recognizing the Procompetitive Potential of Royalty Discussions in Standard Setting, Remarks at Standardization and the Law: Developing the Golden Mean for Global Trade 10 (Sept. 23, 2005), available at <http://www.ftc.gov/speeches/majoras/050923stanford.pdf>. Chairman Majoras further argued that it is easier and less costly for licensees to collude in the standard-setting process than outside it. *Id.* (citing BLAIR & HARRISON, MONOPSONY, *supra* note 51). Maurits Dolmans cites these comments in support of his proposition that *ex ante* auctions and declarations “are now allowed” under U.S. antitrust law. Maurits Dolmans, *Standard Setting—The Interplay with IP and Competition Laws*, Fordham Intellectual Property Law 16th Annual Conference on Intellectual Property Law and Policy (Hart Publishing, forthcoming 2009) (manuscript at 7 n.15, on file). Dolmans argues that the risks of patent holdup justify a broad construction of FRAND commitments in favor of licensees, including bans on refusals to license, “excessive” royalties, and restrictive or discriminatory licensing terms. *Id.* at 10–16. He applauds European and Chinese limits on injunctive relief, which award patent holders only the terms of its earlier FRAND promise in the event of willful infringement. *Id.* at 11.

¹²⁴ See *Mandeville Island Farms v. Am. Crystal Sugar Co.*, 337 U.S. 219 (1948).

phrase “rivals . . . discussing . . . price” would, with evident approval, roll off the tongue of one of the federal government’s two senior antitrust enforcers.

The second antitrust risk—the elephant in the corner—is that the potential licensees will exploit oligopsony power, newly acquired as a result of *ex ante* discussions among competitors, to force patent holders to accept royalties that fall below a “reasonable” level.¹²⁵ The coordinated strategy of the buyers is analogous to the public utility regulator’s strategy of rent extraction under cost-of-service regulation. After the incumbent has made a sunk investment to provide service, the regulator cuts the allowed price to a level that covers only average variable cost. The regulator thereby expropriates for consumers the quasi rent from the utility’s investment but does not induce the utility to shut down.¹²⁶ Despite acknowledging the risk of oligopsonistic collusion, the Antitrust Division and the FTC conclude that the rule of reason should apply because, in their assessment, allowing buyers to engage in joint negotiations over royalty rates can prevent patent holdup.¹²⁷

One legal scholar who is sympathetic to arguments supporting the *ex ante* exchange of information in certain standard setting contexts, Michael Cotter, nonetheless concludes that coordination to reduce licensing fees is properly characterized under the *per se* rule:

If patent holdup is merely the exploitation of a patentee’s lawfully obtained market power, then not only should antitrust law *not* condemn this behavior; it *should* condemn behavior on the part of SSOs to inhibit that exploitation. On this understanding of patent holdup, joint conduct on the part of SSOs to prevent patentees from charging what the market otherwise would bear for their patents really is nothing more than price fixing, and (like other forms of price fixing) cannot be justified by arguments that it will lower the price of end goods and thus leave consumers better off.¹²⁸

Cotter agrees that the *per se* rule is applicable to *ex ante* rent extraction whether accomplished through an SDO or by individual efforts of would-be members acting apart from the SDO: “As long as patent law allows patentees to charge whatever the market will bear for their technology, joint conduct aimed to lower that price interferes with patent law’s implicit incentive/access tradeoff.”¹²⁹ In this respect, he “agree[s] with the critics that exempting joint negotiations over price from *per se* illegality is no more

¹²⁵ AMC REPORT, *supra* note 113, at 121 (citing *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*, 127 S. Ct. 1069 (2007); *Mandeville Island Farms v. Am. Crystal Sugar Co.*, 337 U.S. 219 (1948)); DOJ/FTC IP REPORT, *supra* note 111, at 50. For further analysis, see Philip B. Nelson, *Patent Pools: An Economic Assessment of Current Law and Policy*, 38 RUTGERS L.J. 539, 552–53 (2007); Geradin & Rato, *supra* note 3.

¹²⁶ See JEAN-JACQUES LAFFONT & JEAN TIROLE, *A THEORY OF INCENTIVES IN PROCUREMENT AND REGULATION* 54 (1993).

¹²⁷ DOJ/FTC IP REPORT, *supra* note 111, at 50.

¹²⁸ Michael Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. (forthcoming 2009), manuscript at 59–60, available at <http://ssrn.com/abstract=1273293> (italics in original).

¹²⁹ *Id.* at 60.

justified when the joint negotiators are SSO members than it would be in any other setting.”¹³⁰

The antitrust enforcement nonetheless defend the rule of reason as the appropriate level of antitrust scrutiny when addressing joint negotiations over royalties by buyers in an SSO. In so doing, the Antitrust Division and the FTC are implicitly favoring licensees over licensors. Compare the antitrust agencies’ treatment of licensees in the standard-setting process to their treatment of patent holders. The Antitrust Division and the FTC state in their joint report that “summary condemnation would be justified if IP holders were to reach naked agreements on the licensing terms they will propose to an SSO that permits multilateral negotiations, thus, in effect, rigging their selling bids.”¹³¹ Yet only two sentences later, those agencies conclude: “In the absence of nakedly anticompetitive restraints by an SSO or by its members, it is appropriate to determine whether an SSO’s efforts to reduce opportunities for IP holders to hold up future users of a standard violates the antitrust laws pursuant to the rule of reason.”¹³² As will be explained below, that assessment does not flow from existing antitrust doctrine. These statements manifest the antitrust agencies’ decided preference for licensees over patent holders in the standard-setting process. Why?

It bears emphasis that the antitrust agencies here are concerned only with the distribution of revenues within the SSO from sales of the standardized technology (and, derivatively, the sharing of some of those revenues with downstream consumers). The agencies are not concerned with the availability of the downstream product employing the patented technology. As noted earlier, if the Antitrust Division and the FTC were relying on the royalty stacking hypothesis, or if they were arguing that certain products would not even exist without the ability of licensees to negotiate royalty rates jointly, then the discussion would focus on the likelihood of stacking. In their joint report, however, the statements of the Antitrust Division and the FTC, in relying only on concern over possible patent holdup, express a preference for licensees over patent holders within SSOs.

The possibility of holdup by a patent holder once its technology has been selected for the standard is the primary consideration convincing the Antitrust Division and the FTC that the rule of reason should apply to collaboration among licensees regarding the price to be paid to the patent holder. However, there is no reason to presume—even after a patented

¹³⁰ *Id.* Professor Cotter later argues that a dynamic efficiency justification could exist for *ex ante* negotiations by an SDO. *Id.* at 60–61. However, as I explained in the introduction to this article, the dynamic efficiency justification is predicated on the patent holdup conjecture and consequently can be no more plausible than that conjecture is plausible. See text accompanying note 9 *supra*. The dynamic efficiency argument is only as strong as the weakness link in the chain.

¹³¹ DOJ/FTC IP REPORT, *supra* note 111, at 51–52.

¹³² *Id.* at 52.

technology has been selected for the standard—that holdup is likely or even possible.¹³³ The Antitrust Division and the FTC concede that, when the patent holder has little or no market power, *ex ante* negotiations among competitors over royalties and licensing would harm competition.¹³⁴ The agencies’ discussion of joint royalty negotiations seems to assume a fact—that the licensor possesses market power—that may be absent from a large percentage of cases of alleged patent holdup. There are good reasons—reasons with which courts and agencies have agreed—that such a presumption of market power should not exist, either as a matter of *a priori* economic reasoning or as a matter of antitrust doctrine. The Supreme Court unanimously held in *Illinois Toolworks v. Independent Ink* in 2006 that there is no longer a presumption in antitrust law that a firm possesses market power simply because it holds a patent over a particular technology or product.¹³⁵ The Antitrust Division (through the Solicitor General) successfully endorsed this interpretation of law on brief.¹³⁶ Consequently, as a matter of law, one cannot assume that licensees in an SSO that collude over the royalty for a patented input can legitimately claim to be engaging in self-help to counteract the exercise of market power by a monopolist.

Of course, the holdup argument goes further than the presumption, overruled in *Independent Ink*, that a patent confers market power. Proponents of joint negotiations over royalty rates claim that the standard-setting process, by adopting a definitive standard in the industry, confers a new increment of

¹³³ See Sidak, *Reply to Lemley and Shapiro*, *supra* note 1; Geradin, Layne-Farrar & Padilla, *Royalty Stacking in High Tech Industries*, *supra* note 3. In late 2008, the Antitrust Division used concern about the potential for patent holdup as a justification for joint patent-licensing in a business review letter to the RFID Consortium. Letter from Thomas O. Barnett, Assistant Attorney Gen., U.S. Dep’t of Justice, to William F. Dolan & Geoffrey Oliver, Jones Day (Oct. 21, 2008).

¹³⁴ See DOJ/FTC IP REPORT, *supra* note 111, at 53. *But see* Statement of the Federal Trade Commission, In the Matter of Negotiated Data Solutions L.L.C., No. 0510094 (FTC Jan. 23, 2008), available at <http://www.ftc.gov/os/caselist/0510094/080122analysis.pdf>. The Commission voted to issue a complaint against a non-essential patent holder, N-Data, and to accept a subsequent consent agreement settling the matter. *Id.* at 1. The majority indicated that N-Data’s repudiation of an Ethernet licensing agreement with the Institute of Electrical and Electronics Engineers (IEEE) was cognizable as either an unfair method of competition or an unfair act or practice. *Id.* at 1. The Commission expressed concern over the potential for holdup as an unfair method, “inherently ‘coercive’ and ‘oppressive’ with respect to firms that are, as a practical matter, locked into a standard.” Analysis of Proposed Consent Order to Aid Public Comment, In the Matter of Negotiated Data Solutions L.L.C., No. 0510094 at 5 (FTC Jan. 23, 2008). Yet N-Data’s patents were optional to the Ethernet standard, and those patents conferred little—if any—market power. *See* Dissenting Statement of Chairman Majoras, In the Matter of Negotiated Data Solutions L.L.C., No. 0510094 at 2 (FTC Jan. 23, 2008).

¹³⁵ *Illinois Toolworks, Inc. v. Independent Ink, Inc.*, 126 S. Ct. 1281 (2006). The vote was 8-0, as Justice Alito, newly appointed to the Court, did not participate.

¹³⁶ *See* Brief for the United States as Amicus Curiae Supporting Petitioners at *5, *Illinois Tool Works, Inc. v. Independent Ink, Inc.*, 126 S. Ct. 1281 (2006) (No. 04-1329), 2005 WL 1864093.

“post-adoption” market power on patent holders who possess technology essential to the standard.¹³⁷ However, even in the face of standard setting there is no reason to assume that patent holders, by virtue of their statutory rights in the technologies that they have developed, wield post-adoption market power sufficient to justify collusive behavior by buyer licensees in the SSO. Former Chairman Majoras of the FTC observed in 2005 that, “if the chosen standard has to compete with rival standards, the owner of the SSO’s chosen technology may end up with little market power.”¹³⁸ In this sense, “[h]oldup by no means is inevitable.”¹³⁹ She argues that the notion of “holdup” itself is misleading: “members of the organization that chose the standard are not necessarily being held up” simply because “an intellectual property owner can obtain a royalty rate higher than those of other technology owners,” because “[t]he higher royalty rate may be explained by the superiority of [the licensor’s] technology.”¹⁴⁰

Put differently, before they can begin to offer a credible argument for applying the rule of reason, the antitrust agencies must characterize the source of market power as lock-in from the standards selection, rather than preexisting market power from the underlying demand for and nonsubstitutability of the patented input. A legitimate question to pose when evaluating proffered justifications for oligopsonistic collusion is how a court can reliably distinguish post-adoption market power, which accrues in the holdup scenario, from market power that arises virtuously from innovative activity. A critical issue, therefore, is that the burden of proof on any claimed business justification or efficiency defense rests not with the patent licensor but with the patent licensees against whom a *prima facie* case of oligopsonistic price fixing has been proven. However, even allowing this line of defense goes too far: it is analogous to allowing sellers, who have colluded to fix prices, to avoid the *per se* rule and use the defense that competition in the marketplace leads to the inefficient bidding up of the price of an input. The Supreme Court rejected such reasoning long ago.¹⁴¹

Others who recognize the risk of patent licensees engaging in oligopsonistic collusion nevertheless conclude that the ability to discuss royalty and licensing terms is important to the standard-setting process. Lemley, for example, discusses the antitrust concerns associated with monopsony and the potential for a buyers’ cartel when SSOs establish a framework for joint negotiations over royalties; nevertheless, he concludes that licensees must be allowed to

¹³⁷ See, e.g., Farrell, Hayes, Shapiro & Sullivan, *supra* note 90.

¹³⁸ Majoras, *supra* note 123, at 3.

¹³⁹ *Id.*

¹⁴⁰ *Id.* at 3–4.

¹⁴¹ See *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 218 (1940) (“price-fixing agreements are unlawful *per se* under the Sherman Act and . . . no showing of so-called competitive abuses or evils which those agreements [are] designed to eliminate or alleviate may be interposed as a defense”).

discuss price.¹⁴² Specifically, Lemley argues that the risk of a buyers' cartel "does not mean that members of the SSO should be prohibited from discussing price."¹⁴³ Although one need not simultaneously assert that patent holdup is a real problem and that oligopsonistic coordination is not, Lemley does.

In addition to citing Lemley, the Antitrust Division and the FTC cite Robert Skitol, a practitioner who represents SSOs, to support the proposition that the rule of reason should govern collaboration on royalties and licensing by licensees in the standard-setting process.¹⁴⁴ However, in arguing for the rule of reason, Skitol makes the same policy judgment that the Antitrust Division and the FTC make in choosing to worry more about holdup than buyer collusion. He distinguishes "buyers' power in a general sense" from "buyers' 'market' power in the monopsony or oligopsony sense."¹⁴⁵ However, the same distinction can and should be made on the patent holder's side of the market: one must distinguish the power associated with existence of the patent and its inclusion in the standard from the ability and incentive to engage in holdup as conceived by the antitrust agencies, Lemley, and Skitol. To conclude that the rule of reason applies to licensee behavior, and to justify that choice by relying on the possibility of holdup by patent holders, requires assuming the best possible behavior by licensees and the worst possible behavior by patent holders.¹⁴⁶

Another argument advanced by proponents of *ex ante* royalty negotiations is that the colluding licensees should be considered a single entity for antitrust purposes, presumably because the negotiations occur in an SSO.¹⁴⁷ This characterization is significant because, as the Supreme Court reiterated in 2006, a single entity cannot be deemed to have conspired with itself for

¹⁴² Mark A. Lemley, *Intellectual Property Rights and Standard Setting Organizations*, 90 CAL. L. REV. 1889, 1947 (2002). Gil Ohana, Marc Hansen, and Omar Shah also assert the importance of allowing joint negotiations despite possible collusion. See Gil Ohana, Marc Hansen & Omar Shah, *Disclosure and Negotiation of Licensing Terms Prior to Adoption of Industry Standards: Preventing Another Patent Ambush*, 24 EUR. COMPETITION L. REV. 644, 654 (2003) ("[E]ven if it were accepted that there remained some risk of anti-competitive exercise of monopsony power, allowing *ex ante* negotiations of licensing terms would appear to represent the lesser of two evils.").

¹⁴³ See Lemley, *supra* note 142.

¹⁴⁴ Robert A. Skitol, *Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard Setting*, 72 ANTITRUST L.J. 727 (2005).

¹⁴⁵ *Id.* at 735.

¹⁴⁶ European antitrust authorities have similarly misunderstood the risk of oligopsonistic collusion. When discussing the value of *ex ante* negotiations for patent licensing terms, Cecilio Madero Villarejo and Nicholas Banasevic state their ostensible concern for "some kind of cartel," but they refuse to consider that such negotiations might in practice create cartel-like outcomes: "In a scenario where there are a number of substitute technologies competing to be chosen, we cannot see how 'price-fixing' can be a relevant factor." See Cecilio Madero Villarejo & Nicholas Banasevic, *Standards and Market Power*, GLOBAL COMPETITION POL'Y, 6 (May 2008), <http://www.globalcompetitionpolicy.org/index.php?id=1101&action=907>.

¹⁴⁷ See DOJ/FTC IP REPORT, *supra* note 111, at 52.

purposes of establishing liability under section 1 of the Sherman Act.¹⁴⁸ As a statutory matter, however, the single-entity argument is difficult to reconcile with the fact that the SDOAA expressly regards an SDO as being an entity legally distinct from “the parties participating in the [SDO].”¹⁴⁹ Nonetheless, some have defended the single-entity thesis on the basis of the “integrative effort that takes place in developing a standard and in creating the demand for the technology” within SSOs.¹⁵⁰ Such language is dangerous. Michael Carrier, for example, in a response to an article by David Teece and Edward Sherry,¹⁵¹ argued—before the SDOAA’s enactment in 2004—that SSOs “do not resemble a collection of horizontal competitors that conspires to raise price or to reduce output.”¹⁵² The statement begs the question. Stating that a collection of licensees jointly negotiating licensing or royalty rates does not constitute collusion ignores what is occurring: competitor licensees combining their bargaining power to negotiate lower royalty rates. Further, the notion that licensees should be shielded from the *per se* rule merely because the standard-setting process results in one integrated standard is not supportable in theory or practice. Single-entity treatment for the members of the SSO not only would validate collusive behavior by licensees as buyers of patented technology (thereby reducing incentives for investment and for research and development by patent holders), but also would validate downstream price fixing of products incorporating the standardized technology or component. It would be too clever by half to argue that downstream manufacturers are a single entity when buying inputs but multiple entities when selling outputs.

In their 2007 report on intellectual property, the Antitrust Division and the FTC cite work by Mark Patterson—which also predates the SDOAA’s enactment—in support of the single-entity proposition.¹⁵³ He concludes that the “underlying rationale” for the *per se* rule is not applicable to the standard-setting case because SSO members and the SSO itself have a unity of interest in the standard.¹⁵⁴ Even if the single-entity thesis survived the SDOAA’s enactment, it is noteworthy that Patterson’s rationale for the single-entity thesis relies on the argument that technologies incorporating

¹⁴⁸ *Texaco Inc. v. Dagher*, 126 S. Ct. 1276, 1281 (2006); see also *Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 768 (1984).

¹⁴⁹ 15 U.S.C. §§ 4301(a)(8); see text accompanying note 110, *supra*.

¹⁵⁰ DOJ/FTC IP REPORT, *supra* note 111, at 52 (quoting Joseph Kattan of Gibson, Dunn & Crutcher).

¹⁵¹ David Teece & Edward Sherry, *Standards Setting and Antitrust*, 87 MINN. L. REV. 1913 (2003).

¹⁵² Michael A. Carrier, *Why Antitrust Should Defer to the Intellectual Property Rules of Standard Setting Organizations: A Commentary on Teece and Sherry*, 87 MINN. L. REV. 2017, 2030 (2003).

¹⁵³ Mark R. Patterson, *Inventions, Industry Standards, and Intellectual Property*, 17 BERKELEY TECH. L.J. 1043 (2002).

¹⁵⁴ *Id.* at 1078–79.

the standard would not come into existence without joint negotiations by licensees in the process.¹⁵⁵ In other words, Patterson does not simply argue that some patent holders will engage in holdup. Rather, he advances the royalty-stacking conjecture—that many patents will be implicated by the standard, and that the aggregate royalties on Cournot-complementary inputs will make it unprofitable for manufacturers to produce any downstream products incorporating the standard.

H. The Antitrust Division’s Business Review Letters to SSOs

Between October 2006 and April 2007, the Antitrust Division issued two significant business review letters outlining its position on various patent disclosure and patent information policies proposed by SSOs. Both letters place little weight on the risk that information exchange among patent licensees in an SSO will facilitate oligopsonistic collusion.

On October 30, 2006, the Division issued a business review letter responding to a proposed patent policy of the VMEbus International Trade Association (VITA).¹⁵⁶ The Division described the policy as being intended to “reduce the likelihood of unexpected licensing terms that threaten the success of future VITA standards” and “to expand the scope of competition between alternative technological solutions during the standard setting process.”¹⁵⁷ The policy requires each member of any standard-setting group to identify all patents or patent applications known and believed to be essential to the implementation of the standard.¹⁵⁸ Further, the patent holder “must declare the maximum royalty rates and most restrictive non-royalty terms” that the patent holder will request for any essential patents.¹⁵⁹ If a patent holder fails to disclose the most restrictive licensing terms within the period required by the policy,¹⁶⁰ then that patent holder will be deemed to have “represent[ed] to license the essential claims of the undisclosed patent for implementation of the VITA standard to all interested parties on a royalty-free basis.”¹⁶¹

¹⁵⁵ *Id.* (“[W]hen the goal of the negotiation is to procure a patent license that will enable the practice of the standard, . . . the members can be thought of as negotiating for the standard itself.”).

¹⁵⁶ Letter from Thomas O. Barnett, Assistant Attorney Gen., U.S. Dep’t of Justice, to Robert A. Skitol, Esq., Drinker, Biddle & Reath L.L.P. (Oct. 30, 2006), available at <http://www.usdoj.gov/atr/public/busreview/219380.pdf> (Business Review Letter Reviewing VITA patent policy) [hereinafter *VITA Business Review Letter*].

¹⁵⁷ *Id.* at 4.

¹⁵⁸ *Id.*

¹⁵⁹ *Id.* The policy actually refers to working group members who represent companies that own the patents. Effectively, the patent holder must disclose these terms.

¹⁶⁰ This period is 60 days from the time that the working group on the standard is formed. *Id.* at 6.

¹⁶¹ *Id.*

On April 30, 2007, the Antitrust Division issued a business review letter responding to the proposed patent information policy of the IEEE and its Standards Association (the IEEE-SA).¹⁶² The IEEE-SA proposed a patent information policy whereby patent holders can choose to submit a “letter of assurance” to the IEEE-SA, which can contain varying degrees of commitment to particular licensing terms.¹⁶³ A patent holder would be able to reply to a request by the IEEE by not responding at all, by responding that it does not own any patents that may be essential to the standard, by waiving any claims that may arise, or by agreeing to licensing terms and/or royalty rates that are reasonable and nondiscriminatory.¹⁶⁴ Any letter of assurance would bind all present and future owners of the patented technology, would be irrevocable, and would apply for the life of the standard at issue.¹⁶⁵

In response to the patent disclosure policies proposed by VITA and the IEEE, the Antitrust Division announced that, “unless the standard setting process is used as a sham to cloak naked price fixing or bid rigging, the Department analyzes action during the standard setting process under the rule of reason.”¹⁶⁶ The Division’s starting assumption is that the standard-setting process is procompetitive. But that also appears to be its ending assumption, for the business review letters fail to supply persuasive analysis that the VITA and IEEE policies are indeed procompetitive.

Judge Richard Posner has observed that in markets with few rather than many sellers “the inference is stronger that complete certainty as to the actual transaction prices of competitors is sought primarily to facilitate cartelization.”¹⁶⁷ The same reasoning applies to exchanges of purchase price information among few rather than many buyers. Furthermore, cartels are more likely when products are homogenous.¹⁶⁸ The fact that SSOs exist to facilitate product homogenization underscores the need for the Antitrust Division to conduct a rigorous analysis of the positive and negative effects of information sharing among competing licensees. It is therefore surprising that the Antitrust Division’s analysis of these two proposed patent information policies only briefly mentions the risk of buyer collusion.

¹⁶² Letter from Thomas O. Barnett, Assistant Attorney Gen., U.S. Dep’t of Justice, to Michael A. Lindsay, Esq., Dorsey & Whitney L.L.P. (Apr. 30, 2007), available at <http://www.usdoj.gov/atr/public/busreview/222978.pdf> (Business Review Letter Reviewing an IEEE-SA Patent Information Policy) [hereinafter *IEEE Business Review Letter*].

¹⁶³ *Id.* at 5–6.

¹⁶⁴ *Id.*

¹⁶⁵ *Id.* at 7.

¹⁶⁶ *Id.* at 8; *IEEE Business Review Letter*, *supra* note 162, at 9.

¹⁶⁷ RICHARD A. POSNER, *ANTITRUST LAW* 86–87 (2d ed. 2001).

¹⁶⁸ *See id.* at 75 (“The less standardized (more customized) a product is, in the sense that its specifications differ in important respects from purchase order to purchase order rather than being uniform across orders, the more difficult it will be for the sellers of the product to collude effectively.”).

At first, it would appear that this lack of emphasis on collusion reflects the specific SSO policies being proposed. VITA's policy explicitly prohibits joint negotiation by licensee buyers, and the Antitrust Division uses that prohibition to dismiss the risk of collusion by buyers.¹⁶⁹ The Division states that the "proposed policy should not permit licensees to depress the price of licenses for patented technologies through joint action because it prohibits any joint negotiation or discussion of licensing terms among the working groups members or with third parties at all [standards development subcommittee] and working group meetings."¹⁷⁰ However, the Antitrust Division adds that, even if such information exchange occurred, it would likely reach the same conclusion about the applicability of the rule of reason: "If the proposed policy did allow such negotiations and discussions, the Division likely would evaluate any antitrust concerns about them under the rule of reason because such actions *could* be procompetitive."¹⁷¹ The Division then, in effect, assumes away the problem of facilitation of collusion, as opposed to the problem of explicit collusion:

[W]orking group members will not set actual licensing terms. The patent holder and each prospective licensee will negotiate separately, subject only to the restrictions imposed by the patent holder's unilateral declaration of its most restrictive terms.¹⁷²

The Antitrust Division chooses to ignore that "the patent holder's unilateral declaration of its most restrictive terms" is not really a unilateral act at all. Rather, that declaration is the predictable response to a new rule—which could have been adopted only through the collective action of a sufficient number of SSO members—that implies that the patent holder's technology will be rejected for the standard in absence of such a declaration. Moreover, for the Antitrust Division to say that "each prospective licensee will negotiate separately" is to ignore that the bargaining power of each such licensee has grown due to the collective action that produced the rule change that now implicitly threatens a boycott of the patent holder's technology unless its most restrictive licensing terms are disclosed for all prospective licensees to see before commencing their various bilateral negotiations with the patent holder. If the patent holder faces a FRAND obligation, it cannot charge different prices to similarly situated licensees. Thus, the patent holder will have little incentive to deviate from its most restrictive licensing terms in the various bilateral negotiations. Consequently, the common expectation of both the licensor and all prospective licensees will be that all of the various bilateral negotiations will yield the same, "most restrictive" prices, terms, and conditions for the patented input. As Lemley has observed, "collusion

¹⁶⁹ VITA Business Review Letter, *supra* note 156, at 9.

¹⁷⁰ *Id.* § IV, at 7.

¹⁷¹ *Id.* § IV n.27 (emphasis added).

¹⁷² *Id.* § IV, at 7.

is most likely to succeed when each cartel member can observe the prices and terms used by other cartel members.”¹⁷³

Similarly, in its review of the IEEE’s policy, the Antitrust Division circumvents the question of whether the rule change will facilitate collusion by noting that the IEEE has “not requested, and we are not providing, the Department’s views on joint negotiations that might take place inside or outside such standards development meetings or IEEE sponsored meetings.”¹⁷⁴ This statement, however, merely underscores that the Antitrust Division chooses to avert its eyes from the elephant in the corner: the significant risk that proposals to exchange information among oligopsonists in an SSO will facilitate explicit or tacit collusion.

With respect to both business review letters, the Antitrust Division’s analysis of the risk of facilitation of oligopsonistic collusion ignores the admonition of Phillip Areeda and Herbert Hovenkamp that, “[i]n rare cases a concerted facilitating practice should be treated as a conspiracy on the facilitated matter.”¹⁷⁵ As an example (based on the facts of *United States v. Champion International*¹⁷⁶), Areeda and Hovenkamp posit a group of competitors tacitly colluding to rotate bids for the purchase of timber-cutting rights. The competitors’ objective is to refrain from bidding against one another and driving up the price of those rights. That objective resembles the objective of licensees of patented technology in an SSO—they, too, want to refrain from bidding up the price of an important input. In their example, Areeda and Hovenkamp emphasize that, when there are “periodic meetings at which each [competitor] party discloses . . . information [that] would enable” the bid rotation scheme to work, “[t]he meetings . . . facilitate this noncompetitive result.”¹⁷⁷ In that situation, Areeda and Hovenkamp conclude, “[w]e can treat the meeting of minds on the decision to have meetings of this sort as also a meeting of minds on that which clearly resulted from those meetings.”¹⁷⁸

The VITA and IEEE business review letters provide no guidance as to the propriety of joint negotiations by buyers and the risks of collusion by licensees that can result from such facilitating practices. Nor does the Antitrust Division provide any analysis that demonstrates that the information

¹⁷³ 2 HOVENKAMP, JANIS & LEMLEY, *supra* note 77, § 30.4, at 30–26.

¹⁷⁴ *IEEE Business Review Letter*, *supra* note 162, at 11. It is significant that, unlike the VITA policy, the IEEE policy did not contain a blanket prohibition of joint *ex ante* discussions regarding the relative costs of specific technologies. However, the IEEE policy did preclude *ex ante* discussions of “specific” license terms. The Antitrust Division did not explain how this difference would affect the analysis or why an *ex ante* discussion of license prices would not in fact pose an anticompetitive concern.

¹⁷⁵ 6 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 1407c at 34 (2d ed. 2003). See also George A. Hay, *Facilitating Practices*, in *ABA SECTION OF ANTITRUST LAW, ISSUES IN COMPETITION LAW AND POLICY* 1189 (2008).

¹⁷⁶ 557 F.2d 1270 (9th Cir. 1977).

¹⁷⁷ 6 AREEDA & HOVENKAMP, *supra* note 175, ¶ 1407c at 34.

¹⁷⁸ *Id.*

exchanges in the VITA and IEEE policies will *not* facilitate collusion. VITA's policy may prohibit joint negotiations, and the IEEE may not have asked for a review of joint negotiations. But neither fact establishes that the particular type of information exchange that is being allowed—indeed, the information sharing that is *required* by the VITA policy—will not facilitate collusion by licensee buyers within those SSOs. The Antitrust Division curiously ignores that one might appropriately treat a meeting of minds among prospective licensees on the need to amend their SSO's rules in the manner that VITA and the IEEE have done as a meeting of minds on the need to suppress the price paid to the licensor for the right to use its patented technology.

It is also curious that the Antitrust Division's two business review letters contain no discussion of, or citation to, the SDOAA. The Division does refer to "standards development organizations" rather than "standards settings organization," and in this sense the agency may be understood to reference a term of art specifically defined by the SDOAA.¹⁷⁹ But the Division does not explicitly refer to the SDOAA, and in its letters' "Agency Analysis" section the Division does not assess whether VITA and the IEEE-SA qualify as SDOs and whether their proposed activities merit rule-of-reason scrutiny under the provisions of the SDOAA. It is puzzling that the Division's business review letters neglected, as an initial matter, to state that VITA and the IEEE-SA met the requirements of the SDOAA before determining that rule-of-reason scrutiny should be used to evaluate their proposed rule changes, for Congress expressly intended the SDOAA to be used to assess an SDO's policy on *ex ante* discussions of licensing terms.¹⁸⁰

In short, the Antitrust Division's VITA and IEEE business review letters are insufficiently concerned about the danger of oligopsonistic collusion in SSOs. That lack of concern is troubling because there is an established body of economic research on the behavior and effects of buyers' cartels generally,¹⁸¹ and because there are more litigated cases of collusion among buyers, in all types of markets, than there are documented cases of patent

¹⁷⁹ See *VITA Business Review Letter*, *supra* note 156, at 1; *IEEE Business Review Letter*, *supra* note 162, at 9.

¹⁸⁰ See 15 U.S.C. § 4301(a)(7) (defining "standards development activity" to include "actions relating to the intellectual property policies of the standards development organization"); see also H.R. REP. 108-125, at 10 (2003) ("[The SDOAA] seeks to encourage disclosure by intellectual property rights owners of relevant intellectual property rights and proposed licensing terms. It further encourages discussion among intellectual property rights owners and other interested standards participants regarding the terms under which relevant intellectual property rights would be made available for use in conjunction with the standard or proposed standard.").

¹⁸¹ For example, agriculture is one industry especially affected by the phenomenon of buyer collusion. See, e.g., R.J. Sexton & M. Zhang, *A Model of Price Determination for Fresh Produce with Application to California Iceberg Lettuce*, 78 AM. J. AGR. ECON. 924 (1996); T. Richards, P. Patterson & R. Acharya, *Price Behavior in a Dynamic Oligopsony: Washington Processing Potatoes*, 83 AM. J. AGR. ECON. 259 (2001).

holdup. Nonetheless, the Antitrust Division and the FTC defend the rule-of-reason approach in this setting because they believe that it best balances increased future competition against decreased current competition.¹⁸² It is hard to understand how the antitrust agencies have such confidence in their abstract ability to balance dynamic and static efficiency in the SSO context when their own merger guidelines reject the view that reliable predictions about market power and efficiencies from collaboration among rivals can extend further than two years into the future.¹⁸³

I. The D.C. Circuit's Skepticism of Patent Holdup in *Rambus*

In its April 2008 decision in *Rambus Corp. v. Federal Trade Commission*, the D.C. Circuit cast serious doubt on the patent-holdup conjecture.¹⁸⁴ Rambus owned patent interests that were ultimately incorporated into an industry standard for dynamic random access memory (DRAM).¹⁸⁵ Rambus participated in the standard setting, but it allegedly did not fully disclose the extent of its patent interests (including issued patents and pending patent applications) or plans to amend earlier patent applications to

¹⁸² See DOJ/FTC IP REPORT, *supra* note 111, at 52–53.

¹⁸³ See DOJ/FTC HORIZONTAL MERGER GUIDELINES § 3.2 (1997). In his separate statement accompanying the AMC's report, Commissioner Makan Delrahim expressed concern over the potential for *ex ante* negotiations to "ultimately result in reduced innovation." AMC REPORT, *supra* note 113, at 407 (separate statement of Commissioner Delrahim). He observed that "any joint discussions, negotiations, and setting of royalty and other licensing terms may reduce any procompetitive benefits of the standards process and raise risks of collusive exercise of monopsony or oligopoly power." *Id.* at 408. He endorsed "the continued application of a *per se* rule to ensure that there will not be a collusive buyers' cartels [sic]." *Id.* at 409 (citing *Mandeville Farms v. American Crystal Sugar Co.*, 334 U.S. 219 (1948); *National Macaroni Mfrs. Ass'n v. FTC*, 345 F.2d 421 (7th Cir. 1965)). Commissioner Delrahim further observed that "[t]he VITA and IEEE-SA policies are not only changing the way standard-setting organizations operate, but also may be tilting the process in favor of IPR users at the expense of IPR owners, and perhaps to innovation itself." *Id.* at 410. In his assessment, oligopsonistic collusion could result:

The result could be a classic "buyers' cartel" exercising *per se* unlawful market power with the effect of: (1) reducing the incentive to innovate both in core technologies and complementary applications; (2) depriving consumers of products based upon superior technology; (3) artificially lowering return on investment to IPR owners below market rates; and (4) ultimately increasing costs to consumers of products resulting from standardization efforts.

Id. at 410. Deputy Assistant Attorney General Gerald F. Masoudi similarly argued that, although he believed that the VITA and IEEE policies did not directly pose such a problem, the SSO policies under scrutiny "could drive down the rewards to patent holders, thereby reducing innovation incentives, which is a serious argument." Gerald F. Masoudi, Deputy Assistant Attorney General, Antitrust Division, U.S. Department of Justice, Address at the Annual Comprehensive Conference on Standards Bodies and Patent Pools, Law Seminars International, Objective Standards and the Antitrust Analysis of SDO and Patent Pool Conduct (Oct. 11, 2007), at 14–15.

¹⁸⁴ *Rambus Inc. v. FTC*, 522 F.3d 456 (D.C. Cir. 2008).

¹⁸⁵ *Id.* at 459.

add related claims.¹⁸⁶ The FTC found that Rambus deceptively failed to disclose its patent interests to the SSO and thus violated section 2 of the Sherman Act.¹⁸⁷ The FTC stated its monopolization holding in the alternative: the deception enabled Rambus either to acquire a monopoly in the standardized technology *or* to charge higher prices than it otherwise could.

The D.C. Circuit reversed.¹⁸⁸ Writing for the court, Judge Stephen Williams found that the latter theory of liability—nondisclosure in a standard-setting proceeding to reap additional profits—does not describe antitrust harm.¹⁸⁹ Without a showing that competition suffered, the claim must fail.¹⁹⁰ Judge Williams stressed that “an otherwise lawful monopolist’s end-run around price constraints, even when deceptive or fraudulent, does not alone present a harm to competition in the monopolized market.”¹⁹¹ Citing *Microsoft and Trinko*, he observed that the prerequisite for a finding of liability under section 2 is harm to the competitive *process*, rather than to individual competitors.¹⁹² Because the FTC conceded that the SSO might have standardized the Rambus technologies even if the company had made a fuller disclosure, the D.C. Circuit concluded that the primary consequence of nondisclosure was merely a missed chance to secure RAND commitments: “Rambus’s alleged deception cannot be said to have had an effect on competition in violation of the antitrust laws; [the SSO’s] loss of an opportunity to seek favorable licensing terms is not as such an antitrust harm.”¹⁹³

More fundamentally, the D.C. Circuit rejected the economic logic by which patent holdup would supposedly facilitate monopolization. Judge Williams observed that, had the SSO “limited Rambus to reasonable royalties and required it to provide licenses on a nondiscriminatory basis, we would expect less competition from alternative technologies, not more; high prices and constrained output tend to attract competitors, not to repel them.”¹⁹⁴ As Judge Williams emphasized, this reasoning directly follows from the Supreme Court’s 1998 decision in *NYNEX Corp. v. Discon, Inc.*: “an otherwise lawful monopolist’s use of deception simply to obtain higher prices normally has no particular tendency to exclude rivals and thus to diminish competition.”¹⁹⁵

¹⁸⁶ *Id.*

¹⁸⁷ In the Matter of Rambus, Inc., No. 9302 at 118–19 (F.T.C. Aug. 2, 2006), available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>.

¹⁸⁸ *Rambus*, 522 F.3d at 469.

¹⁸⁹ *Id.* at 464.

¹⁹⁰ *Id.*

¹⁹¹ *Id.* at 466.

¹⁹² *Id.* at 463 (quoting *United States v. Microsoft Corp.*, 253 F.3d 34, 58 (D.C. Cir. 2001), and citing *Verizon Commc’ns, Inc. v. Law Offices of Curtis V. Trinko, L.L.P.*, 540 U.S. 398, 407 (2004)).

¹⁹³ *Rambus*, 522 F.3d at 467.

¹⁹⁴ *Id.*

¹⁹⁵ *Id.* (citing *NYNEX Corp. v. Discon, Inc.*, 525 U.S. 128 (1998)). In strikingly blunt terms, the D.C. Circuit implied that the Third Circuit’s decision in *Broadcom Corp. v. Qualcomm*

Given the breadth and rigor of the opinion, *Rambus* has clear relevance to the larger debate over patent holdup. If fraud in the standard-setting process cannot create a serious danger of a cognizable antitrust harm from monopolization, then collusion over royalties by licensees cannot be justified as a lawful counterstrategy of self-help to prevent the patent owner from charging its requested royalty. It follows with even greater force that, if the standard-setting process is free of any taint of fraud by the patent owner, then oligopsonistic collusion cannot credibly be justified as a lawful counterstrategy of self-help.

J. Do Licensees in an SSO Maximize Consumer Welfare When the Antitrust Agencies Permit Them Collectively to Trade Performance for Cost When Selecting a Standard?

A large unstated assumption underlies the Antitrust Division's analysis of buyer collusion in SSOs. What assurance does the Division have that, when a buyers' cartel in an SSO successfully reduces the price to be paid for a patented technology adopted as the standard, consumers of the downstream product will value the price reduction (assuming, heroically, that the buyers' cartel passes through the entire cost savings) more than the forgone

Inc., 501 F.3d 297 (3d Cir. 2007), was wrongly decided: "to the extent that it may have rested on a supposition that there is a cognizable violation of the Sherman Act when a lawful monopolist's deceit has the effect of raising prices (without an effect on competitive structure), it conflicts with *NYNEX*." *Rambus*, 522 F.3d at 466.

In December 2008, a group of law professors and economists, acting as *amici curiae* in support of the FTC on petition for certiorari in the Supreme Court, disputed the D.C. Circuit's reading of *NYNEX*, arguing that the alleged conduct by *Rambus* is "entirely different." See Brief for Twenty Scholars as *Amici Curiae* in Support of Petitioners at 9–10, Fed. Trade Comm'n v. *Rambus Inc.* (No. 08-694) (Dec. 29, 2008). The *amici* argued that *NYNEX* applies to group boycott under section 1 of the Sherman Act, but not to claims of monopolization under section 2. *Id.* at 9 (citing *Klors, Inc. v. Broadway-Hale Stores, Inc.*, 359 U.S. 207, 212 (1959)). They further argued that *NYNEX* involved deception of a public utility commission, rather than deception of standard setting organizations—which, they assert, "function as markets." *Id.* at 10. The *amici* law professors and economists in the *Rambus* appeal, however, did not satisfactorily explain why deception in a standard setting context would have an analytically different effect on competition from deception of the sort that the Supreme Court addressed in *NYNEX*. Moreover, the *amici* ignored that standard setting bodies often perform regulatory functions—functions that specifically receive qualified antitrust liability through federal legislation.

As an aside, it is interesting that the characterization by the *amici* of SSOs as "markets" conflicts with the argument—made by other proponents of the patent holdup conjecture and with whom I also disagree—that the members of an SSO function as an individual firm for purposes of antitrust analysis. See text accompanying notes 152–53 *supra*. A firm is not a market. See Ronald H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386 (1937). Consequently, it would be impossible for an SSO simultaneously to be both a firm and a market for purposes of antitrust analysis. Properly characterized, an SSO is neither—it is, instead, a group of independent firms acting in concert.

increment of product performance that would have resulted if the SSO's members had selected the standard solely on the basis of its technical quality? The answer to this question speaks to whether a court could plausibly conclude on *a priori* grounds that joint negotiation of *ex ante* royalty rates by licensees in an SSO unambiguously increases consumer welfare on balance, as is required of a successful efficiency defense under the rule of reason.

One key objective of the IEEE-SA “working groups” charged with drafting new standards is to devise standards that guarantee the quality of end-products ultimately disseminated to end-users. The quality of an end-product is critically dependent on the quality of the technology inputs that the working groups select for implementation of a standard. However, there are considerations other than the quality of technology. One such consideration is the cost incurred in the process of acquiring the rights to use the technology necessary to implement a standard. Under the prior IEEE-SA policy, standard-setting decisions did not incorporate information concerning the costs of acquiring the rights to patented technologies. Thus, the standard-setting process, by design, placed relatively little weight on cost; instead, it focused on purely technical attributes of the standard in question. To a first approximation, the working groups sought primarily to optimize the quality of technology used to implement the standard. However, the IEEE-SA’s proposed patent information policy would allow working groups to accumulate and share information regarding the costs of patented technologies, and to incorporate that information into their standard-setting decisions. Therefore, the IEEE-SA’s revised policy places increased emphasis on licensing cost at the expense of technological superiority.¹⁹⁶

The importance to product quality of the IEEE-SA’s revised policy is that, everything else being equal, the more technologically intensive is a proposed standard, the higher are the expected licensing costs for patent claims. This effect occurs through two basic channels. First, a larger number of patents implies higher expected costs, everything else being equal. Second, more sophisticated or advanced technologies will command higher royalty rates on average. Therefore, if the quality of an end product is positively related to the amount of licensed technology required to produce that product, then higher quality products are also more costly.

Because the IEEE-SA’s revised patent policy allows licensees to report the maximum royalty rate that they would demand for their patented

¹⁹⁶ For an example of how a change in organizational priorities changes an economic agent’s optimal decision making, see David E. M. Sappington & J. Gregory Sidak, *Competition Law for State-Owned Enterprises*, 71 ANTITRUST L.J. 479 (2003); David E.M. Sappington & J. Gregory Sidak, *Incentives for Anticompetitive Behavior by Public Enterprises*, 22 REV. INDUS. ORG. 183 (2003).

technology and also allows IEEE working groups to discuss royalty rates when constructing standards, the revised policy represents a significant shift toward cost consciousness. To achieve a standard that will have lower expected cost, a shift from more valuable to less valuable patented technology will occur at the margin. Suppose an SSO is considering two patented technologies that could be used as inputs into a standardized product. The first input is more advanced and is therefore more valuable than the second input, both in terms of the quality of the end product that would be created from its inclusion in the standard and in terms of the expected royalty rate that it will likely command. If the SSO were chiefly concerned with the quality of the end product, it would likely choose to include the first input rather than the second input in the standard. The more weight that the SSO places on cost-consciousness, however, the more likely it is to favor the second input. The result of an SSO's emphasizing cost over quality is to lower the expected quality of the standards that the SSO formulates.

Ordinarily, a profit-maximizing firm does not harm consumers when it takes its own costs into account. But an SSO is not a firm. Instead of having customers in the ordinary sense, the IEEE-SA has the duty to set standards affecting a very broad base of potential beneficiaries. The standard-setting process generates a technological platform intended for widespread adoption by producers and consumers of complementary innovations. The ultimate beneficiaries of the standard-setting process consist of those who adopt end products whose value is enhanced by the existence of the standard. Hence, the benefits of the IEEE-SA's technology choices are widespread. It is therefore unclear whether the IEEE-SA considers the welfare of all eventual consumers of its products when it chooses, at the margin, to favor lower-cost inputs at the expense of quality.

The net effect on consumer welfare of the IEEE-SA's revised policy is further called into question when one considers that the IEEE-SA is a monopolist in the creation of standards for wireless communications. If there were no SSO, or if there were multiple SSOs, competing standards might materialize. With substitute technologies available to consumers, they would then be able to choose the technology that best balances cost and quality considerations. Therefore, market forces would determine the eventual standards that are adopted. The IEEE-SA, however, faces no such competition. Consumers of products developed under IEEE-SA standards must rely on IEEE-SA working groups to balance the cost and quality of standardized products properly. There is no guarantee that the IEEE-SA can accurately or appropriately balance those two concerns. Consequently, the IEEE-SA's revised patent policy risks the standardization of products with suboptimal levels of quality, which will diminish the value and quality of end products, to the detriment of consumers.

K. The Competitive Significance of Procedural Safeguards within the SSO to Prevent Expropriation of the Value of Patented Inputs by the Majority

An SSO can adopt governance mechanisms to protect against opportunistic behavior by licensees in the same way that FRAND obligations protect against opportunism by patent holders.¹⁹⁷ Voting rules are one such mechanism. If the voting mechanism is a majority vote, but there are many more members who are potential users of the patented input than there are producers of the patented input (which would be the case if the input truly were an “essential” patent for the standard), then the majority will likely expropriate the patent’s value from the patent owner.¹⁹⁸

Recognition of the need for antimajoritarian protections is familiar in constitutional law and corporate law. In constitutional law, of course, the tyranny of the majority is a standard account of the need for judicial review of statutes enacted by democratically elected legislatures.¹⁹⁹ With respect to constitutional text itself, the ability of the majority to expropriate the property of the minority is constrained by, among other things, the Fifth Amendment’s rights to due process and to just compensation for takings of private property for a public purpose.²⁰⁰ In corporate law, familiar rules exist to protect minority shareholders, such as the appraisal remedy, which requires that a forced buyout of minority shareholders occur at the fair market price.²⁰¹ If an SSO adopts VITA-style or IEEE-style rules but lacks procedural and arbitral rules for preventing licensees’ expropriation of the patent’s value, then those rules become suspect because of their potential to facilitate oligopsonistic collusion. In that case, it becomes considerably less credible that the genuine motivation for joint royalty negotiations by licensees is to avert the market failure attributed to patent holdup.

A strong argument can be made that an SSO’s failure to promulgate and enforce voting rules that prevent expropriation by licensees of the value of patented inputs would, by virtue of the SDOAA, automatically cause any information exchange among competing licensees to be scrutinized under the *per se* rule rather than the rule of reason. The absence of antimajoritarian

¹⁹⁷ See, e.g., Mario Calderini & Andrea Giannaccari, *Standardisation in the ICT Sector: The (Complex) Interface Between Antitrust and Intellectual Property*, 15 ECON. INNOV. NEW TECH. 543, 554 (2006).

¹⁹⁸ Brian DeLacey, Kerry Herman, David Kiron, and Josh Lerner use the example of the IEEE to show that, even with a requirement that 75% of those present vote for a standard, large companies could “pack” the voting group to pass standards more favorable to their interests. See Brian DeLacey, Kerry Herman, David Kiron & Josh Lerner, *Strategic Behavior in Standard-Setting Organizations* 7–8 (Sept. 1, 2006).

¹⁹⁹ See, e.g., JOHN HART ELY, *DEMOCRACY AND DISTRUST* (1980).

²⁰⁰ U.S. CONST., amend. V.

²⁰¹ See, e.g., J. Gregory Sidak & Susan E. Woodward, *Takeover Premiums, Appraisal Rights, and the Price Elasticity of a Firm’s Publicly Traded Stock*, 25 GA. L. REV. 783 (1991).

safeguards would constitute a lack of “balance of interests” and “due process,” which the SDOAA expressly requires for an entity to be deemed a “standards development organization” entitled to rule-of-reason scrutiny and limited antitrust liability.²⁰² This argument has implications as well for the legitimacy of business review letters of the sort that the Antitrust Division rendered to SSOs in 2006 and 2007.

If the congressional expression of one thing is to the exclusion of another, then the Antitrust Division would be skating on thin ice as a statutory matter to opine to an SSO lacking an antimajoritarian safeguard that its adoption of a policy permitting or encouraging *ex ante* royalty negotiations among prospective licensees is properly scrutinized under the rule of reason. The Antitrust Division, circa 2007, may have sincerely embraced that opinion of law as a matter of prosecutorial discretion. But the Division is the enforcer of law. Congress wrote the law on the antitrust treatment to be given standard-setting activities, and the courts ultimately will render the definitive opinion as to the law’s precise meaning. The courts and the Division may interpret the law differently, particularly concerning issues affected by rapid technological change, as evidenced by the fact that the Division in recent memory has lost at least one prominent case that it chose to litigate in a high-technology industry.²⁰³ The Division’s business review letters therefore deserve a critical eye, not genuflection. The Antitrust Division’s VITA and IEEE business review letters contain no discussion of whether the proposed change to SSO rules is accompanied by any antimajoritarian safeguard against expropriation of the value of a licensor’s patented invention by licensees within the SSO. It necessarily follows that the Division does not provide any analysis of whether the voting procedures or other safeguards within the SSO will, with respect to the adoption of the proposed rule change, respect a “balance of interests” and afford “due process,” as the SDOAA requires (among other factors) for an entity to qualify as an SDO entitled to rule-of-reason scrutiny and limited antitrust liability.²⁰⁴

IV. IS A PASS-THROUGH OF COST SAVINGS TO CONSUMERS A LEGITIMATE JUSTIFICATION FOR OLIGOPSONISTIC COLLUSION BY LICENSEES?

One justification offered in defense of oligopsonistic collusion by licensees within an SSO is the assertion that the lower license fees extracted from patent owners will be passed on to consumers of the downstream product.

²⁰² 15 U.S.C. § 4301(a)(8).

²⁰³ *See, e.g., United States v. Oracle Corp.*, 331 F. Supp. 2d 1098 (N.D. Ca. 2004) (unsuccessful Antitrust Division lawsuit to block merger of two business software companies).

²⁰⁴ 15 U.S.C. § 4301(a)(8).

On economic grounds, this assertion must be rigorously tested and verified before one can determine whether any significant pass-through to consumers exists. To calculate the amount of consumer benefits from a lower patent royalty, several factors must be considered. These factors include the form of the royalty (whether it is a fixed fee per licensee, a per unit fee, or a percentage of sales); the demand and supply elasticities facing the licensees; and the structure of any industries further downstream between the manufacturer and the final consumer, such as final-assemblers or retailers (in the computer industry) or network operators (as in wireless telephony). Finally, a countervailing inefficiency resulting from artificially low royalty payments must be weighed against these putative gains from horizontal collusion. Beyond these economic considerations, there is the simple legal response that antitrust jurisprudence has long rejected justifications offered in defense of naked price fixing.

A. The Form of Patent Royalties

The investigation must first ask whether the royalty is a fixed fee per licensee or an *ad valorem* fee.²⁰⁵ This distinction is important because fixed fees reduce a licensee's profits, but have no effect on the marginal cost of production. Thus, if the royalty is a fixed fee, reduced fees will only reach the consumer through potential firm entry. A lower fixed fee might induce more firms to license the patent, and thus the final market might be more competitive or feature wider product choice. However, understanding whether firms might enter requires an examination of barriers to entry in the market and an assessment of potential profits upon entry, as well as a consideration of whether potential entrants exist. All of these considerations are empirical questions in their own right. We must also consider whether the additional entry is socially desirable—for example, in their article on inefficient entry, Gregory Mankiw and Michael Whinston discuss circumstances in which, because an entering firm may divert business from existing firms, the entering firm's incentives for entry are stronger than the social ones.²⁰⁶ Finally, the investigation must consider the possibility that the patent holder, in maximizing profit, has set the fixed royalty fee such that all potential entrants find it profitable to enter. In this case, collusive negotiations by licensees serve only to transfer wealth between licensor and licensee.

Since an *ad valorem* fee changes the licensee's marginal cost of production, licensees are more likely to pass royalty decreases on to the consumer when those licenses achieve a reduction in *ad valorem* royalties. The benefit to consumers, however, from this royalty depends on the supply and

²⁰⁵ A royalty consisting of a per-unit fee would have a similar effect on marginal costs as an *ad valorem* royalty.

²⁰⁶ N. Gregory Mankiw & Michael D. Whinston, *Free Entry and Social Inefficiency*, 17 RAND J. ECON. 48, 48–58 (1986).

demand elasticities faced by the licensee. I discuss empirical analysis of these product markets below.

A final practical concern involves mixed contracts—royalty arrangements consisting of a fixed fee and an *ad valorem* or per-unit fee. Research by Alain Bousquet, Helmuth Cremer, Marc Ivaldi, and Michel Wolkowitz²⁰⁷ describes the licensing practices of CNET, the research center of France Telecom, and reports that 63 percent of its total licensing portfolio in 1990 consisted of contracts having a fixed fee combined with an *ad valorem* royalty. When licensees in an SSO engage in joint *ex ante* negotiation with a patent owner, if the parties use a mixed contract it is not clear which part of the contract will yield the reduced royalties. Thus, there is no way to know whether the negotiation will result in a reduction in marginal cost.

B. Markets for Intermediate Products and the Structure of Downstream Industries

If one were to establish that a royalty reduction would lead to a decrease in licensees' marginal costs of production, one must then determine the portion of the reduction in marginal cost that will be reflected in the price of the final product. For simple products not involving the production of intermediate goods, this calculation requires one to estimate firm-specific demand and supply elasticities. The reduction in price as a function of the supply and demand elasticities can then be calculated. The general result, however, is that consumers will receive more of the surplus when demand is more inelastic than supply. Although this exercise may be simple in a theoretical sense, the estimation of supply and demand elasticities requires a rich dataset involving product prices, consumption, consumer characteristics, and firm costs. These data, however, are unlikely to be available for a product that has yet to be introduced to the market. Therefore, an extrapolation must be made from data available for related products and firms that are already in existence.

The literature on merger efficiencies addresses a related problem: will merging firms pass on merger-related cost reductions to consumers of their products?²⁰⁸ Paul Yde and Michael Vita surveyed this literature in 2006 and summarized its conclusion as being that, in simple (single-stage) markets, the size of the passed-through cost reduction is directly related to the market power of the combined firm.²⁰⁹ A competitive firm, being a price taker

²⁰⁷ Alain Bousquet, Helmuth Cremer, Marc Ivaldi & Michel Wolkowitz, *Risk Sharing in Licensing*, 16 INT'L. J. INDUS. ORG. 535, 535–54 (1998).

²⁰⁸ See, e.g., Gregory Werden, Luke Froeb & Steven Tschantz, *The Effects of Merger Efficiencies on Consumers of Differentiated Products*, 1 EUR. COMPETITION J. 245 (2005); Adriaan ten Kate & Gunnar Niels, *To What Extent Are Cost Savings Passed On to Consumers? An Oligopoly Approach*, 20 EUR. J.L. & ECON. 323 (2005).

²⁰⁹ Paul Yde & Michael Vita, *Merger Efficiencies: The "Passing-On" Fallacy*, ANTITRUST, Summer 2006 at 59, 62–63.

rather than a price maker, has a minimal effect on market prices even as it increases output in response to a cost decrease. A monopolist, on the other hand, can and will pass through a part of any cost reductions it receives; after small reductions in (constant per-unit) marginal costs, prices will decrease by an amount equal to one half of the reduction in marginal cost.²¹⁰

The essential framework of this analysis can be applied to the pass-through of marginal cost reductions due to oligopsonistic collusion. However, in mergers the cost reductions accrue only to the merging firms, and under oligopsonistic collusion in a setting such as patent licensing in an SSO, multiple firms may receive the reduction (and as a result increase output). Thus, it is necessary to extend the logic of the merger-impact models somewhat. Assuming that all firms in an industry would receive a cost reduction, these models imply that prices would decrease by one-half of the amount of the cost reduction in a monopolistic industry, and by the full amount of the cost reduction in a fully competitive industry. The models also imply that, in single-stage markets, oligopsonistic colluders would keep (as profit) some fraction greater than zero but less than one-half of the cost reduction.

More complex industry structures can further complicate calculation of the amount of a royalty reduction that will be passed through to downstream consumers. Many products based on licensed patents are sold as inputs to other firms, so that the reduction in price depends not only on the intermediate product's supply and demand elasticities, but on the supply and demand elasticities for each final product. Additionally, either the licensee or the downstream firm may sell together multiple products that are related—that is, the products are either complements or substitutes. A multiproduct firm of this sort will, if possible, resort to a strategy of Ramsey pricing to recover its sunk costs. For example, Crandall and Sidak examine this issue of Ramsey pricing²¹¹ in their analysis of regulation of mobile termination fees.²¹² Consider a firm selling multiple, complementary products (for example, cellular telephone handsets and airtime) where one product has more price-elastic demand than the other. The firm will depart from marginal cost pricing—raising prices on the product with relatively inelastic demand (airtime) and lowering prices on the product with relatively elastic demand (handsets). Although wireless network operators face large fixed, per-subscriber costs and low variable, per-minute costs, they traditionally have charged their consumers almost nothing upon signing up (heavily

²¹⁰ *Id.* at 63.

²¹¹ The original concept of Ramsey pricing relates to socially optimal pricing for regulated multiproduct industries, but the logic also extends to profit-maximizing, unregulated industries.

²¹² J. Gregory Sidak & Robert W. Crandall, *Should Regulators Set Rates to Terminate Calls on Mobile Networks?*, 21 YALE J. ON REG. 261, 261–314 (2004).

subsidizing handsets, in fact), and recoup all of their costs in the form of variable charges (wireless airtime).²¹³

Suppose that a firm sells a product *A* and a service contract *B*. Because of consumer credit constraints, product *A* (an upfront equipment purchase) has an own-price elasticity of demand equal to -5 . Service contract *B*, because of consumer discount of future payments, has an own-price elasticity of demand equal to -1 . *A* and *B* are complements, because using the firm's service requires both the product and the service contract. However, because consumers are more sensitive to current expenditures than to future ones, at any given price the firm can increase its flow of new subscribers by changing its prices. Suppose that when the price of product *A* is \$100, and the present value of the service contract *B* payments is \$100, the firm signs up 100 new subscribers per week. By lowering the price of product *A* by one percent, the firm gains five percent more subscribers per week. If the firm also raises the price of service contract *B* by one percent, the firm achieves revenue per customer equal to the original amount of \$200, but only loses one subscriber, and thus gains four customers per week overall. As long as the firm does not wish to charge a negative price, continuing this logic leads the firm to set a price of \$0 for product *A* and to compensate for the forgone revenue by charging a higher markup on service contract *B*.²¹⁴

Note that the price of the upfront product is \$0 regardless of its marginal cost. This pricing strategy arises because consumers are more sensitive to upfront payments for equipment than to future payments for service contracts. In the wireless services industry, many handsets are priced at \$0, but almost none is priced below \$0; this disinclination to charge negative prices means that the wireless operator will not pass on small decreases in the wholesale cost of the handset to consumers through handset prices. It is thus apparent that Ramsey pricing has the potential to decouple prices from marginal costs for individual products. In this example, it is possible that marginal-cost savings might lead operators to lower the price of the non-zero-priced product, the service contract. However, because in practice firms offer many varieties of goods *A* and *B*, it would be very difficult to establish what the effect of one particular phone's marginal cost is on the price of a particular service plan. In any case, this effect is yet another empirical question that requires more data and assumptions on the structure of the market.

Ramsey pricing is only one example of an industry feature that might complicate the analysis of royalty rate pass-through to consumers. However,

²¹³ *Id.* at 298.

²¹⁴ Many credit Jerry Hausman with persuading wireless carriers to adopt this pricing strategy. This simple example ignores network effects that arise from adding subscribers and increasing minutes of usage on the wireless network. Those effects reinforce the pricing rule described here.

this example illustrates that one cannot assume that an oligopsonistic rate reduction extracted by patent licensees will benefit consumers in the downstream market.

C. Dynamic Inefficiency

Finally, since the rule of reason is a question of economic efficiency, one must also consider the effect of the inefficiencies that result when one allows oligopsonistic collusion to force patent royalties below their value to licensees. Although the marginal cost of licensing a patent is often very low, such under-pricing can lead to dynamic inefficiency.²¹⁵

Dynamic inefficiency occurs when research and development expenditures are below their optimal levels. In the case of patents, setting royalties below their value to licensees can prevent firms from making positive expected profits on the development of intellectual property. As a consequence, firms would be reluctant to undertake research and development projects if they believe they will be unable to make a positive return on those investments, even in cases where potential licensees value the results of those projects highly. They would either allocate research and development expenditures to other projects, or they would reduce their overall expenditures on research and development. In either scenario, the net benefits to society are reduced.

D. The Irrelevance of the Passing-On Defense as a Matter of Antitrust Jurisprudence

Proponents of rule-of-reason scrutiny for oligopsonistic collaboration in *ex ante* royalty negotiations suggest that resulting reductions in the royalty rates paid by patent licensees would benefit consumers because the licensees would pass some or all of the cost savings along to purchasers of the end product.²¹⁶ The Ninth Circuit considered and rejected such reasoning in 2000 in *Knevelbaard Dairies v. Kraft Foods, Inc.*, a case involving a conspiracy among cheese manufacturers to suppress the price paid to purchase milk.²¹⁷ The cheese manufacturers argued, “in substance, that a conspiracy to depress prices would not harm consumers but benefit them, because reduced milk acquisition costs would mean lower cheese manufacturing costs and, therefore, lower prices for cheese products.”²¹⁸ This argument proves too much. Unlawful conduct is not rendered lawful due merely to the willingness of parties to the enterprise to share some of the proceeds with

²¹⁵ See, e.g., David J. Teece & Edward F. Sherry, *Standards Setting and Antitrust*, 87 MINN. L. REV. 1913, 1931–34 (2003).

²¹⁶ See DOJ/FTC IP REPORT, *supra* note 111, at 55; AMC REPORT, *supra* note 113, at 121.

²¹⁷ 232 F.3d 979 (9th Cir. 2000).

²¹⁸ *Id.* 986–89.

the public. If a group of competitors agreed to ignore environmental and workplace safety regulations, they could conceivably shed costs and pass some of the savings along to consumers in the form of lower prices. But the price to the end users would be a price that failed to reflect the full social cost of consuming the product.

The Antitrust Division has successfully prosecuted oligopsonistic collusion. In the reported cases, one can find no discussion in which a court quantified the potential pass-through to consumers of the reductions in the oligopsonists' marginal costs. Nor can one find any discussion in which the court regarded the possibility of partial or total pass-through of such cost reductions to be relevant to the question of whether liability should be imposed for conspiring to fix input prices.

V. CONCLUSION

Oligopsonistic collusion among licensees in an SSO is a legitimate antitrust concern. Yet, when presented the patent-holdup argument, the Antitrust Division and the FTC strongly incline toward the rule of reason, notwithstanding that the courts have historically condemned horizontal collaboration on pricing as *per se* illegal. That inclination by the antitrust enforcement agencies suggests an implicit, though unexplained, preference for licensees rather than licensors of patented technology.

It is questionable whether this policy of prosecutorial discretion rests on good law and sound economic analysis. Policy revisions that SSOs have proposed in recent years serve to highlight that SSOs are requesting from antitrust authorities the ability to improve their market power *vis-à-vis* owners of patented technologies. Allowing an SSO the ability to request or demand maximum royalty rates from IPR holders and then to discuss those royalty rates during the standard-setting process is troubling when one considers that SSO members who are licensees of that technology may be oligopsonists possessing market power. Put simply, U.S. antitrust authorities have assumed, rather than tested and determined, that the social cost of patent holdup exceeds the social cost of information-sharing policies that facilitate buyer collusion. A more balanced antitrust approach to *ex ante* joint negotiation of royalties within SSOs is appropriate.