

Judging Monopolistic Pricing: F/RAND and Antitrust Injury

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I. Introduction

In *Microsoft Corp. v. Motorola, Inc.*, a United States district court calculated ranges of royalties that Motorola could lawfully charge Microsoft for the use of patents that were essential to the H.264 industry standard for video compression and the 802.11 (Wi-Fi) industry standard for wireless local networking.¹ The standards-setting organizations² (SSOs) had adopted patented technology, including Motorola’s, as part of their standards, but only on the condition that patent owners would charge licensees reasonable and

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¹ *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217, at *1–3 (W.D. Wash. Apr. 25, 2013). This opinion is headed “Findings of Fact and Conclusions of Law” but does not formally separate factual and legal rulings. *Id.* at *1. It deals with both factual and legal issues within divisions based on subject matter: (1) SSOs, (2) the economics and mechanics of calculating reasonable royalties, (3) Motorola’s patents in each of the standards at issue, and (4) the actual calculation of RAND rates. *Id.* at *5–101.

² The Institute of Electrical and Electronics Engineers (IEEE) established the 802.11 standard; the International Telecommunications Union (ITU) established the H.264 standard. *Id.* at *1.

nondiscriminatory (RAND) royalties for standards-essential patents (SEPs).³ Motorola, claiming that Microsoft's products infringed its SEPs, had asked for royalties equal to 2.25% of the revenue from sales of products like Windows and Xbox that use the patents.⁴ Microsoft immediately sued, claiming that Motorola's royalty demand breached its contractual RAND commitments, of which Microsoft was a third-party beneficiary.⁵

In an important opinion, Judge James L. Robart determined the RAND ranges as a step toward resolving the breach of contract claim.⁶ The RAND rates he reached were far below Motorola's original demand.⁷ Judge Robart presented his analysis in the form of a hypothetical bilateral negotiation between a licensee and a patent owner seeking royalties subject to a RAND commitment.⁸ In substance, he directly calculated RAND royalties, guided by a widely held scholarly view of the economic functions of a RAND commitment. In doing so, he closely examined the technology and the market, relying on expert testimony, strong assumptions, and comparable royal-

³ *Id.* Most other organizations and authorities now add "fair" to RAND to produce FRAND, but the terms are interchangeable. In this article, I will follow the usage of the court in the case I am considering.

⁴ *Id.* at *2.

⁵ *See* Microsoft Corp. v. Motorola, Inc., 854 F. Supp. 2d 993, 1002–03 (W.D. Wash. 2012) (holding that Microsoft was a third-party beneficiary of an enforceable obligation, but leaving open the calculation of the RAND royalty). Judge Robart had denied injunctive relief, limiting Microsoft's remedy to a RAND royalty. Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2012 WL 5993202, at *7–8 (W.D. Wash. Nov. 30, 2012). More recently, the court denied Microsoft's motion for summary judgment on its claim for breach of contract. Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 4053225, at *7–9 (W.D. Wash. Aug. 12, 2013) (holding that there were genuine issues of fact on the questions of whether Motorola violated its duty of good faith and fair dealing by its royalty demands or by seeking injunctive relief). *See also* Microsoft Corp. v. Motorola, Inc., 696 F.3d 872, 875 (9th Cir. 2012) (affirming the blocking of German injunctions against Microsoft).

⁶ *Microsoft*, 2013 WL 4053225, at *3 (stating that the court determined "a RAND rate and range to assist the finder-of-fact in determining whether or not Motorola had breached its RAND commitments"). In the August opinion, the court granted in part and denied in part motions for summary judgment by both Microsoft and Motorola on issues related to breach of contract. *Id.* at *19. There was later a jury trial on Microsoft's damage claim. Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 5373179, at *1 (W.D. Wash. Sept. 24, 2013). The court denied Motorola's motions for judgment as a matter of law. *Id.* at *16. A jury awarded Microsoft \$11,492,686 in damages—for its expenses in the relocation of a distribution center to the Netherlands because of Motorola's efforts to seek an injunction in Europe—and \$3,031,720 in attorneys' fees and costs. Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 6000017, at *2 (W.D. Wash. Nov. 12, 2013). Judge Robart later entered a final judgment on Microsoft's contract claim and the court's findings of fact and conclusions of law on the RAND issue, making those determinations immediately appealable. *Id.* at *6. Motorola has appealed the decision to the Federal Circuit. *Microsoft*, 2013 WL 6000017, *appeal docketed*, No. 14-1089 (Fed. Cir. Nov. 15, 2013).

⁷ *Microsoft*, 2013 WL 2111217, at *4.

⁸ *Id.* at *14.

ties, especially those charged by two patent pools he found to be comparable with appropriate adjustments.

Judge Robart's opinion, the first judicial calculation of RAND royalties, established starting points for analysis of the many issues posed by RAND commitments. As one indication of its importance, another district judge followed Judge Robart's approach to determine RAND rates for other patents essential to the Wi-Fi standard—this time, patents owned by a patent assertion entity.⁹ As another indication of the opinion's importance, a leading scholar has already argued bluntly that “Judge Robart's analysis is wrong.”¹⁰ The analysis thus provides a useful occasion to compare its approach to other judicial efforts to control monopolistic prices.

A contractual RAND commitment leaves to the courts the task of deciding what rates are reasonable¹¹—in effect, regulating monopoly pricing. Economists are ordinarily skeptical of any form of official price regulation.¹² Courts themselves often claim to be less well equipped than administrative agencies to calculate reasonable prices.¹³ For example, the Supreme Court has refused, claiming incapacity and an undue risk of unintended consequences, to base the legality of price-fixing agreements on whether the prices fixed were reasonable¹⁴ or to prohibit excessive pricing by a lawful mo-

⁹ *In re Innovatio IP Ventures LLC Patent Litig.*, No. 11-C-9308, 2013 WL 5593609, at *4 (N.D. Ill. Oct. 3, 2013) (“The parties agree that Judge Robart's methodology is appropriate for the court to use here to set a RAND rate in this case.”).

¹⁰ J. Gregory Sidak, *The Meaning of FRAND, Part I: Royalties*, 9 J. COMPETITION L. & ECON. 931, 968 (2013).

¹¹ *Microsoft Corp. v. Motorola, Inc.*, 854 F. Supp. 2d 993, 1001–02 (W.D. Wash. 2012) (“Because the policies leave it to the parties to determine what constitutes a RAND license, when such a genuine disagreement arises . . . the only recourse for the parties is to file a lawsuit in the appropriate court of law.”).

¹² *See, e.g.*, W. KIP VISCUSI ET AL., *ECONOMICS OF REGULATION AND ANTITRUST* 646 (4th ed. 2005) (analyzing energy regulation). The authors conclude that “the imposition of a binding price ceiling reduces social welfare by decreasing the amount exchanged in the market” and “in light of the excess demand, how the good is allocated to consumers can create additional welfare losses.” *Id.*

¹³ *See, e.g., In re N.J. Title Ins. Litig.*, 683 F.3d 451, 457 (3d Cir. 2012) (“The nonjusticiability strand [of the filed rate doctrine] recognizes that federal courts are ill-equipped to engage in the rate making process, which does not depend on whether agencies actually use their superior expertise.”); *Arsberry v. Illinois*, 244 F.3d 558, 562 (7th Cir. 2001) (observing that the filed rate doctrine is based in part “on historical antipathy to rate setting by courts, deemed a task they are inherently unsuited to perform competently”).

¹⁴ *United States v. Trenton Potteries Co.*, 273 U.S. 392, 398 (1927) (“[I]n the absence of express legislation requiring it, we should hesitate to adopt a construction making the difference between legal and illegal conduct in the field of business relations depend upon so uncertain a test as whether prices are reasonable—a determination which can be satisfactorily made only after a complete survey of our economic organization and a choice between rival philosophies.”); *see also United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 221 (1940) (observing that if “the reasonableness of prices” were to “become an issue in every price-fixing case . . . the Sherman Act would soon be emasculated; its philosophy would be supplanted by one which is wholly alien to a system of free competition; it would not be the charter of freedom which its framers intended”); *United*

nopolist.¹⁵ Courts rarely mandate low prices as a remedy for proven monopolization.¹⁶

However, courts do regularly calculate overcharges to purchasers as antitrust injuries attributable to instances of price fixing or monopolization.¹⁷ This article compares Judge Robart's RAND analysis, stripped of its bargaining language, to these determinations of antitrust injury and damages. *Microsoft* involved only a claim for breach of contract.¹⁸ The determination of the RAND ranges was a step in the determination of liability—whether a breach of the RAND commitment occurred—rather than a step in the deter-

States v. Addyston Pipe & Steel Co., 85 F. 271, 291 (6th Cir. 1898) (holding that a bid-rigging association, “however reasonable the prices they fixed, however great the competition they had to encounter, and however great the necessity for curbing themselves by joint agreement from committing financial suicide by ill-advised competition, was void at common law, because in restraint of trade, and tending to a monopoly”).

¹⁵ See *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004) (“The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system. The opportunity to charge monopoly prices—at least for a short period—is what attracts ‘business acumen’ in the first place; it induces risk taking that produces innovation and economic growth.”). As Judge Easterbrook put it, “the antitrust laws do not deputize district judges as one-man regulatory agencies.” *Chi. Prof'l Sports Ltd. P'ship v. Nat'l Basketball Ass'n*, 95 F.3d 593, 597 (7th Cir. 1996).

¹⁶ William H. Page, *Mandatory Contracting Remedies in the American and European Microsoft Cases*, 75 ANTITRUST L.J. 787, 800–01 (2009) (describing how courts mandated information disclosure rather than mandating prices); Case T-167/08, *Microsoft Corp. v. Comm'n*, 2012 E.C.R. 243 (evaluating Microsoft's proposed license agreements for compliance with a previous order to make interoperability information available on RAND terms); William E. Kovacic, *Failed Expectations: The Troubled Past and Uncertain Future of the Sherman Act as a Tool for Deconcentration*, 74 IOWA L. REV. 1105, 1106 n.9 (1989) (citing *Hartford-Empire Co. v. United States*, 323 U.S. 386, 413–18 (1945)) (“A second form of remedy with structural implications in monopolization litigation is compulsory licensing of property rights such as patents, sometimes on a royalty-free basis.”). In several other instances, consent orders have required royalty-free licensing. *E.g.*, William E. Kovacic, *supra* (citing *In re Eli Lilly & Co.*, 95 F.T.C. 538, 546–52 (1980) and *In re Xerox Corp.*, 86 F.T.C. 364, 373–83 (1975)). In *Microsoft*, the final judgments required Microsoft to make the communications protocols in Windows available on reasonable and nondiscriminatory terms, but Microsoft voluntarily chose to suspend all royalties. See William H. Page & Seldon J. Childers, *Measuring Compliance with Compulsory Licensing Remedies in the American Microsoft Case*, 76 ANTITRUST L.J. 239, 248–49 (2009) (discussing Microsoft's royalty holiday and its indefinite extension).

¹⁷ See *infra* Part IV.

¹⁸ Motorola brought a parallel patent infringement action, but the court stayed those proceedings pending resolution of the FRAND issues. *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 6000017, at *1–2 (W.D. Wash. Nov. 12, 2013). In entering final judgment on the contract claims and certifying them for appeal, Judge Robart noted that the contract and patent actions “have been consolidated for all purposes” and raise issues that “are ‘substantially’ the same.” *Id.* at *4. Consequently, the parallel claims and counterclaims “need only be decided once; after appeal, the mirror image claim or counterclaim can be dismissed as moot or otherwise disposed of. Accordingly, the court declines to certify any of the duplicative RAND claims in the patent action.” *Id.*

mination of damages.¹⁹ Nevertheless, the calculation of a RAND rate is parallel in theory, structure, and practice to the calculation of damages for an illegal overcharge under a standard of antitrust injury. Both exercises, moreover, have the goal of creating incentives that enhance social welfare. Paradoxically, this analysis may actually limit the role of antitrust enforcement in the RAND context. Standard-setting and RAND requirements raise antitrust issues,²⁰ but if contract enforcement can protect the antitrust interest, even by drawing insights from antitrust law and economics, then antitrust enforcement becomes correspondingly less necessary or appropriate.

The next part of this article describes the economic function of the RAND mechanism. It then shows in Part III how Judge Robart interpreted the RAND requirement and applied it to Motorola's SEPs. Part IV compares his analysis to the calculation of overcharges caused by monopolistic exclusion.

II. RAND in Theory

The RAND commitment is ambiguous.²¹ For example, the SSOs for the 802.11 and H.264 standards "declined to provide a definition of what constitutes RAND terms" and "do not attempt to determine what constitutes a reasonable royalty rate."²² Some argue that this ambiguity is a serious flaw in the RAND mechanism²³ and have proposed mechanisms to better assure that royalties for SEPs are optimal.²⁴ Others argue that the generality of the

¹⁹ *Id.* at *3.

²⁰ *See, e.g.*, Rambus Inc. v. FTC, 522 F.3d 456, 459 (D.C. Cir. 2008); Broadcom Corp. v. Qualcomm Inc., 501 F.3d 297, 314 (3d Cir. 2007); *see also* George S. Cary et al., *The Case for Antitrust Law to Police the Patent Holdup Problem in Standard Setting*, 77 ANTITRUST L.J. 913, 924 (2011) (arguing that antitrust is the preferable regulatory regime for controlling hold-up by SEPs); Joseph Kattan, *FRAND Wars and Section 2*, 27 ANTITRUST, Summer 2013, at 30, 32 (arguing that breach of a FRAND commitment may amount to monopolization even without deception of the SSO).

²¹ *See* Ericsson Inc. v. D-Link Sys., Inc., No. 6:10-CV-473, 2013 WL 4046225, at *25 (E.D. Tex. Aug. 6, 2013) ("The paradox of RAND licensing is that it requires a patent holder to offer licenses on reasonable terms, but it offers no guidance over what is reasonable."); Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 5 (2005) ("[T]here are no generally agreed tests to determine whether a particular license does or does not satisfy a RAND commitment.").

²² Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217, at *10 (W.D. Wash. Apr. 25, 2013).

²³ Jorge L. Contreras, *Fixing FRAND: A Pseudo-Pool Approach to Standards-Based Patent Licensing*, 79 ANTITRUST L.J. 47, 52 n.23 (2013) (collecting authorities emphasizing the ambiguity of FRAND and RAND terms).

²⁴ *See, e.g.*, Josh Lerner & Jean Tirole, *Standard-Essential Patents 4* (Nat'l Bureau of Econ. Research, Working Paper No. 19664, 2013), available at <http://www.nber.org/papers/w19664> (arguing that FRAND limits are likely ineffective and proposing instead a "structured price commitment process" in which, "after a discovery phase, IP holders non-cooperately [sic] announce price caps on their offerings" to establish an "ex-ante competitive benchmark").

RAND commitment is unavoidable because of practical²⁵ and antitrust²⁶ impediments to SSOs establishing more specific price constraints.

Although ambiguous, the RAND commitment can impose real constraints because, like any standard of reasonableness, it draws meaning from its purpose.²⁷ For example, if a court requires an antitrust offender to charge reasonable prices as a remedy, the meaning of the requirement depends on the nature of the offense. Firms have sometimes agreed in consent decrees to offer royalty-free licenses, implicitly acquiescing in the determination that only a price of zero is reasonable. In the European case on Microsoft's abuse of dominance, a remedy requiring Microsoft to charge a reasonable royalty for its communications protocols meant that the royalty should "reflect only the possible intrinsic value of the information in question, and exclude the strategic value stemming from the mere ability it affords to interoperate with Microsoft's operating systems."²⁸ The intrinsic value of the technology, including trade secrets, depended entirely on its innovative character²⁹ and not on its secrecy, which was strategic.³⁰

²⁵ Joseph Scott Miller, *Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351, 370 (2007) (arguing that the RAND commitment is not too vague, but instead "is appropriately open-textured, given that participants in the standard-setting process do not yet know the contours of the standard that will emerge, or how the as-yet-unknown patents essential to the standard should be valued in the standard-based market that develops").

²⁶ *Microsoft*, 2013 WL 2111217, at *13 (noting expert testimony that SSOs fear antitrust liability for setting prices *ex ante*); Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, in 1 INNOVATION POLICY AND THE ECONOMY 119, 142 (Adam B. Jaffe et al. eds., 2001) ("[A]ntitrust concerns have led [SSO] to steer clear of such *ex ante* competition, on the grounds that their job is merely to set technical standards, not to get involved in prices, including the terms on which intellectual property will be made available to other participants. The ironic result has been to embolden some companies to seek substantial royalties after participating in formal standard setting activities.").

²⁷ As the Supreme Court observed long ago, the meaning of reasonableness "varies in the different fields of the law, because it is used as a convenient summary of the dominant considerations which control in the application of legal doctrines." *United States v. Trenton Potteries Co.*, 273 U.S. 392, 397 (1927).

²⁸ Case T-167/08, *Microsoft Corp. v. Comm'n*, Celex No. 62008TJ0167, ¶ 30 (June 27, 2012) (EUR-Lex), available at <http://curia.europa.eu/juris/celex.jsf?celex=62008TJ0167&lang1=en&type=TEXT&ancre>.

²⁹ *Id.* ¶ 31.

³⁰ *Id.* ¶¶ 143–144 ("[I]n the absence of innovation, secrecy by itself represents only strategic value for a licensee, while fixed development costs are not . . . a correct basis for valuing intellectual property."). According to the court, this interpretation did not weaken legal protection for trade secrets generally; it only remedied a specific violation. *Id.* ¶ 150 ("Contrary to what has been argued by Microsoft, the effect, in the context of this case, of assessing the innovative character of the technologies covered by the contested decision by reference to novelty and inventive step is not to extinguish generally the value of intellectual property rights, trade secrets or other confidential information or, a fortiori, to make innovative character a precondition for a product or information to be covered by such a right or to constitute a trade secret in general."). For judicial methods of valuing intangibles in the tax context, see Yariv Brauner, *Value in the Eye of the Beholder: The Valuation of Intangibles for Transfer Pricing Purposes*, 28 VA. TAX REV.

The RAND commitment in collective standard-setting also serves purposes that shape its meaning: to foster optimal adoption of the standard by deterring hold-up and royalty stacking.³¹ First, consider hold-up. A standard enables and promotes interoperability and innovation in high technology markets, but also gives the included technologies, including SEPs, a degree of monopoly power, which increases as more firms adopt the standard. It also may give SEP owners the opportunity to exploit firms that make sunk investments in the technologies embodied in the standard.³² According to the most widely held theory, a RAND commitment limits the patent owner to the royalty it would have received apart from the monopoly power the owner acquired by inclusion of its intellectual property in an industry standard.³³ Before inclusion in the standard, the technology likely had to compete with substitutes.³⁴ After inclusion in the standard, the technology's owner should keep whatever advantage it had over substitutes *ex ante*. Consequently, the patent owner is entitled to the incremental value that the patented technology offered over the next-best alternative technology immediately before the SSO adopted the standard.³⁵ The patent owner is not entitled to

79, 103 (2008) (criticizing the implementation of the arms-length principle as a basis for valuing intangibles for tax purposes).

³¹ Shapiro, *supra* note 26, at 140 (“The essence of cooperative standard setting is not the sharing of risks associated with specific investments, or the integration of operations, but rather the contribution of complementary intellectual property rights and the expression of unified support to ignite positive feedback for a new technology.”); see also Dennis W. Carlton & Allan L. Shampine, *An Economic Interpretation of FRAND*, 9 J. COMPETITION L. & ECON. 531, 544 (2013); Sean P. Gates, *Standards, Innovation, and Antitrust: Integrating Innovation Concerns Into the Analysis of Collaborative Standard Setting*, 47 EMORY L.J. 583, 597 (1998); Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1896 (2002); David J. Teece & Edward F. Sherry, *Standards Setting and Antitrust*, 87 MINN. L. REV. 1913, 1953 (2003).

³² Lemley, *supra* note 31, at 1893.

³³ FED. TRADE COMM’N, *THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* 22–23 (2011).

³⁴ Brief of Amici Curiae the Institute of Electrical & Electronics Engineers, Inc. et al. in Support of Neither Party at 22, *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297 (3d Cir. 2007) (No. 06-4292) (“[T]here certainly can be and usually are competing technologies before the standard is adopted—and thus competition for inclusion in the standard.”), *quoted in* Kattan, *supra* note 20, at 31.

³⁵ FED. TRADE COMM’N, *supra* note 33, at 23 (“Courts should cap the royalty at the incremental value of the patented technology over alternatives available at the time the standard was chosen.”); see also Cary et al., *supra* note 20, at 915 (describing *ex ante* policies). Gregory Sidak argues that Judge Robart’s measure is inconsistent with an IEEE bylaw that provides that “a patent claim is essential if ‘there was no commercially and technically feasible non-infringing alternative’ for the patent at issue ‘at the time of the [proposed] IEEE Standard’s approval.’” Sidak, *supra* note 10, at 981 (alteration in original) (quoting IEEE-SA Standards Board Bylaws § 6.1 (Dec. 2012)). He continues, “by definition, one cannot apply the *ex ante* incremental value rule to determine the value of or FRAND royalties for patents essential to IEEE standards because there are, at the relevant moment, no non-infringing substitutes for the patents over which to calculate incremental value. Judge Robart, however, assumed that there *are* substitutes at the time

hold up a licensee³⁶ by exploiting the market power attributable either to the standard itself or to sunk investments that licensees make in the technology in order to comply with the standard.³⁷ Hold-up reduces social welfare because it deters efficient investments in technologies covered by industry standards and inhibits efficient adoption of a technologically superior standard.

The incremental-value standard suggests that if there are two technologies *ex ante* that serve the needs of the standard equally, the RAND royalty for the chosen SEP should reflect only licensing costs, including opportunity costs, but economic profit should be zero. This outcome is obvious if the alternative technology is in the public domain. One might argue that this outcome should hold even if the alternative technology is patented because “the two patent holders would negotiate the price down to effectively zero (ignoring the cost of implementing the alternatives) because both desire to have their technology incorporated into the standard, and both know that their technology will be worth practically nothing if it is not adopted into the standard.”³⁸ One court found such a result to be an implausible outcome of real-world bargaining or one that, if adopted as a measure of the RAND royalty, might deter future investment in innovative technology.³⁹ Nevertheless, in principle, the profit-component RAND royalty for SEPs with perfect substitutes *ex ante* might well be zero without undermining incentives to invest because every investor in technology must take account of the risk that others’ innovative efforts will render its own technology valueless.

There is one important caveat. The *ex ante* standard excludes hold-up from RAND but does not necessarily exclude consideration of the contingent value of the patent to the standard. As Thomas Cotter has noted, patent

of standard adoption, indeed so many compelling substitutes that the chosen technology makes only a small incremental contribution to the value of the standard over the contribution that the runnerup technology would have made if it had been chosen instead.” *Id.* In this passage, Sidak interprets the IEEE bylaw to mean that technology is essential to a standard only if there were no alternative technologies before the adoption of the chosen technology into the standard. A better interpretation is that the technology is essential *to the standard* if, for a firm seeking to comply with the standard, there were no non-infringing alternative technologies immediately after the chosen technology was included in the standard, regardless of how many alternative technologies were available *ex ante* for possible inclusion in the standard.

³⁶ *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 913 (N.D. Ill. 2012) (“The purpose of the FRAND requirements . . . is to confine the patentee’s royalty demand to the value conferred by the patent itself as distinct from the additional value—the hold-up value—conferred by the patent’s being designated as standard-essential.”).

³⁷ *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 2111217, at *10 (W.D. Wash. Apr. 25, 2013) (defining hold-up as the “ability of a holder of an SEP to demand more than the value of its patented technology and to attempt to capture the value of the standard itself”); Suzanne Michel, *Bargaining for RAND Royalties in the Shadow of Patent Remedies Law*, 77 ANTITRUST L.J. 889, 892 n.9 (2011).

³⁸ *In re Innovatio IP Ventures LLC Patent Litig.*, No. 11-C-9308, 2013 WL 5593609, at *20 (N.D. Ill. Oct. 3, 2013) (summarizing the expert testimony of Dr. Gregory Leonard).

³⁹ *Id.*

owners and licensees often agree to running royalties based on the licensee's actual use of the patent because of difficulties in estimating the future value of the patent and concerns about efficient input pricing in future production by the licensee.⁴⁰ Courts evaluating royalties under a RAND standard must therefore distinguish hold-up from the value of the patent's contribution to the standard and to the licensee.

Economists also agree that a RAND royalty should prevent royalty stacking, which occurs if owners of strongly complementary SEPs individually charge profit-maximizing royalties to an implementer.⁴¹ Royalty stacking poses the following Cournot complements or "anti-commons" problem: in pursuing their individual self-interests, the owners of complementary patents impose external costs on one another, inefficiently reducing demand for one another's products by increasing the price of and reducing the output of downstream standards-compliant products.⁴² The sum of the stacked royalties to the implementer is higher than a single royalty that would be charged by a monopolist who controlled both complementary patents. There are many opportunities for royalty stacking when a single high-technology product implicates hundreds of standards with thousands of complementary SEPs, many with monopoly power.⁴³

III. RAND Measures in *Microsoft v. Motorola*

In *Microsoft*, Judge Robart endorsed, in principle, the economic rationale for RAND outlined above.⁴⁴ This part of the article will examine the criteria he adopted and the reasons he gave for them. It will then show how he applied the criteria to the two standards at issue in the case. The next part will argue that his analysis can be understood in terms of the economics of antitrust damages.

A. Formulating the Measures

Microsoft argued that the court should calculate "the incremental value of the technology compared to the alternatives that could have been written

⁴⁰ Thomas F. Cotter, *Comments on Sidak, Part 3: Should a FRAND Royalty be Higher than a Reasonable Royalty?*, COMP. PAT. REMEDIES (Dec. 18, 2013, 4:39 AM), <http://comparativepatentremedies.blogspot.com/2013/12/comments-on-sidak-part-3-should-frand.html>.

⁴¹ *Microsoft*, 2013 WL 2111217, at *11–12; see also Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2013 (2007).

⁴² See Lemley & Shapiro, *supra* note 41, at 2013–14 (describing the inefficiencies associated with Cournot complements and double marginalization).

⁴³ Kattan, *supra* note 20, at 31.

⁴⁴ *Microsoft*, 2013 WL 2111217, at *10–12. In a more recent decision, another court acknowledged the centrality of hold-up and royalty stacking in the RAND calculus but insisted that any contentions that a proposed royalty was unreasonable on either ground be supported by evidence. *Ericsson Inc. v. D-Link Sys., Inc.*, No. 6:10–CV–473, 2013 WL 4046225, at *25–26 (E.D. Tex. Aug. 6, 2013) (finding a royalty proposal reasonable because defendants "failed to present any evidence of actual hold-up or royalty stacking").

into the standard⁴⁵—invoking the theoretical principle that a RAND royalty should exclude the hold-up value attributable to the patent’s inclusion in a standard. Judge Robart found that standard appropriate in theory, but difficult for courts to implement because substituting one patent for another in a standard may change the standard’s performance in multiple ways.⁴⁶ In form, he endorsed Motorola’s suggestion that he should conduct a hypothetical bilateral negotiation between Microsoft and Motorola to identify a reasonable royalty.⁴⁷ He pointed to the fifteen *Georgia-Pacific*⁴⁸ factors courts have long used to determine damages for patent infringement, which assume a hypothetical bilateral negotiation based on the value of a patent in its real-world market.⁴⁹

The *Georgia-Pacific* factors and their bargaining framework are problematic even in the non-RAND context. Mark Lemley and Carl Shapiro note that the bargaining framework is a distraction because the parties obviously did not agree.⁵⁰ The substance of the analysis, such as it is, lies in the factors themselves. Lemley and Shapiro distill the fifteen *Georgia-Pacific* factors to three: “the significance of the patented invention to the product and to market demand, the royalty rates people have been willing to pay for this or other similar inventions in the industry, and expert testimony as to the value of the patent.”⁵¹ Even in this reduced form, the factors provide little guidance because they identify categories of evidence, but provide “no over-

⁴⁵ *Microsoft*, 2013 WL 2111217, at *13.

⁴⁶ *Id.*; see also Jorge L. Contreras, *Rethinking RAND: SDO-Based Approaches to Patent Licensing Commitments*, Int’l Telecomm. Union [ITU] Patent Roundtable, at 8–9 (Geneva Oct. 10, 2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2159749 (noting that few SEP owners negotiate royalties before the adoption of a standard, in part because of uncertainties about the future market).

⁴⁷ *Microsoft*, 2013 WL 2111217, at *14; cf. Damien Geradin & Miguel Rato, *Can Standard-Setting Lead to Exploitative Abuse? A Dissonant View on Patent-Hold Up, Royalty Stacking and the Meaning of FRAND*, 3 EUR. COMPETITION J. 101, 114 (2007) (“‘Fair and reasonable’ licensing terms . . . consist of those terms determined through fair, bilateral negotiations between individual IPR owner and standard adopter in accordance with the market conditions prevailing at the time of such negotiations.”).

⁴⁸ *Microsoft*, 2013 WL 2111217, at *15 (citing *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970)); see, e.g., *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 76 (Fed. Cir. 2012); *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297, 314 n.8 (3d Cir. 2007); Geradin & Rato, *supra* note 47, at 120.

⁴⁹ See *Microsoft*, 2013 WL 2111217, at *15 (observing that courts have “experience in conducting hypothetical bilateral negotiations to frame the reasonable royalty inquiry in patent infringement cases under the *Georgia-Pacific* framework”). Commentators have suggested using the *Georgia-Pacific* factors to evaluate FRAND obligations. *Id.* at *16 (citing Anne Layne-Farrar, A. Jorge Padilla & Richard Schmalensee, *Pricing Patents for Licensing in Standard-Setting Organizations: Making Sense of FRAND Commitments*, 74 ANTITRUST L.J. 671, 673 (2007)).

⁵⁰ Lemley & Shapiro, *supra* note 41, at 2019 (observing that the negotiation is “counterfactual in important respects”).

⁵¹ *Id.* at 2018–19.

riding principle by which to quantify and hence to weigh conflicting indicators.”⁵²

Judge Robart modified the *Georgia-Pacific* factors to assure that his hypothetical negotiation would not result in hold-up or royalty stacking, the twin concerns of the economic analysis of RAND.⁵³ In doing so, he changed the factors so radically that the bilateral negotiation framework lost whatever analytical significance it might have had. Parties in the modified negotiation, he asserted, “would consider the RAND commitment and its purposes,” like the purpose of promoting “widespread adoption of the standard through avoidance of holdup and stacking.”⁵⁴ For example, they would exclude the hold-up value from the royalty by considering the SEPs’ contribution to the licensee’s sales, their relative importance to the standard,⁵⁵ and the alternative technologies that the SSO could have used in the standard.⁵⁶ They would avoid stacking by considering “other SEP holders and the royalty rate that each of these patent holders might seek from the implementer based [on] the importance of these other patents to the standard and to the implementer’s products.”⁵⁷ When considering comparable royalties, they would look only to royalties in licenses of RAND-committed patents,⁵⁸ so rates Motorola had actually reached in bilateral negotiations with licensees not subject to RAND obligations were irrelevant.⁵⁹ Finally, Microsoft would

⁵² Alan Devlin, *Improving Patent Notice and Remedies: A Critique of the FTC’s 2011 Report*, 18 MICH. TELECOMM. & TECH. L. REV. 539, 565 (2012); see also John C. Jarosz & Michael J. Chapman, *The Hypothetical Negotiation and Reasonable Royalty Damages: The Tail Wagging the Dog*, 16 STAN. TECH. L. REV. 769, 771 (2013) (stating that the Federal Trade Commission, practitioners, and academics are all studying damage calculations in patent cases and proposing various fixes for calculating royalties).

⁵³ *Microsoft*, 2013 WL 2111217, at *18–20.

⁵⁴ *Id.* at *20. Judge Robart noted the need to “mitigate the risk of patent hold-up that RAND commitments are intended to avoid.” *Id.* at *12. He noted later in the opinion, with respect to stacking, that ninety-two companies own SEPs, some very important, for the 802.11 and H.264 standards. *Id.* at *52. If each SEP owner took a royalty rate similar to what Motorola asked, the sum of the royalties would exceed the selling price of the Xbox. *Id.* at *73. At that stage in the litigation, Motorola had reduced its demand to a figure between 1.15% and 1.73% of end-product sales. *Id.* at *72–73.

⁵⁵ *Id.* at *18–19. The court also excluded consideration of the value of the standard under the tenth and eleventh factors, which look to the benefits of the patent to the infringer and the extent to which the infringer is using the patent. *Id.* at *19. It also considered the standard in comparing the relative value of the patent to unpatented elements of the alleged infringer’s product. *Id.*

⁵⁶ *Id.*

⁵⁷ *Id.* at *20.

⁵⁸ *Id.* at *19 (noting that the court also eliminated consideration of whether the patent owner had preserved its monopoly by restricting licensing because under a RAND commitment the patent owner must license its patents to every implementer on reasonable terms).

⁵⁹ *Microsoft*, 2013 WL 2111217, at *71 (concluding that some royalties were not clearly subject to a RAND obligation). Some of the negotiated rates were unreliable because the parties were in the process of settling other litigation. VTech, for example, agreed to a rate of 2.25% for the 802.11 and H.264 SEPs under threat of pending litigation, in which liability for other infringements was the determining factor. *Id.* at *67. RIM also

take account of the fact that a RAND royalty must be high enough “to induce the creation of valuable standards.”⁶⁰

Parties bargain to advance their self-interest within established legal standards. They consider conflicting social welfare goals like avoiding hold-up only if an enforceable legal rule requires them to do so. Consequently, it is the legal definition of RAND that Judge Robart articulated that matters, not any imaginary public-spirited bargain. Despite Judge Robart’s recurrent references to hypothetical negotiations, he calculated a range of RAND rates by evaluating the evidence, choosing benchmarks, and making assumptions consistent with the twin imperatives of avoiding hold-up and royalty stacking.⁶¹ For example, in considering comparable royalties, he identified two patent pools, one for each standard, as appropriate benchmarks in the RAND context because they were likely to point to rates that avoided hold-up and stacking.⁶² Even though SSOs do not (yet) require SEP owners to participate in pools, the RAND commitment is designed to accomplish goals similar to those of pools.⁶³ The court’s selection and modification of the pools indicates the court’s recognition of these efficiency concerns.

B. Applying the Measures

This section describes how Judge Robart calculated RAND royalties in *Microsoft*, emphasizing how he applied the economic standard for RAND to the circumstances of the case. Although he was limited by gaps in the record, he tried repeatedly to identify specific values that reflected the standard of economic welfare.

1. The H.264 Standard

To set the stage, Judge Robart described the development of video compression, the history of the standard, and the different types of compression within the H.264 standard.⁶⁴ For example, he distinguished compression of now-obsolete interlaced video from compression of more advanced and widely used progressive video.⁶⁵ He also considered the quantity and quality of Motorola’s SEPs, relying on expert testimony from both sides.⁶⁶

negotiated its license of SEPs in the 802.11 and H.264 standards as part of a settlement of other infringement litigation as part of a bundle of Motorola’s cellular technology, so it was impossible to isolate the amounts paid just for 802.11 and H.264. *Id.* at *68–70. Moreover, the rates did not apply to all of RIM’s products. *Id.*

⁶⁰ *Id.* at *20.

⁶¹ Judge Holderman made a similar calculation of the RAND royalties for Innovatio’s SEPs for the 802.11 standard, basing the estimate on a share of the average profit on a Wi-Fi chip. *In re Innovatio IP Ventures LLC Patent Litig.*, No. 11-C-9308, 2013 WL 5593609, at *38–43 (N.D. Ill. Oct. 3, 2013).

⁶² *Microsoft*, 2013 WL 2111217, at *20.

⁶³ Contreras, *supra* note 23, at 75–78.

⁶⁴ *Microsoft*, 2013 WL 2111217, at *21–26.

⁶⁵ *Id.* at *21–22.

⁶⁶ *Id.* at *30.

Of the more than 2,500 patents essential to the H.264 standard, he observed that Motorola had sixteen, divided into six families,⁶⁷ all of which were of limited value to Microsoft for various reasons. One family, for example, was limited to hardware implementations of the H.264 standard.⁶⁸ All were limited mainly to interlaced video⁶⁹ that Microsoft's products, particularly Windows and Xbox, do not support.⁷⁰ Most important, some were of diminished value in the RAND context because there were alternatives to them prior to the development of the H.264 standard—a direct comparison to *ex ante* royalties in calculating RAND royalties.⁷¹ The court discounted testimony that failed to isolate the importance of Motorola's SEPs to Microsoft's products from the importance of the H.264 standard to those products.⁷²

In determining RAND royalties, Judge Robart looked primarily to comparables.⁷³ In doing so, he rejected using royalties that Motorola had negotiated in real bilateral negotiations as benchmarks,⁷⁴ even though these kinds of royalties are highly probative in ordinary patent infringement litigation applying the *Georgia-Pacific* factors. In the RAND context, Judge Robart reasoned that royalties negotiated for patents that were not subject to a RAND commitment, or that were subject to contaminating influences, were irrelevant.⁷⁵ Instead, Judge Robart used royalties established by the MPEG H.264 patent pool (in a process that did not involve bilateral negotiations at all) as a benchmark.⁷⁶ The pool covers over 2,400 patents, with royalties ranging from ten cents and twenty cents per unit of the licensee's sales, depending on the licensee's volume, with an annual cap of five million dollars.⁷⁷ Microsoft argued that the pool was particularly relevant because the owners of MPEG H.264 SEPs, including both Microsoft and Motorola,⁷⁸ es-

⁶⁷ *Id.* at *27.

⁶⁸ *Id.*

⁶⁹ *Id.* at *30–31.

⁷⁰ *Microsoft*, 2013 WL 2111217, at *43. The court concluded that Motorola's SEPs for the H.264 standard were of “only minor importance to the overall functionality” of Windows and Xbox. *Id.* at *47–48.

⁷¹ *Id.* at *36, *42. For example, the court examined Motorola's “paired macroblock MBAFF” prediction technique, finding that it added value to the standard, but noting that it was not proven to be superior to the alternative single macroblock MBAFF. *Id.* at *33–36. It similarly determined that Motorola's PAFF family of patents added value to the standard relative to alternatives, but the value was limited because it only applied to interlaced video. *Id.* at *39. As to the Scan family of patents, the court noted the absence of “concrete evidence . . . as to why the suggested alternatives could not have been incorporated into the H.264 Standard without degradation.” *Id.* at *42.

⁷² *Id.* at *44.

⁷³ *Id.* at *64.

⁷⁴ *Id.* at *66–70 (finding the following not comparable: (1) a 2.25% royalty for Motorola's 802.11 and H.264 SEPs negotiated in a settlement to infringement litigation involving other patents not subject to a RAND commitment and (2) a royalty that covered patents in addition to Motorola's 802.11 and H.264 SEPs).

⁷⁵ *Id.*

⁷⁶ *Microsoft*, 2013 WL 2111217, at *82.

⁷⁷ *Id.* at *78–79.

⁷⁸ *Id.* *75.

tablished the pool shortly after the adoption of the standard, so the royalties it set were estimates by the owners (including Motorola) of the *ex ante* value of the patents themselves.⁷⁹

Judge Robart agreed, with two qualifications. First, the pool rates may be lower than would be expected in a bilateral negotiation, even under a RAND commitment, because they distribute royalties based on the absolute number of patents in a portfolio rather than their relative importance to the standard.⁸⁰ This qualification recognized the contingent value of the patent to the standard mentioned earlier. Second, SEP owners that join a pool receive not only royalties, but also the value of access to other patents in the pool.⁸¹ Nevertheless, Judge Robart concluded that the pool rate provided a good starting point for estimating a lower bound of the RAND rate because the pool's pricing goals were consistent with the purpose of fostering widespread implementation of the standard⁸²—the pool rate is set high enough to attract SEP owners (including Motorola's parent company, Google) but low enough to attract licensees.⁸³

The court found that Motorola should receive “royalties equivalent to what it would have received if it and the other holders of other readily identifiable H.264 SEPs were all added to the pool with the current pool rate structure.”⁸⁴ That standard took into account all of Motorola's SEPs as well as eighty-nine others not currently in the pool.⁸⁵ Under this formula, Microsoft would owe Motorola its share of the pool royalties, or 0.185 cents per unit, plus the value that Motorola would gain by having access to the other technology in the patent pool.⁸⁶ The court estimated the latter amount to be twice the pool royalty because Microsoft pays into the pool as a licensee about twice what it receives in royalties from the pool as a licensor and would only do that if the value of access to pool patents was worth the difference.⁸⁷ Judge Robart also found that Motorola's parent company, Google,

⁷⁹ *Id.* at *79. For a discussion of similarities between SSOs and pools, see Lerner & Tirole, *supra* note 24, at 5.

⁸⁰ *Microsoft*, 2013 WL 2111217, at *80. Judge Robart adopted an incremental measure in his modification of *Georgia-Pacific*. *Id.* He also expressed concern that, if he simply adopted the pool rate as the RAND rate, owners of important SEPs would be less likely to participate in pools. *Id.* For a discussion of why pools often assign patents equal weight in distributing royalties, see Lerner & Tirole, *supra* note 24, at 20–21 (“[E]xcept for those patents that are contained [sic] by within-functionality substitution, all patents are equal once they have been made essential by the standard setter.”).

⁸¹ *Microsoft*, 2013 WL 2111217, at *81.

⁸² *Id.* at *82.

⁸³ *Id.*

⁸⁴ *Id.* at *84 (considering three scenarios for calculating RAND royalties and selecting the second).

⁸⁵ *Id.*

⁸⁶ *Id.*

⁸⁷ *Microsoft*, 2013 WL 2111217, at *84.

is comparable to Microsoft in ways relevant to the calculation.⁸⁸ Therefore, the lower bound of the RAND royalty Microsoft would owe Motorola was three times Motorola's share of the pool royalties—still a fraction of a cent per unit. Judge Robart explained his derivation of this formula much more fully in a remarkable 1,500-word footnote, consisting of an algebraic statement and solution of the problem of isolating the lower bound of a RAND rate.⁸⁹ Critical assumptions in this calculation were, first, that Motorola's patents were of average value and, second, that Motorola, if it remained out-

⁸⁸ See *id.* (“Microsoft and Google are similarly situated as sophisticated, substantial technology firms with vast arrays of technologically complex products.”).

⁸⁹ *Id.* at *85 n.23. Judge Robart reasoned that the value of joining a pool, VP , was equal to the benefits of joining the pool less the costs. *Id.* On the plus side of VP , he added the royalties the patent owner would receive for its patents in the pool (P_+), the value of the owner's IP rights to pool patents (IP), and the “external value the company derives from adding its patents to the pool, such as promoting participation in the pool and thereby encouraging widespread adoption of the standard” (E), assuming that the pool patents were all licensed at the same rate. *Id.* On the minus side, he identified the royalties the owner pays for pool patents (P) and the opportunity cost associated with not licensing its patents outside the pool (OC). *Id.* The value of abstaining from the pool, VA , was parallel to the VP formula. *Id.* On the plus side, VA consisted of the RAND royalties the owner could collect for its patents outside the pool (A_+)—this figure, of course, was the RAND rate that the court was trying to determine—and the value of the IP rights to pool patents that the owner presumably would acquire to practice the standard. *Id.* On the minus side were the cost of acquiring those rights (A) and the opportunity cost associated with not joining the pool. *Id.* He noted that the IP value of the pool patents is on both sides of the equation, so he cancelled it out. *Id.* The court reasoned that a company that owned unusually important patents might find it more valuable to abstain from the pool, while one with less valuable patents might gain by joining the pool. *Id.* It assumed, however, that Motorola's patents were of average value relative to the pool, so it did not have to include a coefficient to adjust for any such disparity. *Id.* This step allowed the court to find that for Motorola, VP was equal to VA . *Id.* There was an equivalent OC value on each side of the equation, so they canceled out. *Id.* Microsoft's internal documents suggested that E was its primary reason for participating. *Id.* In fact, Microsoft paid twice as much in royalties into the H.264 pool as it received ($P = 2P_+$), yet it still participated in the pool, so E must have offset this deficit to make VP greater than zero. *Id.* For that to occur, E would have to be at least equal to P_+ ($0 \leq VP = P_+ - P_+ + E = P_+ - 2P_+ + E = E - P_+$), so the court assumed that they were equal, both for Microsoft and Google. *Id.* Finally, the court noted that the value to SEP owners of abstaining from participation in a pool is the difference between what it would receive by charging RAND royalties (A_+ , the variable at issue in the case) and the amount it would have to pay for licenses to patents in the pool (A). *Id.* Because the court concluded that the values of participating and abstaining from the pool must be equal both to each other and (netting benefits and costs) to zero for patents of average value like Motorola's, then A_+ must be equal to A . ($VA = 0 = A_+ - A$, so $A_+ = A$). *Id.* Consequently, all that remained was for the court to determine A . *Id.* Unfortunately, there was no evidence of this value, so Judge Robart guessed it would be 1.5 times P . *Id.* He thought it would be higher than the pool rate “but not twice as high because some, if not all, of the companies holding SEPs would be subject to the RAND commitment.” *Id.* It would therefore also be equal to three times P_+ . *Id.* This figure was appropriate as a lower bound of the RAND royalty, despite the fact that the pool distributed royalties based only on the number rather than the importance of patents in the portfolio, because Motorola's SEPs only cover relatively unimportant obsolete technology.

side the pool, would have to pay in royalties 1.5 times what it would pay in royalties as a member of the pool.

That calculation established the lower bound of the RAND range. To establish the upper bound, Judge Robart suggested that a hypothetical licensee would calculate the most it could pay for all H.264 SEPs and still have a profitable business.⁹⁰ The starting point for calculating that amount, he determined, would be “the aggregate licensing fee of all essential patents calibrated against the principle that license fees should not be stacked in such a way that makes implementation of the standard prohibitively expensive.”⁹¹ In this passage, Judge Robart recognized that even the upper bound for royalties under a RAND commitment required internalizing the Cournot complements problem by hypothesizing a blanket license of SEPs. The court concluded the maximum blanket royalty would be \$1.50 per unit because that was the figure proposed during the initial negotiation of the H.264 patent pool.⁹² Motorola’s share of that amount, based on the number of patents in the pool, was about a nickel per unit.⁹³ The upper bound of the RAND range would be three times that, again to account for the value of access to other patents in the pool.⁹⁴

2. The 802.11 Standard

As with the H.264 standard, Judge Robart began his calculation of RAND rates for Motorola’s SEPs in the 802.11 standard for Wi-Fi by examining the technology underlying the standard and identifying its core enabling features.⁹⁵ Although “the majority of the technologies available to and/or adopted by the 802.11 drafters were in the public domain and not covered by patents,”⁹⁶ many companies have asserted that they own patents essential to the standard.⁹⁷ Motorola claimed to hold twenty-four such patents, but it provided little evidence that its patents were actually SEPs for the 802.11 standard.⁹⁸ According to the court, this lowered their value because it made it less likely that Microsoft actually used them.⁹⁹ The only Microsoft product that uses Motorola’s patents under this standard is the Xbox, and it only uses eleven of the twenty-four, so only those eleven were relevant to the calculation.¹⁰⁰ As with Motorola’s SEPs for the H.264 standard, the court found that Motorola’s SEPs for the 802.11 standard were of

⁹⁰ *Id.* at *86.

⁹¹ *Id.*

⁹² *Id.* at *87.

⁹³ *Microsoft*, 2013 WL 2111217, at *87.

⁹⁴ *Id.*

⁹⁵ *Id.* at *51 (naming network setup, channel access management, data modulation, and security encryption as core enabling features).

⁹⁶ *Id.* at *50.

⁹⁷ *Id.* at *52.

⁹⁸ *Id.* at *53.

⁹⁹ *Microsoft*, 2013 WL 2111217, at *53.

¹⁰⁰ *Id.* at *55.

limited value to Microsoft because of functional limitations and uncertainties about their importance to the standard or the Xbox.¹⁰¹

The court considered three benchmarks in determining a range of RAND royalties for SEPs in the 802.11 standard. First, it looked to the Via 802.11 patent pool even though, unlike the MPEG H.264 pool, it was established several years after adoption of the standard and had only a handful of SEP holders and licensees as participants.¹⁰² The Via pool had denied Motorola access because its evaluator determined that Motorola's patents were not essential to the standard.¹⁰³ Nevertheless, Judge Robart found that the Via pool provided a decent benchmark for an upper bound to the range of RAND royalties because it focused directly on the 802.11 standard and set its rates, albeit unsuccessfully, in order to promote widespread adoption.¹⁰⁴

The court had the benefit of expert testimony for this calculation, but the experts had based their calculations on the 183 patents that Motorola had claimed as essential to the 802.11 standard, not the eleven that it ultimately litigated.¹⁰⁵ Consequently, the court recalculated the relative value of the eleven patents, assuming they were in the Via patent pool.¹⁰⁶ Following the experts' methodologies, the court found that Motorola's patents would account for about 10% of the patent pool royalty revenue.¹⁰⁷ Applying this percentage to the royalty revenue, Microsoft would have paid to the Via patent pool a royalty of about two cents per unit, or just under \$300,000.¹⁰⁸ As in its treatment of the MPEG pool, the court accounted for the value of access to other patents in the pool by tripling the per-unit price to six cents per unit as the upper bound of a RAND royalty.¹⁰⁹ This was the upper bound of the RAND royalty rate for three reasons: the Via pool did not include all SEP holders, there was no evidence that any of Motorola's patents were any more or less valuable than any other SEPs, and Motorola's contribution to the standard as a whole was relatively small, especially for Microsoft.¹¹⁰

The second benchmark the court considered was the royalty that Marvell Semiconductor Inc. (Marvel), a chipset manufacturer, paid for SEPs within the 802.11 standard.¹¹¹ Microsoft, among many other companies, buys Wi-Fi chipsets from Marvell for about \$3.00 per unit in order to assure

¹⁰¹ *See id.* at *55–64 (examining the role of the patents and their value to Microsoft in channel access, data modulation, network setup, and security).

¹⁰² *Id.* at *87, *89.

¹⁰³ *Id.* at *88.

¹⁰⁴ *Id.* at *89.

¹⁰⁵ *Microsoft*, 2013 WL 2111217, at *90.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.* at *91.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ *Id.* at *92.

¹¹¹ *Microsoft*, 2013 WL 2111217, at *93.

Wi-Fi functionality in its products—in Microsoft’s case, the Xbox.¹¹² Marvell pays a royalty of 1% of the price of its chipsets, or about three cents, to ARM Holdings both for use of the SEPs to build its chips and for the instructions to developers that use the chips.¹¹³ In part because of fears of royalty stacking, this figure is viewed as the ceiling for the semiconductor industry, which the court found was analogous to the video games used with the Xbox.¹¹⁴

The last benchmark the court considered was a study by InteCap, a consulting firm that evaluated Motorola’s 802.11 portfolio in 2003.¹¹⁵ That study proposed a tiered pricing strategy under which chipset designers would pay one royalty, and manufacturers of 802.11-enabled end products, such as video games, would pay another.¹¹⁶ The court found these rates to be relevant because InteCap accounted for royalty stacking and the relative values of the finished products.¹¹⁷ InteCap recommended that makers of finished goods like the Xbox pay 0.1%, or between twenty and forty cents, per device sold.¹¹⁸ This amount assumed that Motorola SEPs contributed a quarter of the functionality of the 802.11 standard.¹¹⁹ Because the evidence showed Motorola’s real contribution was closer to 1%, the court reduced the InteCap royalty by a factor of twenty-five, to between .8 and 1.6 cents per unit.¹²⁰

Judge Robart found some confirmation of the validity of his three RAND benchmarks in their proximity to one another and in the fact that their average of 3.47 cents per unit was close to all of them.¹²¹ He then calculated the upper bound of the RAND range at 19.5 cents per unit.¹²² Microsoft had originally suggested a royalty of 6.5 cents, which it based on the assumption that Motorola was a member of the Via patent pool.¹²³ Judge Robart tripled this figure, as with the H.264 standard, to account for the value of access to other patents in the pool.¹²⁴ He found insufficient evidence to estimate a lower bound, so he simply chose .8 cents per unit, the lowest figure in his adjusted InteCap analysis.¹²⁵

¹¹² *Id.*

¹¹³ *Id.* at *94.

¹¹⁴ *See id.* (concluding that a 1% royalty rate was reasonable).

¹¹⁵ *Id.* at *95.

¹¹⁶ *Id.*

¹¹⁷ *Microsoft*, 2013 WL 2111217, at *96–97.

¹¹⁸ *Id.* at *98.

¹¹⁹ *Id.* at *96.

¹²⁰ *Id.* at *98.

¹²¹ *Id.* at *99 (averaging the three benchmarks of .8, 3.5, and 6.114).

¹²² *Id.* at *100.

¹²³ *Microsoft*, 2013 WL 2111217, at *100.

¹²⁴ *Id.*

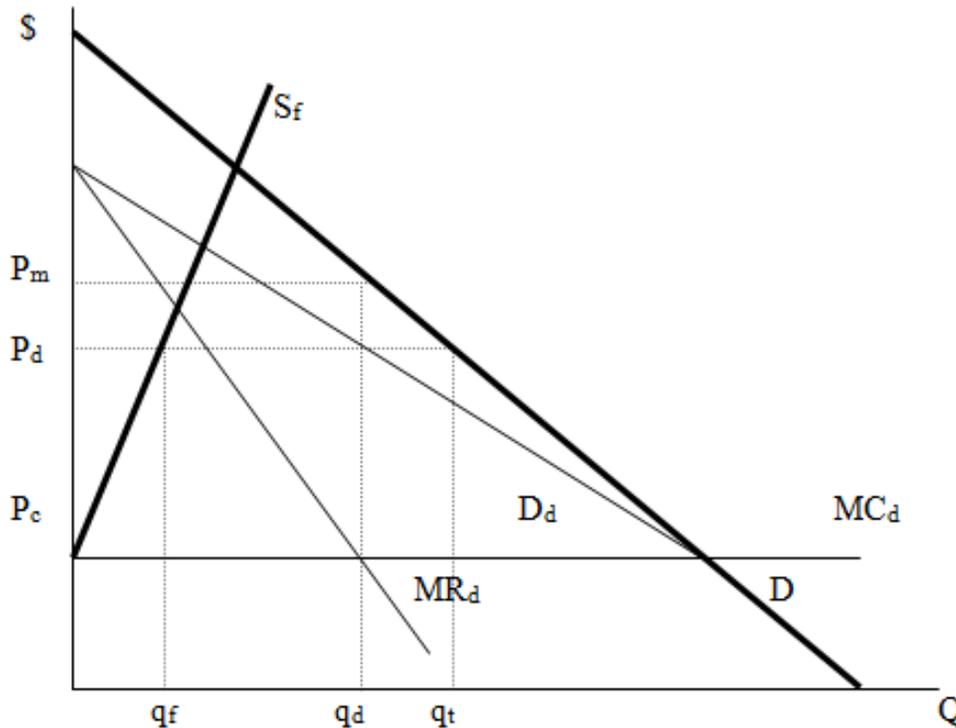
¹²⁵ *Id.* at *101. Judge Holderman’s estimated royalty for Innovatio’s 802.11 SEPs was comparable. *In re Innovatio IP Ventures LLC Patent Litig.*, No. 11-C-9308, 2013 WL 5593609, at *38 (N.D. Ill. Oct. 3, 2013). Because he found that Innovatio’s nineteen patents were all very important to the Wi-Fi standard, he concluded that they were in the

IV. RAND and Optimal Penalties

A collectively-established standard is exclusive, conferring market power on the patents essential to it. The RAND commitment limits the owners of those patents to the royalties they could have commanded before the patents became essential to the standard. It thus prohibits SEP owners from exploiting the standard's enhancement of their monopoly power, either by holding up licensees or stacking royalties. In *Microsoft*, Judge Robart implemented this conception of the RAND commitment by calculating rates based on benchmark royalties untainted by hold-up or stacking. Although Microsoft never actually paid the royalties Motorola demanded, the overcharge those royalties represented relative to RAND rates was central to the breach of contract claim. Judge Robart instructed the jury that it could "compare Motorola's offers against the RAND royalty rate and range determined by the court" in determining whether Motorola breached its duty of good faith and fair dealing.¹²⁶

top 10% of an estimated three thousand or so Wi-Fi SEPs. *Id.* at *43. The three hundred patents in the top 10% likely accounted for 84% of the average profit on a Wi-Fi chip. *Id.* Innovatio's royalty was thus 19/300 of 84%, or 9.56 cents—"the pro rata share of the value in the top 10% of all 802.11 standard-essential patents attributable to Innovatio's nineteen-patent portfolio." *Id.* This royalty was approximately three times Judge Robart's estimated average royalty, but the difference was appropriate because Innovatio's patents were far more important to the Wi-Fi standard than Motorola's were. *Id.* at *44.

¹²⁶ Jury Instructions ¶ 19, *Microsoft Corp. v. Motorola, Inc.*, No. C10-1823JLR, 2013 WL 5397931 (W.D. Wash. Sept. 4, 2013). The damages Microsoft sought in the contract action were for expenses it incurred because of Motorola's efforts to seek injunctive relief from the International Trade Commission and in courts in the United States and Europe in violation of its duty of good faith and fair dealing under the RAND commitment. *Id.* ¶ 24.



The court's analysis in determining the RAND rate was similar in structure and purpose to the measurement of an antitrust injury. Antitrust courts estimate a monopolistic overcharge when they assess damages for price fixing or anticompetitive exclusion, comparing a defendant's actual price with the price in a counterfactual or but-for world in which the violation did not occur.¹²⁷ The overcharge from price fixing is antitrust injury because it measures individual harm causally linked to a collusive output restriction and corresponding welfare loss.¹²⁸ Similarly, if a dominant firm were to exclude a fringe of smaller rivals by nakedly exclusionary contracts with input suppliers, the difference between the dominant firm price and the monopoly price would be an illegal overcharge.¹²⁹ In the accompanying diagram, if the

¹²⁷ Roger D. Blair & William H. Page, "Speculative" Antitrust Damages, 70 WASH. L. REV. 423, 429 (1995).

¹²⁸ See, e.g., *Reiter v. Sonotone Corp.*, 442 U.S. 330, 343 (1979) (discussing Sherman Act provisions that protect against price fixing).

¹²⁹ John E. Lopatka & William H. Page, *Who Suffered Antitrust Injury in the Microsoft Case?*, 69 GEO. WASH. L. REV. 829, 833 (2001) ("Exclusionary practices can also impose antitrust injury if, for example, they succeed in reducing output and increasing prices to consumers, either by raising the costs of rivals or by driving them from the market entirely."); William H. Page, *Optimal Antitrust Penalties and Competitors' Injury*, 88 MICH. L. REV. 2151, 2156 (1990); William H. Page, *The Scope of Liability for Antitrust Violations*, 37 STAN. L. REV. 1445, 1474-75 (1985); cf. *In re Neurontin Antitrust Litig.*, MDL No. 1479, 2009 WL 2751029, at *12-13 (D.N.J. Aug. 28, 2009) (holding that alleged overcharges to direct purchasers of prescription drugs because of monopolistic conduct aimed at excluding generic competition was antitrust injury). For fuller discussion of antitrust injury, see William H. Page, *The Chicago School and the Evolution of Antitrust: Characterization, Antitrust Injury, and Evidentiary Sufficiency*,

dominant firm illegally excluded the fringe output (S_f), it would have a monopoly not on the residual demand (D_d), but the entire market demand (D). The overcharge would be the difference between the corresponding profit-maximizing prices P_m and P_d . This difference between the monopoly and dominant firm prices would represent antitrust injury to purchasers because it would be directly proportional to the inefficiency that the offense created—a larger deadweight welfare loss attributable to a greater output restriction (from q_t to q_d) and a higher price.¹³⁰ To estimate the actual overcharge in litigation, courts would rely on economic experts to project the but-for world based on a competitive benchmark, which might be prices before or after the violation or prices in a comparable market (a yardstick measurement) in which no violation occurred.¹³¹ Courts have developed widely accepted standards for evaluating the reliability of expert testimony in making these sorts of projections.¹³²

Calculating hold-up that violates a RAND commitment is comparable in theory and practice to calculating an overcharge attributable to monopolistic exclusion.¹³³ When an SSO writes a patent into a standard, it excludes the owner's rivals in much the same way that a monopolistic practice excludes fringe firms.¹³⁴ Adoption of a standard by itself does not ordinarily

75 VA. L. REV. 1221, 1268–78 (1989) (discussing antitrust policy, rules, and models) and William H. Page, *Antitrust Damages and Economic Efficiency: An Approach to Antitrust Injury*, 47 U. CHI. L. REV. 467, 472 (1980) (considering the impact of damages on anticompetitive conduct).

¹³⁰ See, e.g., *Walker Process Equip. Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172, 174 (1965) (holding that a firm may monopolize by acquiring a patent through fraud on the patent office). If the patent enhances the firm's monopoly power by excluding rivals, the resulting overcharge imposes antitrust injury on consumers. Christopher R. Leslie, *The Role of Consumers in Walker Process Litigation*, 13 SW. J.L. & TRADE AM. 281, 289–95 (2007). A circuit court held that deceptive nondisclosure of patents on technology before an SSO was not an antitrust violation if it did not actually cause the SSO to standardize the technology. *Rambus, Inc. v. Fed. Trade Comm'n*, 522 F.3d 456, 466–67 (D.C. Cir. 2008). If it only allowed the SEP owner to avoid a RAND commitment, it did not impose antitrust injury. *Id.* For criticism of *Rambus* on the issue of causation, see Michael A. Carrier, *A Tort-Based Causation Framework for Antitrust Analysis*, 77 ANTITRUST L.J. 991, 1013–15 (2011) and Stacey L. Dogan & Mark A. Lemley, *Antitrust Law and Regulatory Gaming*, 87 TEX. L. REV. 685, 722 (2009). In the analogy proposed in the text, the firm's conduct does create additional monopoly power.

¹³¹ See PETER DAVIS & ELIANA GARCÉS, *QUANTITATIVE TECHNIQUES FOR COMPETITION AND ANTITRUST ANALYSIS* 352–64 (2010) (discussing methods of quantifying damages based on but-for analysis).

¹³² See generally Robert Kneuper & James Langenfeld, *The Potential Role of Civil Antitrust Damage Analysis in Determining Financial Penalties in Criminal Antitrust Cases*, 18 GEO. MASON L. REV. 953, 964–80 (2011) (summarizing techniques that economic expert witnesses use in estimating antitrust overcharges).

¹³³ William M. Landes, *Optimal Sanctions for Antitrust Violations*, 50 U. CHI. L. REV. 652, 669 (1983); see also Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968) (discussing generally the distortion of resource allocation due to monopolistic exclusion).

¹³⁴ See, e.g., *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297, 314 (3d Cir. 2007) (“When a patented technology is incorporated in a standard, adoption of the standard eliminates

violate the antitrust laws because, on balance, it is likely to increase efficiency by facilitating interoperability and innovation. However, the RAND commitment, or some other effective price constraint, is integral to this balance. If the owner departs from its RAND commitment, it reduces efficiency by exploiting the monopoly power the standard creates to charge a royalty above what it could have charged *ex ante* in competition with non-compliant rivals. The resulting hold-up is analogous to an overcharge by a firm that acquired monopoly power by exclusionary conduct.

Because the *ex ante* royalty is for a patented product, it may itself reflect a degree of monopoly power comparable to the position of the dominant firm in the foregoing diagram. If the SEP owner acquired its patent lawfully, the monopoly power attributable to the patent is lawful.¹³⁵ If, however, an SSO were to establish a standard that conferred monopoly power on SEP owners without a price constraint, it would likely violate the antitrust laws and be liable for treble damages for any overcharges. It follows that if SEP owners ignore a RAND price constraint and set royalties that reflects monopoly power conferred by the standard, the difference is tantamount to an illegal overcharge.

Part of the ability of SEP owners to hold up licensees reflects *ex post* opportunism—exploitation of firms that have made technology-specific investments in the standard. Nevertheless, hold-up in this instance is also comparable to antitrust injury. In *Image Technical*,¹³⁶ the Supreme Court mistook Kodak's *ex post* exploitation of the buyers of its durable goods for true market power.¹³⁷ Because Kodak faced competition in the product market for its copiers, its ability to hold up customers in its aftermarket was only contractual and not a matter of antitrust concern.¹³⁸ Standard-setting, however, entails the joint action of rivals that creates market power for SEPs.

alternatives to the patented technology.”); *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 500 (1988) (“Agreement on a product standard is . . . implicitly an agreement not to manufacture, distribute, or purchase certain types of products.”). For discussion of the damage model used by the excluded rival in *Indian Head*, see ANTITRUST DAMAGES PROJECT COMM., AM. BAR. ASS’N., PROVING ANTITRUST DAMAGES: LEGAL AND ECONOMIC ISSUES 226–29 (William H. Page ed., 1996). For discussion of the exclusionary potential of standard-setting, see Richard Gilbert, *Competition Policy for Industry Standards*, in OXFORD HANDBOOK ON INTERNATIONAL ANTITRUST ECONOMICS (forthcoming) (manuscript at 5–19), available at http://works.bepress.com/cgi/viewcontent.cgi?article=1040&context=richard_gilbert.

¹³⁵ Leslie, *supra* note 130, at 283. The *ex ante* royalties may themselves represent an overcharge if the patent was acquired by fraud. *Id.* at 289–95.

¹³⁶ *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451 (1992).

¹³⁷ See Benjamin Klein, *Market Power in Antitrust: Economic Analysis After Kodak*, 3 SUP. CT. ECON. REV. 43, 57–58 (1993) (stating that the assessment of market power and the risk of hold-up must be evaluated as of a time before the customer made seller-specific investments).

¹³⁸ See *id.* at 50–58 (stating that if consumers know about a restrictive service policy at the time of purchasing the equipment, hold-up is not an issue because the consumers will contract for the protection they want).

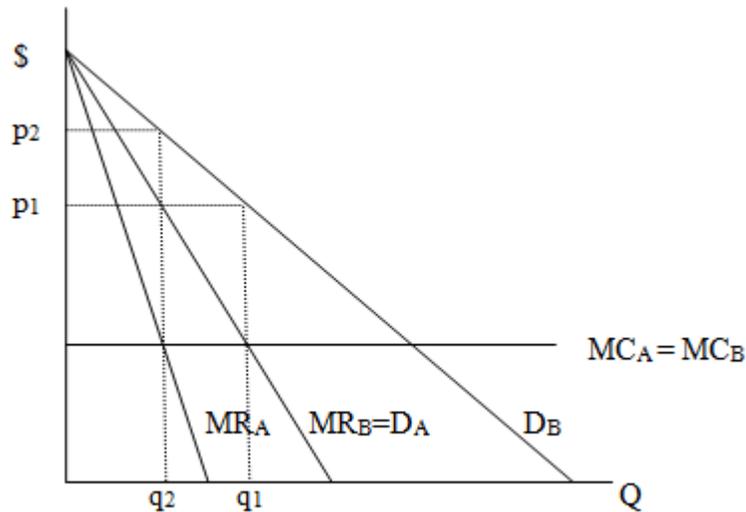
Firms that adopt the standard are not in privity with the SEP owner and therefore cannot protect themselves contractually by anticipating future hold-up. Thus, exploitation of their sunk investments in the standard is monopolistic and would reflect antitrust injury in the absence of an effective RAND commitment or other price constraint.

The *ex ante* standard, if used as a practical benchmark, would replicate a before-and-after model of antitrust damages—the extent of the overcharge is the difference between prices during the offense and the prices that would have prevailed if conditions before had continued.¹³⁹ In some circumstances, the court might look to a different yardstick for a RAND price, one unaffected by hold-up. Judge Robart adopted essentially this latter strategy by looking to the patent pools as a starting point for estimation of *ex ante* royalties. The H.264 pool was a closer fit because SEP owners formed it in the wake of the standard's adoption. Even in that instance, of course, the court recognized the need to expand the pool to include all essential patents and to adjust the pool royalty—a need that might be still greater if the relevant SEP had extraordinary value *ex ante*. Legally enforcing the RAND commitment can eliminate a deadweight loss and enhance social welfare if it can be done with reasonable accuracy, without unnecessary speculation, and at a reasonable cost.

Using RAND commitments to control royalty stacking is also comparable to the assessment of antitrust damages. Royalty stacking is a form of double marginalization or compounding monopolies. The following diagram illustrates the problem of double marginalization in a closely related vertical context. Assume that good *A* is an input for the production of good *B*. The marginal cost of producing *A* is MC_A , and the marginal cost of producing *B* is MC_B . MC_B , apart from the cost of *A*, is zero, so $MC_A = MC_B$. If one producer controls production of both *A* and *B*, the demand for the downstream product, *B*, and the marginal cost of producing *B* would determine the profit-maximizing price. The producer would equate the marginal revenue from *B* (MR_B) with MC_B at an output of q_1 , which corresponds to a price of p_1 on D_B .

Now suppose different monopolists control the production of *A* and *B*. In that case, the *B* monopolist's demand for *A*, or D_A , would be the marginal value of *A* to it at each output level, or simply MR_B , which reflects the addition to total revenue from the sale of an incremental unit of *B*, given D_B . The *A* monopolist would construct its MR_A , the marginal revenue curve, corresponding to D_A . It would set its output where MR_A is equal to MC_A . The resulting output, q_2 , of both *A* and *B* would be lower than under an integrated monopoly. The price of *A* alone would be p_1 ; the corresponding price of *B*, p_2 , would be higher than under an integrated monopoly.

¹³⁹ See Blair & Page, *supra* note 127, at 443–50 (explaining the before-and-after model).



The
Cournot
comple-
ments

problem presents an analogous form of double marginalization by rival monopoly suppliers of complements to the same purchasers. Because each firm separately charges a monopoly price, the monopolies compound and the output in the market is lower and the price higher than if a single monopolist produced the goods as a bundle.¹⁴⁰ Lemley and Shapiro show that if an implementer faces linear demand and constant marginal cost, its output would be twice as high if a monopolist or joint venture of three SEPs charged a single royalty for all of the products than if three separate patent owners charged individual monopoly royalties.¹⁴¹

The Cournot complements problem arises only if goods are strongly complementary and have few substitutes. Standardization, if successful, reduces the availability of substitutes and increases the degree of complementarity among products within the standard. It excludes rivals and thus increases the degree of monopoly power held by SEP owners, thus aggravating potential Cournot complements problems. Although the SSO generally focuses on technology rather than specific licensing terms,¹⁴² it imposes a RAND commitment to foster efficient royalties for all patents made essential by the process by internalizing the externalities in pricing of

¹⁴⁰ For a mathematical proof, see Lemley & Shapiro, *supra* note 41, at 2046–48.

¹⁴¹ *Id.* at 2014.

¹⁴² Lemley, *supra* note 31, at 1951.

SEPs that are Cournot complements.¹⁴³ For similar reasons, antitrust authorities have recognized the Cournot complements problem as a justification for pooling complementary patents.¹⁴⁴ If the SSO imposed no pricing constraint, it would likely violate the antitrust laws, and royalty stacking by its members would be an illegal overcharge.

Royalty stacking contradicts the goal of the RAND commitment to foster widespread adoption of the standard. For SEP owners to charge their individual monopoly, royalty rate would represent an overcharge relative to the royalty charged by a joint venture or pool of firms that participated in the standard. Indeed, some observers have recently suggested that “SSO[s] might sponsor or otherwise facilitate formation of a patent pool . . . [or] require *ex ante* disclosures from patent holders of whether they will participate in a patent pool (and which one).”¹⁴⁵ Even if the SSO does not actually form a pool or require SEP owners to participate in one, the RAND royalty should be calculated to avoid the market failures that a pool would address.

Again, the difference between the actual price under royalty stacking and the but-for price that avoids royalty stacking is analogous to antitrust injury. The but-for world is one in which royalties for patents do not reflect stacking attributable to the increased monopoly power and greater complementarity that the standard confers. Presumably, the RAND commitment would not prohibit stacking of royalties to the extent that it reflected only the degree of complementarity and monopoly power the SEPs possessed before becoming essential to a standard.¹⁴⁶

Judge Robart’s calculation of RAND royalties by reference to patent pools was consistent with this approach to concerns about royalty stacking. For the H.264 pool, in calculating the lower bound of a RAND rate for royalties of average value like Motorola’s, he looked to a multiple of the actual rates charged by the pool. For the upper bound, he estimated Motorola’s proportional share of “the aggregate licensing fee of all essential patents calibrated against the principle that license fees should not be stacked in such a

¹⁴³ See, e.g., Nicholas Economides & Steven C. Salop, *Competition and Integration Among Complements, and Network Market Structure*, 40 J. INDUS. ECON. 105, 108–09 (1992) (explaining Cournot complements).

¹⁴⁴ U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY § 5.5 (1995), available at <http://www.justice.gov/atr/public/guidelines/0558.pdf> (“Cross-licensing and pooling arrangements . . . may provide procompetitive benefits by integrating complementary technologies, reducing transaction costs, clearing blocking positions, and avoiding costly infringement litigation.”); see also Herbert Hovenkamp, *Antitrust and the Movement of Technology*, 19 GEO. MASON L. REV. 1119, 1129 (2012) (“Pooling of complementary patents can also address double marginalization problems when licenses must otherwise be obtained from separate sources.”).

¹⁴⁵ Michael A. Lindsay & Robert A. Skitol, *New Dimensions to the Patent Holdup Saga*, 27 ANTITRUST 34, 39 (2013).

¹⁴⁶ Judge Robart evidently saw no need to make this distinction, perhaps because Motorola’s patents only contributed to stacking *ex post*.

way that makes implementation of the standard prohibitively expensive.”¹⁴⁷ In essence, this amount reflected projection of a monopoly price charged by a single pricing entity that controlled all essential and complementary patents in the standard.

V. Breach of the RAND Commitment as an Antitrust Violation

The argument so far analogizes the calculation of RAND rates to the measure of antitrust injury—charging excess royalties is comparable to an overcharge attributable to anticompetitive exclusion. One might reasonably ask whether a breach of the RAND commitment should more properly be viewed as an antitrust violation compensable by antitrust damages. Joseph Kattan has argued as much.¹⁴⁸ He notes that the inclusion of a patent in a standard accompanied by a RAND commitment excludes the next-best alternative technology, but only through competition on the merits before the SSO and a voluntary eschewal of monopoly power by the winning technology.¹⁴⁹ Later breach of the RAND commitment makes the initial exclusion anticompetitive, much as recoupment of losses during a period of below-cost pricing completes the offense of predatory pricing.¹⁵⁰

If this presentation of the relationship between the RAND commitment and antitrust injury is correct, it should typically be unnecessary to extend antitrust liability to these circumstances. The contractual RAND commitment, if effective, limits monopoly power in the same way as a long-term supply contract with an enforceable price term. The Supreme Court held in *General Dynamics* that a merger of coal producers could not reduce competition because the acquired firm had formed long-term contractual commitments to supply their available reserves at specified prices.¹⁵¹ In other words, enforcement of those contracts would prevent any anticompetitive behavior by the merging coal producers. Similarly, the enforcement of the contractual commitments in standard-setting is the most direct and effective method of vindicating the interests of competition.

Another analogy might be *Trinko*, in which the Supreme Court declined to extend liability under the Sherman Act to include Verizon’s failure to share its network elements with competitive carriers.¹⁵² In doing so, the Court described the comprehensive regulatory scheme within which the FCC policed incumbent carriers’ sharing obligations¹⁵³ and concluded that

¹⁴⁷ Microsoft Corp. v. Motorola, Inc., No. C10-1823JLR, 2013 WL 2111217, at *86 (W.D. Wash. Apr. 25, 2013).

¹⁴⁸ Kattan, *supra* note 20, at 32–34.

¹⁴⁹ *Id.* at 33–34.

¹⁵⁰ *Id.*

¹⁵¹ United States v. Gen. Dynamics Corp., 415 U.S. 486, 502–03, 506 (1974).

¹⁵² Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 415 (2004).

¹⁵³ *Id.* at 412–13.

“the regime was an effective steward of the antitrust function.”¹⁵⁴ Granted, the Court in *Trinko* compared judicial and administrative supervision of a sharing obligation,¹⁵⁵ while in the RAND setting the choice is between alternative judicial mechanisms—contract or antitrust litigation. Nevertheless, the contractual obligation is the critical limit on monopoly power. Breach of that obligation is the lynchpin of any anticompetitive effect. Before extension of Sherman Act liability, there should be a clear showing that enforcement of the contractual commitment is insufficient to protect the antitrust interest.

VI. Conclusion

Although Judge Robart’s hypothetical bargaining was mainly window dressing for his reasoning, the substance of the opinion will likely have important effects on real-world bargaining. Bargaining occurs, as the well-worn metaphor puts it, in the shadow of the law that courts create.¹⁵⁶ In a real-world bilateral negotiation, parties take positions that account for legal constraints, anticipating the likely outcome should the dispute reach the courts.¹⁵⁷ Judge Robart’s opinion exposes a range of formidable practical challenges to the calculation of RAND price. At the same time, it provides some evidence of the law for future negotiations by defining the permissible benchmarks for the identification of a reasonable price.

We can understand Judge Robart’s analysis better by comparing it to the principle and practice of antitrust injury for antitrust violations. The antitrust injury doctrine links antitrust remedies to the theory of optimal penalties by requiring that compensable damages be causally related to the output restriction associated with an offense, either collusive or exclusionary. The RAND commitment serves a similar function, even in cases in which the SEP owner has not violated the antitrust laws. It limits the SEP owner to a but-for royalty that reflects neither hold-up nor royalty stacking. That is, the SEP owner is limited to royalties that reflect the *ex ante* value of its intellectual property, not the incremental monopoly power that the standard provides or the risk of double marginalization from individual monopoly pricing, a risk that the standard might actually enhance by fostering greater complementarity.

Judge Robart’s reliance on an inclusive patent pool formed near the adoption of a standard as a benchmark captured both of these theoretical criteria for a RAND price. He justified the use of the pools specifically because their prices directly reflected the participants’ efforts to avoid hold-up

¹⁵⁴ *Id.* at 413.

¹⁵⁵ *Id.* at 414–15.

¹⁵⁶ Michel, *supra* note 37, at 893; Robert H. Mnookin & Lewis Kornhauser, *Bargaining in the Shadow of the Law: The Case of Divorce*, 88 YALE L.J. 950, 968 (1979).

¹⁵⁷ Cf. Oliver Wendell Holmes, *The Path of the Law*, 10 HARV. L. REV. 457, 460–61 (1897) (“The prophecies of what the courts will do in fact, and nothing more pretentious, are what I mean by the law.”).

and stacking. A patent pool represents an attempt to implement *ex post* the goals of the SSO. Equally important, he modified the royalties charged by the pools by assuming that the pools included all of the relevant SEPs. These became his yardsticks and he used their royalty rates to project a but-for world in which an individual owner of Motorola's SEPs charged RAND royalties.