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# INCREASED MARKET POWER AS A NEW SECONDARY CONSIDERATION IN PATENT LAW

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### INTRODUCTION

Scholars, courts, and policymakers have long wrestled with how antitrust law should accommodate patents, which are federally sanctioned monopolies on inventions.<sup>1</sup> The interaction between patent law and antitrust law has focused almost exclusively on determining when patents raise antitrust problems,<sup>2</sup> and when anticompetitive misuse should lead a court to refuse to enforce a patent.<sup>3</sup> This Article goes well beyond these well-trodden areas to

1. See, e.g., Louis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1813 (1984); George L. Priest, *Cartels and Patent License Arrangements*, 20 J.L. & ECON. 309 (1977); see also Peter M. Boyle, Penelope M. Lister & J. Clayton Everett, Jr., *Antitrust Law at the Federal Circuit: Red Light or Green Light at the IP-Antitrust Intersection?*, 69 ANTITRUST L.J. 739 (2002); Daniel J. Gifford, *The Antitrust/Intellectual Property Interface: An Emerging Solution to an Intractable Problem*, 31 HOFSTRA L. REV. 363 (2002); Sharon Brawner McCullen, *The Federal Circuit and Ninth Circuit Face-Off: Does a Patent Holder Violate the Sherman Act by Unilaterally Excluding Others from a Patented Invention in More than One Relevant Market?*, 74 TEMP. L. REV. 469 (2001).

2. See, e.g., *United States v. Loew's Inc.*, 371 U.S. 38 (1962), *superseded by statute*, Patent Misuse Reform Act of 1988, Pub. L. No. 100-703, 102 Stat. 4674; *Int'l Salt Co. v. United States*, 332 U.S. 392 (1947), *superseded by statute*, 102 Stat. 4674; *Standard Oil Co. (Ind.) v. United States*, 283 U.S. 163 (1931); *United States v. Gen. Elec.*, 272 U.S. 476 (1926); *Intergraph v. Intel Corp.*, 195 F.3d 1346 (Fed. Cir. 1999); *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263 (2d Cir. 1979); U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY (1995), available at <http://www.usdoj.gov/atr/public/guidelines/0558.pdf> [hereinafter ANTITRUST GUIDELINES]; Priest, *supra* note 1.

3. Antitrust law informs the equitable doctrine of patent misuse, which bars a patentee who has misused its patent from collecting damages from infringers. See, e.g., *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 139 (1969) (holding that a patentee may not obtain damages for licensee's use that was not based on the patentee's discovery). See generally 6 DONALD S. CHISUM, CHISUM ON PATENTS § 19.04 (2008) (detailing the doctrine of patent misuse). While a violation of the antitrust laws is clearly sufficient to find patent misuse, scholars and courts remain unclear whether it is necessary. See *Senza-Gel Corp. v. Seiffhart*, 803 F.2d 661, 668 (Fed. Cir. 1986) (“[T]he patentee's act may constitute patent misuse without rising to the level of an antitrust violation.”) (citation omitted); *USM Corp. v. SPS*

investigate what antitrust law and economics have to contribute to the core patent law determination of nonobviousness.<sup>4</sup>

Courts have developed several non-technical “secondary considerations” to help judges and juries in patent litigation decide whether a patent meets the crucial statutory requirement that a patent be nonobvious.<sup>5</sup> For example, one secondary consideration is called “failure of others”: if a patented invention solved a problem that others had failed to address, fact-finders may consider that as proof of nonobviousness.<sup>6</sup> Alternatively, near-simultaneous invention by others may be probative of obviousness.<sup>7</sup> All told, courts have developed nine different secondary considerations.<sup>8</sup>

This Article proposes a tenth secondary consideration to help judges and juries: increased market power. If a patent measurably

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Techs., Inc., 694 F.2d 505, 511-12 (7th Cir. 1982) (Posner, J.) (finding conflicting precedent regarding patent misuse); 6 CHISUM, *supra*, § 19.04[2] (discussing the relation between misuse and antitrust laws); *see also* Patent Misuse Reform Act of 1988, Pub. L. No. 100-703, 102 Stat. 4674 (codified as amended at 35 U.S.C. § 271(d)(4)–(5) (2006)) (eliminating the market power presumption in patent misuse cases).

4. Nonobviousness is a term of art in patent law, reflected in the title of 35 U.S.C. § 103—“Conditions for patentability; non-obvious subject matter”—and numerous court decisions. 35 U.S.C. § 103 (2006); *e.g.*, *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007) (noting that “the obviousness or *nonobviousness* of the subject matter is determined” through an objective interpretation of § 103) (emphasis added) (quoting *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966)).

5. *See infra* notes 14–15 and accompanying text (discussing a common way nonobviousness arises in litigation).

6. On failure of others, see *infra* note 8 and accompanying text (listing it second).

7. Not surprisingly, courts call this secondary consideration “near-simultaneous invention.” *See* discussion *infra* note 8 (listing it eighth).

8. First, long-felt need. 2 CHISUM, *supra* note 3, § 5.05(1). Second, failure of others. *Id.* Note, however, that the case law does not follow Chisum in grouping long-felt need and failure of others as a single secondary consideration. *See, e.g.*, *Nat’l Steel Car, Ltd. v. Can. Pac. Ry.*, 254 F. Supp. 2d 527, 570 (E.D. Pa. 2003) (reviewing independently long-felt need and failure of others), *rev’d*, 357 F.3d 1319 (Fed. Cir. 2004). *Compare* *Alco Standard Corp. v. TVA*, 808 F.2d 1490, 1498 (Fed. Cir. 1986) (referring to long-felt need separately), *with* *Finish Eng’g Co., Inc. v. Zerpa Indus., Inc.*, 806 F.2d 1041 (Fed. Cir. 1986) (referring to failure of others separately). Third, commercial success. 2 CHISUM, *supra* note 3, § 5.05(2). Fourth, commercial acquiescence via licensing. *Id.* § 5.05(3). Fifth, professional approval, *id.* § 5.05(4), which could include sub-considerations such as praise, disbelief of experts, and skepticism of those in the art. *Cf. Nat’l Steel Car*, 254 F. Supp. 2d at 570. Sixth, copying by and praise from infringers. 2 CHISUM, *supra* note 3, § 5.05(5). Seventh, progress through the Patent and Trademark Office (PTO). *Id.* § 5.05(6). Eighth, near-simultaneous invention, which weighs *against* nonobviousness. *Id.* § 5.05(7). Ninth, unexpected results, which Chisum chooses to address as a core nonobviousness issue. *Id.* § 5.04(6)(e). Courts, however, often treat unexpected results as a secondary consideration. *See, e.g.*, *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 662–63 (Fed. Cir. 2000) (“[S]econdary considerations of nonobviousness . . . [are] often said to include commercial success, long-felt but unresolved need, failure of others, copying, and unexpected results.”) (citations omitted).

increases its holders'<sup>9</sup> market power in the market into which it sells products or services,<sup>10</sup> then that increase should weigh in favor of finding the patent nonobvious. Using increased market power incorporates the predictive benefits of several other secondary considerations, while often increasing the accuracy and availability of evidence. It would provide another tool in the patent law toolbox to help fact-finders accurately determine whether a patent is obvious or nonobvious.

This new secondary consideration would likely not lead to an increased rate of finding patents valid. Very few patents convey any market power at all, despite patents being monopolies on a particular product or process.<sup>11</sup> Scholars, judges, and the federal agencies tasked with enforcing the antitrust laws all recognize this reality.<sup>12</sup> But this new secondary consideration will lead to an increased rate of courts correctly upholding truly nonobvious patents.

In Part I, this Article reviews the common-law origins of the secondary considerations to show how courts could easily introduce a tenth. Part II considers the relevant measures of increased market power. The Article then evaluates the theoretical bases for employing increased market power in Part III, while detailing its benefits over several existing secondary considerations and

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9. "Holders" here refers to the party that actually sells a product or service into the relevant market. It could be either the patentee or its licensees.

10. Of course, a single patent can implicate more than one market, although this rarely happens. See *In re Indep. Serv. Orgs. Antitrust Litig.*, 989 F. Supp. 1131, 1136–37 (1997) (acknowledging that a patent holder may acquire an inherent monopoly in more than one market by virtue of a single patent). For a more detailed explanation of how a patent's increase in its holders' market power leads to a conclusion of nonobviousness, see *infra* note 82.

11. See *infra* note 12.

12. See, e.g., *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 43 n.4 (2006); HERBERT HOVENKAMP, *FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE* § 10.3 (3d ed. 2005) ("[M]ost patents confer absolutely no market power on their owners."); RICHARD A. POSNER, *ANTITRUST LAW 197–98* (2d ed. 2001) ("[M]ost patents confer too little monopoly power to be a proper object of antitrust concern. Some patents confer no monopoly power at all."); ANTITRUST GUIDELINES, *supra* note 2, § 5.3 ("[Antitrust authorities] will not presume that a patent, copyright, or trade secret necessarily confers market power on its owner."); Edmund W. Kitch, *Patents: Monopolies or Property Rights?*, 8 RES. L. & ECON. 31 (1986) (arguing that patents do not presumptively grant monopoly power).

The fact that most patents do not create any market power has the corollary that most patents have no commercial value. 2B PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 518, at 162 (3d ed. 2007) ("Most patents have no commercial value."). "In most instances, the holder of an intellectual property right has so little power in the first place that the power to prevent others from making or using the patented product or process brings no power to charge substantially supracompetitive prices." *Id.* at 163; see also *Indep. Ink*, 547 U.S. 28, 43 ("[A] large number of valid patents have little, if any, commercial significance.").

demonstrating its application with several examples. Finally, Part IV considers and responds to potential objections.

### I. BACKGROUND OF THE SECONDARY CONSIDERATIONS

The secondary considerations have long played an important role in determining the validity of patents. This Part reviews their role in patent litigation. It then surveys the existing secondary considerations and the close interrelations between them.

#### A. *Relevance to Patent Law*

In patent litigation, the plaintiff typically claims that the defendant infringed its patent. The defendant then often offers the affirmative defense that the Patent and Trademark Office (“PTO”) erred in issuing the patent, arguing that the invention fails to meet one of the statutory requirements for patentability.<sup>13</sup> Defendants have the most success proving that the patent fails the statutory requirement of nonobviousness.<sup>14</sup> To be patentable, an invention must have been nonobvious at the time of the invention to ordinary engineers or scientists in the field.<sup>15</sup> The jurors and judges in these cases are rarely scientists or engineers, let alone in the technical field of the patent.<sup>16</sup> Nonetheless, they must make these thorny technical judgments, while avoiding the danger of seeing something as obvious in hindsight, often years after the commercialization of the invention.<sup>17</sup>

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13. The defendant succeeds in invalidating the patent in suit in forty-six percent of all cases. John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 205 (1998).

14. *Id.* at 208 tbl.1. Indeed, nonobviousness has been called the greatest hurdle to receiving or enforcing a patent and “the ultimate condition of patentability.” Robert P. Merges, *Commercial Success and Patent Standards: Economic Perspectives on Innovation*, 76 CAL. L. REV. 803, 812 (1988) (quoting NONOBVIOUSNESS—THE ULTIMATE CONDITION OF PATENTABILITY: PAPERS COMPILED IN COMMEMORATION OF THE SILVER ANNIVERSARY OF 35 USC 103 (John F. Witherspoon ed., 1980)).

15. 35 U.S.C. § 103(a) (2006). That section provides:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

*Id.*

16. See *Marconi Wireless Tel. Co. v. United States*, 320 U.S. 1, 60–61 (1943) (Frankfurter, J., dissenting) (“It is an old observation that the training of Anglo-American judges ill fits them to discharge the duties cast upon them by patent legislation.”).

17. See *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999) (warning against hindsight). See generally Gregory N. Mandel, *Patently Non-Obvious: Empirical Demonstration that the Hindsight Bias Renders Patent Decisions Irrational*, 67 OHIO ST. L.J. 1391 (2006) (same).

To aid fact-finders, courts have developed a number of “secondary considerations,” which, according to the Supreme Court, “focus attention on *economic* and *motivational* rather than technical issues and are, therefore, more susceptible of judicial treatment than are the highly technical facts often present in patent litigation.”<sup>18</sup> Scholars and judges have long debated the importance and meaning of the “secondary” label.<sup>19</sup> But the commonly accepted view is that the “considerations are secondary not because they are secondary in importance . . . [but] because they are relevant through a process of inference to the ultimate technical issue of nonobviousness.”<sup>20</sup> Of course, since the secondary considerations are “relevant through a chain of inference, their force may be weakened for a variety of reasons.”<sup>21</sup>

### B. *The Existing Secondary Considerations*

The secondary considerations emanate entirely from case law, being judicial elaborations of the statutory test of nonobviousness.<sup>22</sup> They have a long history, with some dating from the nineteenth century.<sup>23</sup> In the landmark 1966 case *Graham v. John Deere Co.*,<sup>24</sup> the Supreme Court listed only three secondary considerations, clearly contemplating that the list was not exhaustive: “commercial success, long felt but unsolved needs, failure of others, *etc.*”<sup>25</sup> Courts to date have developed nine secondary considerations: (1) long-felt need;

18. *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966) (emphasis added).

19. See, e.g., Richard L. Robbins, Note, *Subtests of “Nonobviousness”: A Nontechnical Approach to Patent Validity*, 112 U. PA. L. REV. 1169, 1177 (1964) cited in *Graham*, 383 U.S. at 18; Dorothy Whelan, Note, *A Critique of the Use of Secondary Considerations in Applying the Section 103 Nonobviousness Test for Patentability*, 28 B.C. L. REV. 357, 358 (1987) (“Considerable controversy exists regarding the proper role of secondary considerations in the obviousness analysis.”) (citation omitted). See generally Merges, *supra* note 14. Several judges on the U.S. Court of Appeals for the Federal Circuit, the specialist Article III Circuit Court that hears all patent-related appeals, have attempted to emphasize the importance of the secondary considerations. Howard T. Markey, *Why Not the Statute?*, 65 J. PAT. OFF. SOC’Y 331, 338–39 (1983) (calling them the “the misnamed ‘secondary’ considerations”); Giles S. Rich, *Laying the Ghost of the “Invention” Requirement*, 1 APLA Q.J. 26, 38 (1972) (“There is just one unfortunate word in [*Graham’s* secondary factors] passage: ‘secondary.’ I don’t think it should be given any weight though some courts seem to have done so . . .”).

20. Donald Chisum, *Address before the AIPLA Annual Meeting*, AM. INTELL. PROP. L. ASSOC. BULL. 618, 620–21 (1984).

21. *Id.*

22. See *infra* notes 23–26 (listing the judicially created secondary considerations).

23. See, e.g., *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 486, 495–96 (1876) (relying on long-felt need and commercial success).

24. 383 U.S. 1, 36 (1966). *Graham* was the first Court case interpreting the still-current Patent Act of 1952, Pub. L. No. 82-593, 66 Stat. 792 (1952) (codified as amended at 35 U.S.C. §§ 1–376 (2006)).

25. 383 U.S. at 17 (emphasis added).

(2) failure of others; (3) commercial success; (4) commercial acquiescence via licensing; (5) professional approval; (6) copying by and praise from infringers; (7) progress through the PTO; (8) near-simultaneous invention; and (9) unexpected results.<sup>26</sup>

Since 1923, the case law has given weight to the secondary consideration of commercial acquiescence via licensing.<sup>27</sup> Courts presume that those who would license a patent know the field and would not pay money for a license unless convinced of the patent's nonobviousness.<sup>28</sup> Judges have noted that licensing evidence is a "real world consideration[] provid[ing] a colorful picture of the state of the art, what was known by those in the art, and a solid evidentiary foundation on which to rest a nonobviousness determination."<sup>29</sup> Scholars have criticized this secondary consideration as also involving potentially unwarranted inferences, negated by such factors as risk-averse licensees avoiding litigation<sup>30</sup> or licensing motivated by cartel formation.<sup>31</sup>

Courts also consider the commercial success of an invention as a secondary consideration.<sup>32</sup> Typically measured as "significant sales in a relevant market,"<sup>33</sup> commercial success is relevant under the assumption that if an invention that turned out to be commercially successful had been obvious, then others would have exploited it earlier.<sup>34</sup> But this assumption may not always be true.<sup>35</sup> To address

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26. See *supra* note 8 and accompanying text (listing nine secondary considerations).

27. See *Eibel Process Co. v. Minn. & Ont. Paper Co.*, 261 U.S. 45, 55–56 (1923) (noting that the general adoption and licensing of the patentee's product was persuasive, but not conclusive, evidence that "what he discovered and invented was new and useful"). See generally 2 CHISUM, *supra* note 3, § 5.05[3] (explaining acquiescence via licensing).

28. See *Indian Head Indus., Inc. v. Ted Smith Equip. Co.*, 859 F. Supp. 1095, 1105 (E.D. Mich. 1994) (reasoning that the mere fact that a licensee holds a license to a patent indicates knowledge about the industry).

29. *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1575 (Fed. Cir. 1992).

30. See *Merges*, *supra* note 14, at 867–68 (noting that the assumption that licensing is always done to improve productivity is simply wrong).

31. See *id.* at 869 (noting that rights to a license will occasionally be pooled for the benefit of all industry members). See generally Priest, *supra* note 1 (analyzing licensing arrangements and their potential to mask cartel agreements).

32. Commercial success also has a long pedigree. See *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 486, 495–96 (1876) (noting that the fact that a device is generally used is indicative of its nonobviousness).

33. *J.T. Eaton & Co., Inc. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997). Courts have used other metrics as well, such as market share. See, e.g., *Kan. Jack, Inc. v. Kuhn*, 719 F.2d 1144, 1151 (Fed. Cir. 1983). This Author has criticized the use of revenue and related measures as misguided, arguing instead that commercial success should be measured by profitability. See Andrew Blair-Stanek, Note, *Profits as Commercial Success*, 117 YALE L.J. 642 (2008).

34. See, e.g., *Nickola v. Peterson*, 580 F.2d 898 (6th Cir. 1978).

this possibility, the courts have developed a requirement of a “nexus” between the invention and the commercial success.<sup>36</sup> So for courts to consider commercial success evidence, “that success must be shown to have in some way been due to the nature of the claimed invention, as opposed to other economic and commercial factors unrelated to the technical quality of the patented subject matter.”<sup>37</sup> For example, if the commercial success comes from an unpatented feature of the product, then a court cannot infer nonobviousness.<sup>38</sup>

The case law also gives weight to evidence of a long-felt need for a solution to a problem that the patented invention solved.<sup>39</sup> This secondary consideration is relevant on the presumption that if the need in a field for an invention had long been felt, then it could not have been obvious. Indeed, Judge Learned Hand considered this the most useful of the secondary considerations.<sup>40</sup> Like all of the nine existing considerations, long-felt need has emerged over time out of the case law.<sup>41</sup>

### *C. Close Interrelations Among Many Existing Secondary Considerations*

The use of long-felt need also highlights the close connections between many of the secondary considerations, as long-felt need and commercial success rely upon many common inferences.<sup>42</sup> Indeed,

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35. Specifically, one scholar has argued that concluding nonobviousness from commercial success involves four questionable inferences. See Edmund W. Kitch, *Graham v. John Deere Co.: New Standards for Patents*, 1966 SUP. CT. REV. 293, 332 (1966) (listing the four inferences as: (1) success is due to innovation; (2) perceived before its development; (3) efforts were made to improve patent after commercial success was perceived; and (4) that other men of art created the patent first but the patentee was the first to reduce his to development).

36. See, e.g., *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1539 (Fed. Cir. 1983). But see *Merges*, *supra* note 14, at 824–25 (arguing the Federal Circuit has weakened the nexus requirement).

37. *Cable Elec. Prods. v. Genmark, Inc.*, 770 F.2d 1015, 1027 (Fed. Cir. 1985), *overruled by* *Midwest Indus., Inc. v. Karavan Trailers, Inc.*, 175 F.3d 1356 (Fed. Cir. 1999).

38. See, e.g., *In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564, 1574 (Fed. Cir. 1985) (rejecting a patent where claims about usefulness of device were not contained in patent application).

39. See *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966) (listing “long felt but unsolved needs” as one of the secondary considerations). See *generally* 2 CHISUM, *supra* note 3, § 5.05[1].

40. *Safety Car Heating & Lighting Co. v. Gen. Elec. Co.*, 155 F.2d 937, 939 (2d Cir. 1946).

41. See *Goodyear Tire & Rubber Co. v. Ray-O-Vac Co.*, 321 U.S. 275 (1944); *Eibel Process Co. v. Minn. & Ont. Paper Co.*, 261 U.S. 45, 53–54, 68 (1923); *Expanded Metal Co. v. Bradford*, 214 U.S. 366 (1909); *Carnegie Steel Co. v. Cambria Iron Co.*, 185 U.S. 403 (1902); *Webster Loom Co. v. Higgins*, 105 U.S. 580 (1881); *Smith v. Goodyear Dental Vulcanite Co.*, 93 U.S. 486 (1876).

42. Both require a similar series of inferential steps. See *Merges*, *supra* note 14, at 831, 838.



Learned Hand thought commercial success had relevance primarily as an adjunct to long-felt need.<sup>43</sup> Some commentators even consider long-felt need to be the *same* secondary consideration as the failure of others,<sup>44</sup> although other commentators<sup>45</sup> and the case law generally consider them to be separate.<sup>46</sup>

In that vein, commercial success and licensing by others are also closely related. These two secondary considerations are essentially identical for those patentees that do not commercialize their inventions themselves, but rather make money solely by licensing the patent.<sup>47</sup> Stand-alone research labs, universities, and lone inventors often fall into this category.

Many other secondary considerations are closely interrelated. Copying by others and licensing are strongly linked: licensing is merely legitimized copying,<sup>48</sup> while copying will often lead to licensing, sometimes under threat of litigation and sometimes as the resolution of actual litigation. If imitation is the purest form of flattery, copying surely indicates another of the secondary considerations: professional approval.<sup>49</sup> Near-simultaneous invention,<sup>50</sup> which weighs against nonobviousness, would often directly hinder progress from the PTO, another of the secondary considerations.<sup>51</sup> When two inventors come up with the same invention at nearly the same time, the likelihood significantly increases that neither inventor will quickly progress through the PTO.<sup>52</sup> One would, moreover, anticipate that unexpected results<sup>53</sup>

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43. *Textile Mach. Works v. Louis Hirsch Textile Mach.*, 87 F.2d 702, 704 (2d Cir. 1937) (Hand, J.).

44. *See, e.g.*, 2 CHISUM, *supra* note 3, § 5.05(1).

45. *Merges*, for example, has strongly defended treating failure of others and long-felt need separately and giving greater weight to failure of others. *Merges*, *supra* note 14, at 830.

46. *Compare* *Alco Standard Corp. v. TVA*, 808 F.2d 1490, 1499-1500 (Fed. Cir. 1986) (referring to long-felt need separately), *with* *Finish Eng'g Co. v. Zerpa Indus., Inc.*, 806 F.2d 1041, 1044 (Fed. Cir. 1986) (referring to failure of others separately).

47. This makes sense in any situation where a licensee can commercialize the invention at lower cost than the patentee, provided the patentee can extract part of the difference.

48. Unless, of course, the licensee pays for the invention but doesn't use it, which could be expected to be rare.

49. *See generally* 2 CHISUM, *supra* note 3, § 5.05(4) (on professional approval).

50. *See generally id.* § 5.05(7) (on near-simultaneous invention).

51. *See id.* § 5.05(8) (discussing the secondary consideration of "progress through the PTO"); *see also* *United States v. Adams*, 383 U.S. 39, 52 (1966) (finding a battery patent nonobvious, noting that "in a crowded art replete with a century and a half of advancement, the Patent Office found not one reference to cite against the Adams application").

52. An interference proceeding is a time-consuming *inter partes* proceeding within the PTO where two patent applications (or an application and a patent) covering the same invention battle for first-to-invent priority. *See* 1 CHISUM, *supra*

would often lead to initial skepticism and disbelief of experts in the field.<sup>54</sup> In light of these strong interrelations, any similarities between already-extant secondary considerations and increased market power should pose no barrier to the introduction of increased market power as a new, standalone secondary consideration.

#### *D. Alternative Route for Introduction*

Courts might prefer not to introduce increased market power immediately as a standalone secondary consideration, but rather use it as a new test for commercial success. Commercial success is probably the best-established and most-often used of the existing secondary considerations.<sup>55</sup> The case law provides a number of tests for commercial success, including “significant sales in a relevant market”<sup>56</sup> and “growth in market share.”<sup>57</sup>

Some of these wordings resemble indicia of increased market power employed in various other contexts. Case law<sup>58</sup> and antitrust guidelines<sup>59</sup> have long recognized market share as a key element in measuring market power.<sup>60</sup> So “growth in market share,” which courts have used to measure commercial success, also may suggest measuring increased market power.

The tests for commercial success thus provide an opening for easily introducing increased market power into patent law. One could even

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note 3, § 2.03(4)(a) n.72 (providing a case discussing the requirements in an interference proceeding); 3A *id.* § 10.03 (explaining priority rules).

53. See *supra* note 8 for a discussion of the secondary consideration of unexpected results.

54. See, e.g., *Woodstream Corp. v. Herter's, Inc.*, 446 F.2d 1143, 1153–57 (8th Cir. 1971) (quoting expert testimony about a new product's design, “it almost knocked me off my feet”).

55. See, e.g., WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 305 (2003) (describing the growing tendency to use commercial success as a proxy for nonobviousness); *Merges*, *supra* note 14, at 820–26 (deeming nonobviousness the most important requirement for patentability).

56. *J.T. Eaton & Co., Inc. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997).

57. *Kan. Jack, Inc. v. Kuhn*, 719 F.2d 1144, 1151 (Fed. Cir. 1983).

58. See, e.g., *United States v. E.C. Knight Co.*, 156 U.S. 1, 44 (1895) (finding relevant the fact that 98% of market was controlled by defendants, who won on constitutional grounds); *United States v. Aluminum Corp. of Am.*, 148 F.2d 416 (2d Cir. 1945) (Hand, J.), *expressly aff'd*, *Am. Tobacco Co. v. United States*, 328 U.S. 781, 812–14 (1946).

59. FED. TRADE COMM'N & U.S. DEP'T OF JUSTICE, *HORIZONTAL MERGER GUIDELINES* § 1.5 (1997) [hereinafter *HORIZONTAL MERGER GUIDELINES*] *available at* <http://www.ftc.gov/bc/docs/hmg080617.pdf> (measuring market concentration using the Hirfindahl-Hirschman Index, which is the sum of the squares of market shares).

60. Of course, other factors have great importance, such as elasticities of demand and production. See William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 938 (1981).

argue that, in a quintessentially common law way, courts are already inching towards bringing increased market power into patent law. Of course, no case law has actually done so, but this Article may hasten the introduction.

## II. MEASURING INCREASED MARKET POWER

The federal antitrust guidelines,<sup>61</sup> economically informed case law,<sup>62</sup> and scholars<sup>63</sup> all define market power as the ability to raise prices above competitive levels on a sustained basis.<sup>64</sup> Measurement of market power and its shifts play a crucial role in many antitrust contexts, including Sherman Act section 2 monopolization cases,<sup>65</sup> Sherman Act section 2 attempted monopolization cases,<sup>66</sup> merger enforcement under Clayton Act section 7,<sup>67</sup> Sherman Act section 1 concerted refusals to deal,<sup>68</sup> Sherman Act section 1 tying cases,<sup>69</sup> and damages in Sherman Act section 1 per se price fixing.<sup>70</sup>

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61. HORIZONTAL MERGER GUIDELINES, *supra* note 59, § 0.1 (defining market power for sellers as the ability to profitably maintain prices over competitive levels for a substantial amount of time).

62. *See, e.g.*, *United States v. Rockford Memorial Corp.*, 898 F.2d 1278, 1283 (7th Cir. 1990) (Posner, J.) (defining market power as allowing a supplier to increase price above competitive level without losing business so as to make the price increase unprofitable).

63. *See, e.g.*, AREEDA & HOVENKAMP, *supra* note 12, ¶ 501, at 109 (articulating substantially similar definitions); Landes & Posner, *supra* note 60, at 937.

64. This differs somewhat from the often-criticized definition of market power laid out by the Supreme Court in *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 391 (1956) (the cellophane case), “the power to control prices or exclude competition.” For a criticism of the “exclude competition” prong as misguided, see Landes & Posner, *supra* note 60, at 977 (calling the second part of the definition “puzzling”).

65. *See, e.g.*, *United States v. Microsoft Corp.*, 253 F.3d 34, 50–51 (D.C. Cir. 2001) (finding that Microsoft possessed monopoly power in violation of Sherman Act § 2).

66. *See* *Spectrum Sports v. McQuillan*, 506 U.S. 447, 455 (1993) (“[T]he plaintiff charging attempted monopolization must prove a dangerous probability of actual monopolization, which has generally required a definition of the relevant market and examination of market power.”).

67. *See generally* HORIZONTAL MERGER GUIDELINES, *supra* note 59 (explaining that the FTC evaluates the probable competitive impact of a merger within markets that could be subject to the exercise of market power). Note that the Supreme Court effectively ceded nearly complete discretion to block mergers to the DOJ and FTC with *United States v. Von's Grocery Co.*, 384 U.S. 270, 278 (1966) (blocking merger that would have resulted in single firm with 7.5% market power in groceries sales in the Los Angeles area).

68. *See* *Nw. Wholesale Stationers, Inc. v. Pac. Stationery & Printing Co.*, 472 U.S. 284, 296 (1985) (“Unless the cooperative possesses market power or exclusive access to an element essential to effective competition, the conclusion that expulsion is virtually always likely to have an anticompetitive effect is not warranted.”).

69. *See* *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 46 (2006) (holding that in all tying arrangement cases, plaintiff must prove the defendant has market power in the tying product).

70. *See* Landes & Posner, *supra* note 60, at 938 (arguing that an analysis of market power can be used to resolve questions in antitrust cases).

A. *Variety of Available Methods from Antitrust Context*

Given the importance of measuring market power—and market power increases—for antitrust law, economics has developed an extensive literature on measurement methodologies.<sup>71</sup> The case law, meanwhile, provides guidance on how to apply these economic techniques in the course of real-world litigation. This background makes it significantly easier to use market power in patent litigation. A full review of the economic literature on measuring market power and increases in market power lies beyond the scope of this Article,<sup>72</sup> but a review of the most fundamental concepts suffices for purposes of elucidating this Article's premise.

Few methods of measuring market power work universally. The ideal mechanism is the Lerner Index, which is simply the percentage of price that is above marginal cost.<sup>73</sup> If dealing with a widget maker that sells widgets at price,  $P$ , and that has a marginal cost,  $MC$ , then the *Lerner Index* =  $(P - MC) / P$ . Measuring the Lerner Index in practice, however, can present obstacles.<sup>74</sup> Many firms charge different prices to different market segments, making it hard to pin down  $P$ . And calculating marginal cost  $MC$  often requires intensive accounting.

A firm's residual demand curve, which represents the demand curve facing the firm after all competitors' sales have been made,<sup>75</sup> similarly allows quantification of market power. This works well as a measurement methodology in many cases.<sup>76</sup> But outside factors such as cost shocks<sup>77</sup> or limit pricing<sup>78</sup> can sometimes distort residual demand data.

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71. See generally Jonathan B. Baker & Timothy F. Bresnahan, *Empirical Methods of Identifying and Measuring Market Power*, 61 ANTITRUST L.J. 3 (1992) (outlining varying empirical methods for measuring market power based on observing firm and industry responses to variations in marginal cost, responses to variation in the elasticity of demand, and by detecting multiple pricing regimes).

72. For a thorough survey, see AREEDA & HOVENKAMP, *supra* note 12, ¶¶ 501–566.

73. See *id.* ¶ 503b (exploring the function's elements and discussing its limitations, such as the Index's tendency to overstate differences between competitive and monopoly prices).

74. *Id.* ¶ 504; see also Robert S. Pindyck, *The Measurement of Monopoly Power in Dynamic Markets*, 28 J.L. & ECON. 193, 194 (1985) (noting that the Lerner Index may overstate market power when dealing with exhaustible resources and understate it when dealing with learning curves; suggesting methods to adjust for these and other problems).

75. AREEDA & HOVENKAMP, *supra* note 12, ¶ 521a.

76. *Id.* ¶¶ 521d, 521f. Note that this mechanism can even allow assessment of market power without the need to define the relevant market. *Id.* ¶ 521c.

77. *Id.* ¶ 521e. Shocks can include, for example, increases in taxes or increases in cost of inputs.

78. *Id.* ¶ 521g. Limit pricing refers to the practice of maintaining a price just low enough to deter entry by new competitors.

Various other factors also evidence market power. The emergence of these factors after the grant of a patent could indicate increased market power, and hence nonobviousness. Persistent above-industry profitability often indicates increased market power.<sup>79</sup> Similarly, when not attributable to transaction costs or market failures, the ability to persistently and systematically price discriminate often indicates market power.<sup>80</sup> If the introduction of a patented invention coincides with the patentee's successfully beginning to price discriminate, that would tend to show increased market power. Market shares also correlate roughly with market power, albeit through several inferences regarding the elasticities and cross-elasticities of demand and supply.<sup>81</sup> As a result, increases in market share after the introduction of the patent would also lead to an inference of market power.<sup>82</sup>

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79. *Id.* ¶ 516b. At this point, the secondary consideration of increased market power intersects with one possible definition of commercial success. *Cf.* Blair-Stanek, *supra* note 33 (arguing for using profits to measure commercial success). Especially consider *id.* at 672 n.138. Recall that many of the secondary considerations have areas of overlap with each other. *See supra* Part I.C..

80. Price discrimination refers to charging a price higher than the market-clearing price to those buyers who are willing to pay it. AREEDA & HOVENKAMP, *supra* note 12, ¶ 517a, at 151. Commentators have noted that intellectual property, especially intellectual property licensing, often involves price discrimination. *See, e.g., id.* at ¶ 517c2, at 157; POSNER, *supra* note 12, at 82. Courts and commentators have observed that basic price discrimination does not necessarily indicate market power and the Supreme Court recently observed that price discrimination “may provide evidence of market power” but is also consistent with fully competitive markets. *See Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 44–45 (2006) (noting that price discrimination alone does not give rise to an assumption of market power).

81. *See supra* notes 58–60 and accompanying text, especially Landes & Posner, *supra* note 60 (explaining the relevance of market shares and elasticity of demand to various equations that calculate market power); *see also* AREEDA & HOVENKAMP, *supra* note 12, ¶ 532 (detailing the uncertain relationship between market shares and market power).

One potential caveat is that a single patent can implicate more than one antitrust market, although this rarely happens. *See In re Indep. Serv. Orgs. Antitrust Litig.*, 989 F. Supp. 1131, 1136–37 (1997). In such circumstances, a court should likely choose the market where the patent's holders face the greatest combination of sophisticated competition and profitability. *See infra* Part III.A.1 regarding sophistication of competitors and Part III.A.2 for relevance of profit. Of course, significantly increased market power in any single market might suffice, through the reasoning in Part III.A.3.

82. Such data would also often indicate commercial success as well. *See* Part I.C on the overlap between many of the secondary considerations. To determine market share, a court must first define the market. *See United States v. Rockford Memorial Corp.*, 898 F.2d 1278, 1283–84 (7th Cir. 1990) (undergoing an analysis of how to define market in order to then assess market share). In defining the market, the tribunal must avoid the so-called cellophane fallacy, of defining the market too broadly on the basis of high cross-elasticity, which in fact may simply indicate that the producer or producers have already monopolized the relevant market and raised to the price where cross-elasticity would make further price increases unprofitable. *See* AREEDA & HOVENKAMP, *supra* note 12, ¶ 539.

*B. Ex Post Measurement Increases the Accuracy  
of Existing Econometric Tools*

The best measure of whether a patent increased market power would perhaps be simply observing whether the patent actually enabled a significant and non-transitory increase in price<sup>83</sup> above marginal costs.<sup>84</sup> If courts do adopt increased market power as a secondary consideration for nonobviousness, they would have the luxury of *ex post* analysis. Performing an *ex post* analysis of market behavior is obviously much easier and more accurate than a present measurement or *ex ante* prediction. Quite simply, in *ex post* analysis, much more data is available, and the court has the considerable benefit of hindsight. The econometric tools developed for measuring market power increase in accuracy with more data and more time.<sup>85</sup>

By comparison, courts evaluating market power in antitrust cases often must do so for the present.<sup>86</sup> The U.S. Department of Justice ("DOJ") and Federal Trade Commission ("FTC") face an even more daunting challenge: in deciding whether to approve mergers, they must often predict market power changes entirely *ex ante*.<sup>87</sup>

*C. Adjusting Factors From Comparison to DOJ and FTC Guidelines*

The DOJ and FTC Horizontal Merger Guidelines suggest several considerations that would help courts using increased market power to determine patent nonobviousness. This is a good example of how the new secondary consideration proposed in this Article would allow patent law to draw from the accumulated theory and practice of antitrust law.

For example, in determining the impact of a horizontal merger, the Guidelines require evaluating the timeliness, likelihood, and

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83. Cf. HORIZONTAL MERGER GUIDELINES, *supra* note 59, § 1.0 (relating market power to market concentration).

84. One can reasonably assume that a firm's prices while the market was competitive, before the patent, were approximately at marginal cost. See Joseph E. Stiglitz, *Economic Foundations of Intellectual Property Rights*, 57 DUKE L.J. 1693, 1713 (arguing that the difference between marginal cost and price caused by a patent amounts to an inefficient tax).

85. Cf. Richard A. Posner, *An Economic Approach to the Law of Evidence*, 51 STAN. L. REV. 1477, 1483 (1999) (explaining that statistical accuracy is directly proportional to the square root of the study's sample size).

86. See *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 459 (1993) (requiring evaluations of the relevant market and market power in order to prove attempted monopolization).

87. HORIZONTAL MERGER GUIDELINES, *supra* note 59, § 2 (explaining the potential effects of future mergers on market power).

sufficiency of new entry to prevent anticompetitive effects.<sup>88</sup> So a merger is more likely to be approved if the anticompetitive effects will likely be blunted by new entrants within approximately two years, and if those new entrants will suffice to offset the anticompetitive effects of the merger.<sup>89</sup> One can quantify this as cross-elasticity of supply.<sup>90</sup>

The Guidelines thus suggest a relevant consideration for a court evaluating a patent's increased market power: the *non-entry* of potential entrants who, under a Guidelines analysis, would have otherwise been expected to enter weighs in favor of nonobviousness. So consider, for example, a patentee that increased its prices upon the grant of the patent in a market with low barriers to entry at a profitable level. If the patentee did not actually face any new entrants, as might otherwise be expected, then a court should weigh that as evidence that the patent led to a particularly significant increase in market power. This would weigh strongly in favor of nonobviousness. Viewed quantitatively, if an analysis of similar markets or other structural factors predicted substantial cross-elasticity of supply that did not appear, that would weigh in favor of the patent having significantly increased market power.

Comparison of actual results to those predicted by the Horizontal Merger Guidelines might also lead courts to *discount* an increase in market power in some patent cases. Consider a patentee who achieved a market power increase, but only in those geographic markets where the Guidelines predict such an increase would be feasible without the benefit of patent protection.<sup>91</sup> In such a case, the fact-finder should discount the value of evidence of increased market power. This is because a patent's obviousness or nonobviousness is determined without reference to geography, but rather by the

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88. *Id.* § 3 ("Entry Analysis").

89. *Id.* § 3.3. This subsection lists a number of factors for consideration, including minimum viable scale and sources of sales to new entrants.

90. See Landes & Posner, *supra* note 60, at 944-46 (providing formulas to calculate demand and supply elasticity). Case law has also recognized the potential for prompt entry by others in constraining market power in non-merger antitrust contexts as well. See, e.g., *Rothery Storage & Van Co. v. Atlas Van Lines, Inc.*, 792 F.2d 210, 218 (D.C. Cir. 1986) (Bork, J.) (rejecting antitrust plaintiff's contentions of defendant's market power in long-distance moving services, since prompt entry likely); see also *United States v. Microsoft Corp.*, 253 F.3d 34, 57 (D.C. Cir. 2001) ("Structural market power analyses are meant to determine whether potential substitutes constrain a firm's ability to raise prices above the competitive level; only threats that are likely to materialize in the relatively near future perform this function to any significant degree.").

91. Cf. HORIZONTAL MERGER GUIDELINES, *supra* note 59, § 1.2 ("Geographic Market Definition"). Incidentally, by "discounting" the increase in market power, courts would not be weighing the evidence toward finding obviousness and hence patent invalidity. Cf. *infra* Part III.C. Rather, the increase in market power would simply not weigh towards nonobviousness, or at least not as much.

worldwide state of the relevant scientific or engineering discipline.<sup>92</sup> Correspondingly, when a patent increases market power only in some geographic areas of the United States, that should not weigh in favor of nonobviousness.

*D. Nexus Required Similar to Commercial Success*

The existing secondary consideration of commercial success imposes a nexus requirement: the patentee asserting commercial success must show a nexus between the commercial success and the patented invention.<sup>93</sup> For example, the commercial success cannot be due to advertising, unclaimed features of the invention, or changes in consumer demand.<sup>94</sup> Courts should similarly require a showing of nexus between the patented invention and increased market power before inferring nonobviousness. In doing so, they can draw directly upon the rich, easily transferrable body of case law developed in the commercial success context.<sup>95</sup>

Variation from existing nexus case law might be required, depending on the nature of the proof for the increased market power. For example, a patentee who proved increased market power by the emergence of sustained and systematic price discrimination would have to show that its higher-priced sales were facilitated by factors other than market imperfections. Or, if a patentee relies on a favorable change in the residual demand curve to show increased market power and nonobviousness, then an accused infringer could show lack of nexus by demonstrating that the favorable change resulted from an exogenous shock. Similarly, a patentee showing that the patent allowed it to sustain a substantial and nontransitory price increase would also have to show a nexus by submitting

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92. See 35 U.S.C. § 102(a) (2006) (“A person shall be entitled to a patent unless . . . the invention was . . . patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent . . .”); see also *supra* Part I.A–B (discussing the statutory test for nonobviousness and the judicially created secondary considerations).

93. See *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1130 (Fed. Cir. 2000). See generally 2 CHISUM, *supra* note 3, § 5.05[2][f] (defining the relation between success and claimed invention).

94. See 2 CHISUM, *supra* note 3, § 5.05[2][f] (listing factors that are not valid measures of commercial success such as effective advertising, superior workmanship, etc.). Some case law also includes pre-existing market power as potentially severing the nexus. *Id.* Of course, this Article proposes using *increases* in market power—not pre-existing market power—as a new secondary consideration. This key distinction is discussed more, *infra* Part IV.B.

95. See sources cited *supra* notes 36–38 (applying the nexus requirement of the commercial success secondary consideration).



evidence that other industry players did not also maintain a similar, concurrent price increase.

### III. WHY USING INCREASED MARKET POWER TO INFER NONOBTVIOUSNESS MAKES SENSE

This Part explains the value of increased market power as a secondary consideration. First, it considers the theoretical bases in relation to existing secondary considerations. It then gives several actual and hypothetical examples demonstrating its value. Finally, having justified the usefulness of increased market power for showing nonobviousness, this Part shows that the converse is not true. Specifically, a *lack* of increased market power does not indicate obviousness.

#### A. *Theoretical Bases*

As noted above in Part I.C, many of the existing secondary considerations have close inferential links and often overlap. The theoretical bases for using increased market power as a new secondary consideration share much with three already-extant considerations: licensing acquiescence, commercial success, and long-felt need. This Part considers what increased market power has in common with these, and also how increased market power improves on them as workable, reliable indicia of nonobviousness.

##### 1. *Evaluation of nonobviousness by self-interested competitors*

Patent law has long recognized licensing by others<sup>96</sup> as a secondary consideration indicating nonobviousness.<sup>97</sup> The underlying theory is that those in the field, being best positioned to evaluate the validity of a patent, would not act against their own self-interests by paying a royalty unless convinced of its nonobviousness.<sup>98</sup> The Federal Circuit, which is the specialized court hearing all patent appeals,<sup>99</sup> has called licensing by others a “real world consideration[] . . . , and a solid

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96. This is sometimes also called “commercial acquiescence.” *See generally* 2 CHISUM, *supra* note 3, § 5.05[3] (“Commercial Acquiescence—Licensing”).

97. *See* Eibel Process Co. v. Minn. & Ont. Paper Co., 261 U.S. 45, 53–57 (1923) (discussing the existence of licenses while analyzing a patent).

98. 2 CHISUM, *supra* note 3, § 5.05[3].

99. The U.S. Court of Appeals for the Federal Circuit was created in 1982. *See* Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, § 127(a), 96 Stat. 25, 37–39 (codified at 28 U.S.C. § 1295 (2006)). Congress aimed *inter alia* to create national uniformity for patent law. H.R. REP. NO. 97-312, at 22 (1981).

evidentiary foundation on which to rest a nonobviousness determination."<sup>100</sup>

Some scholars and courts have, however, questioned the value of licensing as a secondary consideration, on a number of grounds. Competitors may take out a license simply to avoid the costs and uncertainty of patent litigation, even if that litigation would most likely invalidate the patent.<sup>101</sup> Cross-licensing or patent pools may even be used as methods to police cartels,<sup>102</sup> or to enhance members' ability to argue that their patents are nonobvious.<sup>103</sup> Empirical evidence, moreover, indicates that mistrust, asymmetrical information, and transaction costs typically result in licenses on valuable patents not being granted from the patentee to direct competitors.<sup>104</sup> Instead, patentees prefer to license only to firms in ancillary markets where the patentee does not compete.<sup>105</sup> Finally, scholars have noted that licensees may take out licenses less for the right to use the patented technology, and more for the unpatented know-how and trade secrets that also come with the licensing arrangement.<sup>106</sup>

Increased market power as a secondary consideration has the same theoretical basis as licensing evidence, while addressing the aforementioned criticisms. Consider a product market populated by several competing firms, all of which charge the same price for essentially identical products. Say one firm develops a patented improvement, which its competitors dare not copy because it is clearly nonobvious, and this improvement allows the firm to charge ten percent more than its competitors over a number of years. A court would correctly conclude that the patent had increased the firm's market power.<sup>107</sup> It could also conclude that the direct competitors believed the patent was nonobvious with the aid of the

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100. *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1575 (Fed. Cir. 1992).

101. *See Merges, supra* note 14, at 867 (explaining that firms may prefer to pay a set price for a license rather than incur the risks and costs of patent litigation).

102. *See Priest, supra* note 1, at 356 (arguing that it is necessary to distinguish cross-license restraints on trade from unilateral patent licenses).

103. *See, e.g., Skil Corp. v. Lucerne Prods., Inc.*, 489 F. Supp. 1129, 1144 (N.D. Ohio 1980).

104. *See* Richard E. Caves, Harold Crookell & J. Peter Killing, *The Imperfect Market for Technology Licenses*, 45 OXFORD BULL. ECON. & STATS. 249, 260-262 (1983) (learning from a survey that most licenses pass between firms in different nations despite the lower transaction and transfer costs between domestic firms).

105. *Id.*

106. *Cf. Merges, supra* note 14, at 871 (noting economic reasons why firms may choose to license inventions regardless of patentability).

107. An identical situation would apply if an independent inventor obtained the patent and granted a license to just one firm in the industry.

following reasonable, easily verified assumptions: first, that competitors were aware of the patent; and second, that they would have preferred to incorporate the patent and charge the higher price themselves.<sup>108</sup> Increased market power thus acts as “real world” evidence that those best positioned to evaluate the patent believe it to be valid.<sup>109</sup>

Using increased market power overcomes the empirical critique of licensing evidence that patentees rarely license valuable patents to direct competitors, preferring to license to distant competitors.<sup>110</sup> Direct competitors, being in the same field as the patentee, will often be better positioned to evaluate nonobviousness than distant competitors, far from the patentee’s core market, upon whom licensing evidence typically depends. Increased market power thus should provide much more relevant evidence than most licensing.

Utilizing increased market power also involves much more sensible economic incentives than does licensing evidence. A competitor, whether in the patentee’s market or not, will take out a license on a patent it believes likely invalid, provided it is sufficiently inexpensive relative to the risk-adjusted<sup>111</sup> expected cost of litigation.<sup>112</sup> In other words, licensing can simply represent the “nuisance value” of avoiding the courthouse.<sup>113</sup> Given the unusually high cost of patent litigation, which easily runs into the millions of dollars,<sup>114</sup> this

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108. For what, on the record, appears to be an example of a direct competitor preventing the patentee from having any increased market power due to the infringer’s copying, see *E. I. Du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 656 F. Supp. 1343 (D. Del. 1987), *partially rev’d on other grounds*, 849 F.2d 1430 (Fed. Cir. 1988). There, the accused infringer was producing the infringing product *before* the patent issued. *Phillips Petroleum Co.*, 656 F. Supp. at 1394. Not surprisingly, the patentee’s profitability on the patented product “was allegedly ‘miserable’ and a ‘dog,’” *id.* at 1370, and there appeared to be an “absence of price premiums.” *Id.*

109. This applies to both direct competitors and potential competitors. *Cf.* Part II.C (discussing the non-entry of potential competitors).

110. See *supra* notes 104–05 and accompanying text.

111. Since most firms are risk-averse, the risk adjustment will almost always be upwards, corresponding to a higher acceptable license.

112. The expected value of litigation, ignoring the cost of equitable relief, will approximately equal  $p \cdot d \cdot w + a$  where  $p$  is the probability of invalidity,  $d$  are the likely damages from infringement,  $a$  are attorneys fees and related litigation costs, and  $w$  is the likely willfulness inflation factor that ranges between 1 and 3. See 35 U.S.C. § 284 (2006) (allowing up to trebling of damages); 7 CHISUM, *supra* note 3, § 20.03(4) (b). The key issue to note is that the cost will almost always be nontrivial, since  $a$  is rarely small.

113. The American rule of parties bearing their own attorneys’ fees is disregarded in patent litigation only in “exceptional cases,” per 35 U.S.C. § 285 (2006).

114. Raymond Van Dyke, *Functional Economics: The New Language in Computing Lost Profits*, 34 AIPLA Q.J. 195, 215 n.115 (2006) (citing AIPLA, REPORT OF THE ECONOMIC SURVEY 2005 22 (2005)) (observing that the typical cost of “litigation fees” for a simple patent case is \$350,000, and complicated, higher damages cases range from \$650,000 to \$4.5 million, typically costing \$3 million dollars).

nuisance value can be substantial. As a result, even if a competitor has very good grounds to believe a patent will almost certainly be held invalid, it will still take out a moderately expensive license.<sup>115</sup>

Compare this situation to one where a patentee's competitor believes the patent is invalid, but the patent has profitably increased the patentee's market power.<sup>116</sup> If the patentee's competitor decides not to infringe the patent it believes invalid, thereby leaving the patentee's market power intact, it foregoes a significant opportunity cost. The magnitude of this opportunity cost would be similar to that faced by the member of a cartel in deciding whether to defect.<sup>117</sup> Competitors thus directly forgo profits if they choose not to challenge a patent in the marketplace. This creates much more direct and accurate market-based incentives than the indirect and clumsy incentives around licensing under the threat of potential litigation. This demonstrates how using increased market power addresses a key criticism of using licensing evidence.

Until recently, the potential trebling of damages for willful infringement might have negatively impacted this strong incentive for a direct competitor to infringe upon a patent it believes obvious.<sup>118</sup>

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115. Sufficiently expensive licenses, however, clearly represent something more afield than mere nuisance value. *See, e.g.,* B&H Mfg. Inc. v. Foster-Forbes Glass Co., 26 U.S.P.Q.2d (BNA) 1066, 1070 (N.D. Ind. 1993). In that case, the court found that:

Even with the high cost of patent litigation, few (if any) large competitors will pay millions of dollars in royalties simply to avoid litigation. Indeed, [the two licensees] have been represented to the court to be the most powerful bottling companies in the country, which leads the court to believe that they would not have bowed to pressure to take a license without first reaching the conclusion that ultimately litigation would prove futile.

*Id.* at 1070. Note that low royalties in a *cross*-licensing arrangement may often indicate that it fronts for a cartel, unless the patents exchanged have similar value. *See* Priest, *supra* note 1, at 327, 357 (explaining that profit-maximizing firms will typically charge royalties, absent the existence of a cartel).

116. As a normative matter, some scholars have noted that infringing competitors can have social benefits, regardless of whether they believe the underlying patent invalid, by preventing patentees from extracting full monopoly profits. Ian Ayres & Paul Klemperer, *Limiting Patentees' Market Power Without Reducing Innovation Incentives: The Perverse Benefits Of Uncertainty And Non-Injunctive Remedies*, 97 MICH. L. REV. 985, 994 (1999). This result, in addition to the benefits accruing to society when questionable patents are challenged, should lead courts to encourage the behavior described in the accompanying text.

117. The two opportunity costs will not necessarily be identical, but the basic analysis remains the same. The potential infringer sees the possibility of grabbing a share of the profits that otherwise would have accrued to other firms. The potential infringer must similarly weigh whether to do this against the possibility of retaliation. In the cartel context, the retaliation would be in the form of a price war; in the patent context, it would come in the form of patent litigation.

118. *See* 35 U.S.C. § 284 (2006) (allowing for up to treble damages in infringement cases). A determination of willfulness lies within the discretion of the district court, *SRI Int'l, Inc. v. Advanced Tech. Labs., Inc.*, 127 F.3d 1462, 1468–69 (Fed. Cir. 1997),

But the 2007 case *In re Seagate Technology, LLC*<sup>119</sup> removed much of this risk, as a patentee would now have to show that the competitor's evaluation of the obviousness of the patent was objectively reckless.<sup>120</sup> The *Seagate* holding thus also clarifies the greater potential for accuracy of increased market power evidence vis-à-vis licensing.

Using increased market power also addresses another critique of licensing evidence: licensing agreements often do not specify how much of the licensing fees are for the patent itself, and how much are for the *un*patented know-how and trade secrets the licensee also gets

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and until recently was determined by an examination of the "totality of the circumstances." See *Graco, Inc. v. Binks Mfg. Co.*, 60 F.3d 785, 792 (Fed. Cir. 1995) (explaining that many factors should be considered when resolving the issue of willfulness).

In *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 829 (Fed. Cir. 1992), the Federal Circuit reversed the district court's trebling of damages, where the infringer had a good-faith belief that the patent was invalid, backed up by advice of counsel, and proceeded to assert that invalidity defense at trial. These circumstances resemble those described in the text: when a competitor, based on its knowledge of the art, openly infringes a patent it believes invalid. The court also laid out nine factors to determine whether damages up to trebling should be assessed:

- (1) whether the infringer deliberately copied the ideas or design of another;
- (2) whether the infringer, when he knew of the other's patent protection, investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed; . . .
- (3) the infringer's behavior as a party to the litigation. . . .
- (4) Defendant's size and financial condition. . . .
- (5) Closeness of the case. . . .
- (6) Duration of defendant's misconduct. . . .
- (7) Remedial action by the defendant. . . .
- (8) Defendant's motivation for harm. . . .
- (9) Whether defendant attempted to conceal its misconduct.

*Read*, 970 F.2d at 827. Factors (2), (5), (8), and (9) would all have weighed towards no assessment of collateral damages. This makes it more likely that a direct competitor believing a patent invalid will attempt to challenge the patentee's position in the market, eroding the patentee's market power.

119. 497 F.3d 1360 (Fed. Cir. 2007). This case arose in the context of petitioning the Federal Circuit to issue mandamus to block the district court's issuance of an order compelling discovery in a patent litigation case. *Id.* at 1365. The court also addressed the antecedent issue of willfulness, *id.* at 1371–72, and overruled prior case law fashioning an easy standard for willfulness. *Id.* at 1365. The prior standard included the following affirmative duty: "Where . . . a potential infringer has actual notice of another's patent rights, he has an affirmative duty to exercise due care to determine whether or not he is infringing." *Id.* at 1368 (quoting and overruling *Underwater Devices Inc. v. Morrison-Knudsen Co.*, 717 F.2d 1380, 1389–90 (Fed. Cir. 1983)). The court moved from a negligence-like standard to a recklessness standard. See generally David R. Clonts, *The Federal Circuit Puts the Willfulness Back into Willful Infringement*, INTELL. PROP. & TECH. L.J. Dec. 9, 2007; Kaustuv M. Das, *Willful Infringement, Waiver, and Advice of Counsel: A Sea Change at the Court of Appeals for the Federal Circuit*, 89 J. PAT. & TRADEMARK OFF. SOC'Y 853 (2007).

120. 497 F.3d at 1371 ("[E]nhanced damages requires at least a showing of objective recklessness . . . [and enhancement requires] clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent."). Prior to this, the standard was one of negligence, with a large subjective element. *Id.*

under the agreement. By contrast, a direct competitor's decision to challenge a patentee's product or service in the marketplace and to thereby infringe a patent it believes invalid involves transfer of neither know-how nor trade secrets.<sup>121</sup>

Additionally, using increased market power to judge nonobviousness addresses the criticism that licensing evidence creates incentives to cross-license patents to increase the likelihood of one's own patents and one's cross-licensee's patents being valid.<sup>122</sup> Overall, increased market power has a similar inferential basis as licensing evidence, but addresses the criticisms leveled against the usefulness and accuracy of licensing evidence.

## 2. *Firms motivated by profit*

While increased market power's benefits over licensing are mainly *substantive*, producing a more reliable indication of nonobviousness and fewer perverse incentives, the benefits over commercial success are primarily *evidentiary*. Commercial success bears many substantive similarities to increased market power, and, as mentioned in Part I.D, could provide a route for introducing increased market power into the case law. If one defines commercial success as profits,<sup>123</sup> then commercial success overlaps somewhat with market power, often defined as the sustainable ability to raise prices above marginal cost.<sup>124</sup> Under the conventional, flawed<sup>125</sup> definition of commercial success as revenues,<sup>126</sup> it overlaps less and can even run in the other direction, since exercising market power often involves restricting output and thereby reducing revenues.<sup>127</sup> Regardless of the gauge of commercial

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121. See *supra* note 106 and accompanying text (noting that firms gain technological know-how by licensing).

122. *Supra* note 103 and accompanying text.

123. See Blair-Stanek, *supra* note 33 (advocating the use of profits, rather than revenue, as a measure of commercial success).

124. See *supra* Part II.A (considering the Lerner Index—a measurement of the percent of price that exceeds the marginal cost—the “ideal mechanism” for measuring market power).

125. See Blair-Stanek, *supra* note 33, at 678 (elaborating on the weaknesses of revenue as a measure of commercial success).

126. See, e.g., *J.T. Eaton & Co., Inc. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997) (defining commercial success in terms of sales); see also *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006); *Neupak, Inc. v. Ideal Mfg. & Sales Corp.*, 41 F. App'x 435, 440 (Fed. Cir. 2002); *Bose Corp. v. QSC Audio Prods. Inc.*, 293 F.3d 1367, 1373 (Fed. Cir. 2002); *Eli Lilly & Co. v. Teva Pharms. USA, Inc.*, No. 02-0512, 2004 U.S. Dist. LEXIS 14724, at \*66 (S.D. Ind. July 29, 2004).

127. In exercising market power, a firm reduces production from the quantity where Marginal Cost (“MC”) intersects the Demand (“D”) curve, to the quantity where MC intersects Marginal Revenue (“MR”). Provided that  $MC > 0$ , which is true except in the most pure IP situations, this means that  $MR > 0$ , meaning the firm gave up revenue.

success, using increased market power as a secondary consideration would enable patent law to draw on the wealth of methodologies developed in the antitrust context and thus derive corresponding evidentiary benefits.

Increased market power does not depend solely on the four inferences that underpin the relevance of commercial success to nonobviousness.<sup>128</sup> It can also detect indicia of nonobviousness when exogenous factors prevent the patentee's commercial success.

Consider an industry that has multiple firms, and suppose one firm develops a nonobvious patent with value to customers, and at the same time all the firms in the industry experience a significant increase in costs. This increase will likely lead to lower profits and revenues across the industry.<sup>129</sup> Even though the patent enables the patentee firm's profits and perhaps revenues to be higher than they would be otherwise,<sup>130</sup> the firm's profits and revenues might nonetheless decline from their levels prior to the industry-wide increase in costs. A court measuring commercial success by either revenues or profitability may detect none, despite the patent's

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128. Kitch, *supra* note 35, at 330–35. The four inferences are:

First, that the commercial success is due to the innovation. Second, that if an improvement has in fact become commercially successful, it is likely that this potential commercial success was perceived before its development. Third, the potential commercial success having been perceived, it is likely that efforts were made to develop the improvement. Fourth, the efforts having been made by [persons skilled in the field], they failed because the patentee was the first to reduce his development to practice.

*Id.* at 332. Scholars have criticized these inferences. *See, e.g., id.* at 332–33 (suggesting that “[e]ach inference is weak”); Merges, *supra* note 14, at 830 (relating the chain of inferences a court must make). Of the four inferences, only the first has an analog for increased market power that must apply for increased market power to have relevance. The nexus requirement suffices to meet that requirement. *See* Part II.D (suggesting that the “easily transferrable” case law addressing the nexus requirement in commercial success may be supplanted to an analysis of the connection between market power and nonobviousness). The other reasons increased market power has significance are addressed in Parts III.A.1 and III.A.3.

129. Most notably, if the demand curve is fairly elastic, then the overall quantity sold will go down without being compensated for by the increased market price, thereby decreasing industry-wide revenues. And, again assuming a fairly elastic demand curve, the price increases will not be fully passed on to buyers thereby decreasing industry-wide revenues.

130. Depending on the market structure and the value of the patented invention to different buyers in the market, the patentee firm might even find it most profitable to charge a price that *lowers* revenues even further than they would be without the patent. *See, e.g.* Blair-Stanek, *supra* note 33, at 655–56 (giving an example of how a patentee might rationally increase profits but decrease revenues with a better, “upscale” mousetrap). In such a situation, the patentee would also have *lower* market share than it would otherwise, as market share is firm revenues divided by industry-wide revenues.

nonobviousness and value to consumers.<sup>131</sup> But in this situation, several of the measurements of market power outlined in Part II, such as the introduction of sustained price discrimination or measurements of the Lerner Index, would often correctly detect the increase in market power.<sup>132</sup>

Increased market power provides courts with an alternative perspective on nonobviousness because it looks mostly at the *external* aspects of the firm's position in the marketplace. By contrast, commercial success focuses mostly on the *internal* accounting of the firm.<sup>133</sup> In some cases, the external view provided by increased market power will allow courts to detect indicia of nonobviousness when the internal view provided by commercial success fails to indicate any. The example in the previous paragraph is just one situation where this would happen.<sup>134</sup> And in many cases, courts and litigants would find the external data of market power easier to discover and interpret than the internal accounting data relevant to commercial success. Overall, increased market power provides several advantages over the traditional secondary consideration of commercial success.

### 3. *Indicator of long-felt need*

Learned Hand believed long-felt need provides the best secondary evidence of nonobviousness,<sup>135</sup> and satisfying a long-felt need has

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131. For the reasons discussed above, *supra* note 130, a court measuring commercial success by market share might also find no evidence supporting patent nonobviousness.

132. The Lerner Index would still detect the increase in market power, despite an exogenous shock to industry-wide fixed costs. Even with the shock to the industry, the patent would still enable the patentee to raise its price ("P") above its marginal cost ("MC"). Since the Lerner Index is  $(P - MC) / P$ , it would correctly detect the market power.

Similarly, if the patent gives market power and is valuable, then an exogenous shock to industry-wide costs—regardless of whether fixed or marginal—would not impact the willingness of some buyers to pay above-market prices to get the patentee's product rather than other producers' product. This would allow the patentee to price discriminate, thus correctly indicating increased market power.

133. This characterization of market-power as external and commercial-success as internal is mostly accurate, but not always. Some market power measures require looking at internal accounting data, while some commercial success measures look at external data. But in general the characterization is accurate. For example, price discrimination and residual supply curves, which measure market power, look entirely at external data. Meanwhile, revenue, the quintessential measure of commercial success, and profitability are determined by looking at internal accounting data.

134. While some of the measures of increased market power involve the definition of a relevant market for the product, so does commercial success. A court could, in some circumstances, get two secondary considerations for the judicial price of one.

135. *Safety Car Heating & Lighting Co. v. Gen. Elec. Co.*, 155 F.2d 937, 939 (2d Cir. 1946). Indeed, the Supreme Court in *Graham v. John Deere Co.* listed only



strong support as a justification for patentability under both classical economic justifications for patent law.<sup>136</sup> Increased market power does not address any failing of long-felt need,<sup>137</sup> but rather provides additional evidence of the *existence* of long-felt need. If the market has need for a product, then that would result in an inelastic demand curve for a product embodying a patent that satisfies that need. The longer the market has felt the need, the more inelastic the demand curve will be.

A patent cannot increase the market power of its holder unless the demand curve for the patented product is relatively inelastic. Market power is hence consistent with long-felt need, and separated only by one logical inference.<sup>138</sup> When the patentee also introduces qualitative evidence of long-felt need, such as customer requests for a solution to a problem solved by the patent, the increase in market power should particularly aid a fact-finder in finding nonobviousness.

Increased market power also has benefits over most currently accepted evidence of long-felt need, such as customer requests.<sup>139</sup> Market power data are largely quantitative and reflect the decisions of market participants using real money. By contrast, patentees can easily collude with large, long-term customers to produce or inflate evidence of customer requests. Or, patentees can cherry-pick customer requests to paint a misleading picture of long-felt need for a jury. Increased market power provides more objective evidence and

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three of the nine secondary considerations: long-felt need made the list. 383 U.S. 1, 35–36 (1966).

136. See generally A. Samuel Oddi, *Un-Unified Economic Theories of Patents—the Not-Quite-Holy Grail*, 71 NOTRE DAME L. REV. 267 (1996) (discussing the five economic theories posited over time for the patent system). The patent-induced theory would support long-felt need, as its existence would induce the search for an invention satisfying the need. The rewards theory also would, under the theory that in satisfying the need the patentee has contributed something of value to society. *Cf. id.* at 316 (discussing how the two classical theories interact with long-felt need in the case *Calmar, Inc. v. Cook Chem. Co.*, 380 U.S. 949 (1965)). The other three non-classical theories of the patent system seem indifferent to long-felt need.

137. Some scholars have criticized long-felt need as requiring a potentially unjustified inference. See *Merges*, *supra* note 14, at 830 (“[L]ong-felt need requires a key inference to effectively prove patentability: the court must infer that the patentee’s competitors, faced with the same market pressures, were contemporaneously trying to produce a similar invention.”). This seems like a reasonable inference for truly long-felt need.

138. The logical causation from both long-felt need and market power both run towards less-elastic demand curves. In other words, long-felt need will imply a less-elastic demand curve; and market power will imply the existence of a less-elastic demand curve. To get from market power to long-felt need, one need infer only that the less-elastic demand curve resulted from long-felt need.

139. See, e.g., *Buildex Inc. v. Kason Indus. Inc.*, 665 F. Supp. 1021 (E.D.N.Y. 1987) (describing a patent, the idea for which was generated during conversations between the patentee and a purchaser), *rev’d*, 849 F.2d 1461 (Fed. Cir. 1988).

is harder for patentees to manipulate than most forms of long-felt need evidence.<sup>140</sup>

*B. Examples Demonstrating the Value of Using Increased Market Power*

This Part provides several examples of how increased market power would correctly lead a court to a conclusion of nonobviousness.

*1. Creation and domination of new market*

When a patented invention leads to the creation of an entirely new market, the patentee becomes a true monopolist in that market.<sup>141</sup> The patentee hence goes from having zero power to having as much market power as the market will bear. In one famous case, the Peelers Company achieved this feat. Peelers developed and patented the first machine to peel raw shrimp successfully.<sup>142</sup>

The behavior of the patentee there bore many indicia of market power.<sup>143</sup> The two main shrimp processing regions of the country, the Gulf Coast and the Pacific Northwest, dealt with different-sized shrimp species.<sup>144</sup> The much smaller shrimp found in the Pacific Northwest meant that the peeling machine saved twice as much in hand labor costs there. Peelers used substantial price discrimination<sup>145</sup> to extract the additional benefit that the machine brought to its Pacific Northwest lessees. It charged them significantly more for the machines than it charged its Gulf Coast lessees, despite the fact that the machines were virtually identical.<sup>146</sup> This sort of clear and sustained price discrimination indicates substantial market power<sup>147</sup> where none previously existed. This increased market power should lead a court to infer nonobviousness. Indeed, courts did hold

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140. For more on the manipulation of secondary considerations evidence, see Part IV.A.

141. The same is true if the patentee simply licenses the patent to one actual market participant.

142. See *Kaakinen v. Peelers Co.*, 301 F.2d 170, 171 (7th Cir. 1962) (describing the company's predecessor's development of the invention).

143. It had sufficient market power that it brought about antitrust scrutiny and remedies. *In re Grand Caillou Packing Co.*, 65 F.T.C. 799 (1964), *aff'd*, *LaPeyre v. FTC*, 366 F.2d 117 (5th Cir. 1966). For a discussion of the *Peelers* antitrust situation, see POSNER, *supra* note 12, at 203–04. Posner notes that the reasoning of the FTC and appeals court in the *Peelers* case has been rejected, including in his own opinions, *In re Brand Name Prescription Drugs Antitrust Litig.*, 186 F.3d 781 (7th Cir. 1999) (Posner, J.); and, *USM Corp. v. SPS Techs., Inc.*, 694 F.2d 505 (7th Cir. 1982) (Posner, J.).

144. *LaPeyre*, 366 F.2d at 119–20.

145. \$1.10 per unit versus \$0.55 per unit. *Id.* at 120.

146. *Id.*

147. See 2B AREEDA & HOVENKAMP, *supra* note 12, ¶ 517a, at 151; *id.* ¶ 517c, at 153 (defining price discrimination and describing its significance for antitrust purposes).

the Peeler Company's patents nonobvious, on both technical grounds and the existing secondary considerations.<sup>148</sup>

One could ask, of course, how to tell when a patent creates a new "market." Antitrust law frequently encounters issues of market definition and provides extensive guidance.<sup>149</sup> Of course, in defining the market, courts would have to avoid the so-called "cellophane fallacy," which might lead a court to incorrectly conclude that the patentee did not create a new market. The cellophane fallacy refers to a mistake made by the Supreme Court in *United States v. E.I. du Pont de Nemours & Co.*<sup>150</sup> There, the Court incorrectly concluded that cellophane, a market dominated by Du Pont, was part of the market for flexible wrapping materials due to the high cross-elasticity between cellophane and other flexible wrapping materials.<sup>151</sup> This reasoning ignores the fact that a monopolist will increase its price until doing so becomes unprofitable, which will often be near the point consumers consider alternatives (e.g. other flexible wrapping materials), corresponding to high consumer cross-elasticity.<sup>152</sup> So the Peeler Company might increase its machine lease price to the point where going much higher would become unprofitable, as canneries found it cheaper to move back to labor-intensive peeling by hand. A court would be well-advised to avoid including human shrimp peelers in the same market as the Peeler's machine, and instead to recognize that Peeler's created a new market. In this new market, Peeler's was a true monopolist with significant market power, which a court would correctly find weighing towards nonobviousness.

## 2. Demand-driven breakout from competitive equilibrium

Many patents that create market power do so without creating a new market. For example, assume a competitive market for mousetraps, with numerous producers. If one of these producers develops a patented, nonobvious "better mousetrap" that adds real value to consumers,<sup>153</sup> then the producer will be able to raise its price.

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148. *Kaakinen v. Peeler's Co.*, 301 F.2d 170 (7th Cir. 1962). The court there relied upon technical evidence, long-felt need, failure of others, and commercial success. *Id.* at 171-73.

149. See, e.g., HORIZONTAL MERGER GUIDELINES, *supra* note 59, §§ 1.1-1.322.

150. 351 U.S. 377 (1956).

151. *Id.* at 380. On the cellophane fallacy, see 2B AREEDA & HOVENKAMP, *supra* note 12, ¶ 539 (introducing the cellophane fallacy).

152. See Landes & Posner, *supra* note 60, at 960-61 (explaining that the Court ignored consumers' propensity for substitution at the producer's profit-maximizing output and price). Another limitation on market power would be supplier cross-elasticity.

153. To add value, the invention must address a consumer "need," broadly defined to include non-essential needs.

This does not indicate the creation of a new market, as pricing differences due to differentiated products are entirely possible within a single market.<sup>154</sup> Within a differentiated market, a key determinant of market power is the ability of rivals to match features.<sup>155</sup> If firms introduce patented features that rivals perceive as being nonobvious, then rivals will not copy them, resulting in increased market power for the patentees.

This simple model also shows how using increased market power can indicate nonobviousness where there is no evidence of commercial success. In the market structure economists refer to as *monopolistic competition*,<sup>156</sup> each firm has market power regarding its own products. But monopolistic competition is typically marked by economic profits being driven down to zero as other firms enter with their own differentiated offerings. Firms in a monopolistically competitive market could differentiate their products through nonobvious patented inventions that consumers consider valuable, giving a degree of market power to firms. In such monopolistically competitive markets, courts would often not find evidence of commercial success, measured by revenues or profits.<sup>157</sup> But where nonobvious patents have indeed given firms substantial market power, courts would find evidence of increased market power, correctly indicating nonobviousness.

### 3. *Supply-driven breakout from competitive equilibrium*

The previous Subsection demonstrated how market power could increase due to a patented invention providing value to *consumers*. This Subsection shows how nonobvious patented inventions can also increase market power by reducing the marginal costs of *producers*.

Consider a market at equilibrium with a dozen producers, each with a small amount of market power. The individual producer faces an elastic demand curve. The Figure below shows the demand and cost curves faced by each individual producer:

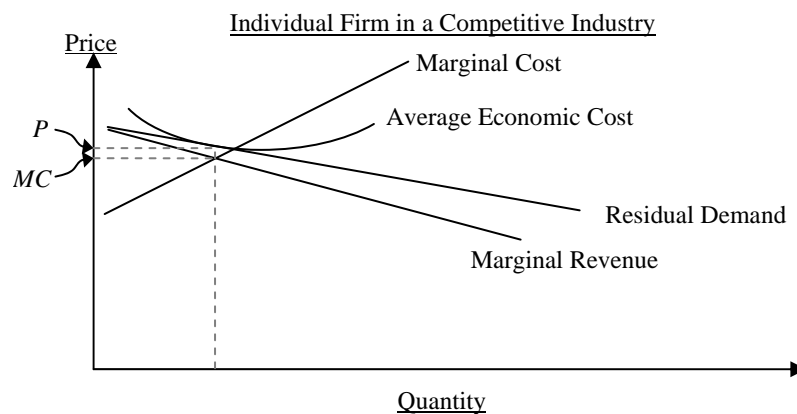
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154. See 2B AREEDA & HOVENKAMP, *supra* note 12, ¶ 562c, at 381 (describing circumstances in which price differences may occur in a single market).

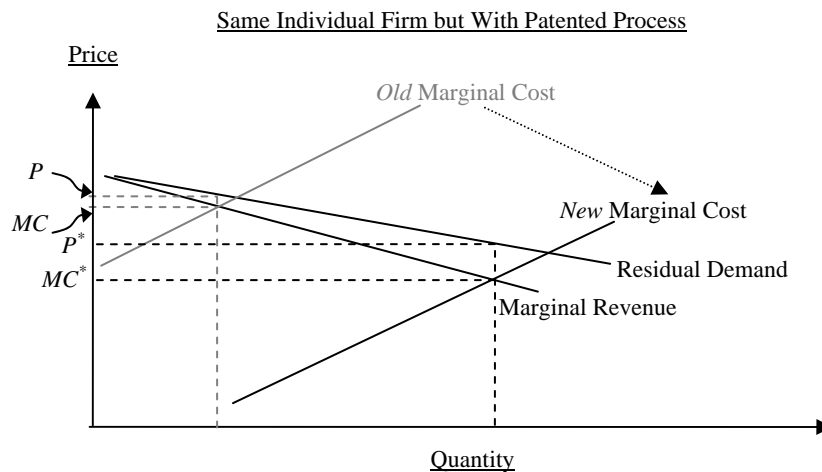
155. See *id.* ¶ 563a, at 386 (observing that consumers may turn to another seller when a rival can match the features of that product).

156. See generally PAUL A. SAMUELSON & WILLIAM D. NORDHAUS, *ECONOMICS* 168–73 (17th ed. 2001) (describing monopolistic competition). Patents are often one of the differentiating factors that allow monopolistic competition to emerge. *Id.* Monopolistic competition has three characteristics: (1) Many buyers and sellers; (2) easy entry and exit; and (3) firms take other firms' prices as given. *Id.* at 187–89.

157. Lack of commercial success does not indicate obviousness. See Blair-Stanek, *supra* note 33, at 656 (describing a hypothetical case in which the nonobvious invention increased profits, but did not change revenues).



In this case, the firm's market power is measurable by the Lerner Index,<sup>158</sup> which is  $(P - MC) / P$ .<sup>159</sup> Since  $P$  and  $MC$  are nearly the same because of the lack of market power, we can see that the Lerner Index is relatively low. Suppose, however, that the individual firm perfected a process, which had long been needed in the industry, and which significantly lowered the patentee's marginal cost:



We can see that the distance between  $P^*$  and  $MC^*$  is greater than the distance was between  $P$  and  $MC$ . This increases the Lerner Index. And the denominator of the Lerner Index, previously  $P$  and now  $P^*$ , has gotten smaller, increasing the Lerner Index even more. The new process, by lowering marginal costs, has thus significantly increased

158. See *supra* Part II.A (referring to the Index as an "ideal mechanism" for measuring market power).

159. 2B AREEDA & HOVENKAMP, *supra* note 12, ¶ 503b, at 118.

the producer's market power as measured by the Lerner Index.<sup>160</sup> Other indicia of market power would also indicate an increase, as this invention would result in greater market share and increased profits. The invention could even allow the patentee to engage in price discrimination, provided it can separate out the customers still willing to buy at the previous price  $P$ .

In the extreme case, a patented process that substantially reduces the cost of production would even make the patentee into a natural monopolist. Natural monopolies occur when average costs are still declining at the point that the patentee serves the entire market.<sup>161</sup> The patentee in such a scenario would obviously achieve a quite significant increase in market power.

*C. Lack of Increase in Market Power Does Not Indicate Obviousness*

This Article has argued that courts should consider increased market power as evidence of nonobviousness. The logical converse, that a lack of market power increase should indicate obviousness, is *not* true for a number of reasons. The data may simply not be present to apply any of the measures of market power laid out in Part II. And at the time of litigation the patentee may simply not have been able to commercialize the invention, obviously preventing the patent from having any impact on market power.<sup>162</sup> The patent may be truly nonobvious to those in the relevant field, yet not meet any substantial consumer or industrial need at all. Even if a nonobvious patent does meet a long-felt need, another firm may contemporaneously develop a competing alternative solution to the same need, thereby preventing the patent from noticeably increasing the patentee's market power.<sup>163</sup>

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160. There is nothing inherent about the mathematical properties of the Lerner Index that guarantees a decrease in marginal costs will result in an increase in the Lerner Index. If you let  $q$  equal quantity and  $P$  equal the price that the firm could charge if it supplied exactly  $q$  units (i.e.,  $P = q$  is the firm's residential demand curve) then the derivative of the Lerner Index equals  $(q \cdot [P']^2 - q \cdot P \cdot P'' - P \cdot P') / (P^2)$ . It is possible that the relationship between  $P$  and  $q$  will be such that this formula will be less than zero, meaning an increase in marginal cost will not lead to a measurement of more market power, but that is extremely unlikely in the case of the residual demand curve of a firm in a relatively competitive situation. In that case, the firm will face an approximately linear  $P$  over the relevant range.

161. See generally SAMUELSON & NORDHAUS, *supra* note 156, at 170–71 (describing natural monopoly).

162. *CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1340 (Fed. Cir. 2003).

163. If the competing solution is better or cheaper, then the patent may confer no value. Otherwise, one might expect competition between the patents to prevent the exercise of market power.

Certain nonobvious patents may be the only solution to a long-felt need and yet, by their nature, have no impact on the patentee's market power. For example, consider a patent that makes manufacturing widgets significantly cheaper, but does not alter the firm's marginal cost at production levels the patentee actually employs.<sup>164</sup> This could happen if the patent lowers only the patentee's fixed costs, not its marginal costs. It also might occur if the patent lowers marginal costs for units well before production reaches the applicable range. Either way, the patent, although profitable,<sup>165</sup> will not lead to an increase in market power.

A patent may also lead to no increase in market power because the patentee licenses it to all or most of the firms in the industry. The empirical evidence, mentioned in Part III.A.I, suggests that various factors often prevent the licensing of valuable patents to competitors in the patentee's core industry. But such licensing may occur in some industries not plagued by distrust.<sup>166</sup>

As an alternative situation where a nonobvious patent does not increase market power, note that other firms in the industry may intentionally use the patent without a license, yet escape detection for a long period of time.<sup>167</sup> Firms might even use the patents without a license entirely unintentionally: many employers have forbidden their employees from consulting the patent literature to avoid a finding of willful infringement in any future patent litigation.<sup>168</sup> The increased difficulty of showing willfulness due to *Seagate* should prevent some of

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164. A firm will produce units until marginal cost equals marginal revenue. If a patent does not change the marginal costs around the point where the marginal cost curve intersects marginal revenue, the firm will not change production and will not experience any increase in market power.

165. In this case, if a court correctly measures commercial success by profitability, then it will come to the correct conclusion on nonobviousness. See Blair-Stanek, *supra* note 33, at 655 (discussing the interplay among profits, commercial success, and nonobviousness).

166. In this case, the licensing secondary consideration would become relevant.

167. This is particularly true of process patents used during manufacturing or of product patents when the infringer does not widely sell the infringing product. Note that, consistent with punitive damages in antitrust and the normal tort context, the likelihood of detection of the infringement is one of the factors that courts have considered in determining whether to double or treble a patentee's damages. See *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 827 (Fed. Cir. 1992) (factor nine). Of course, *Read's* precedential underpinnings were arguably weakened by *In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed. Cir. 2007).

168. See Dan Callaway, Note, *Patent Incentives in the Semiconductor Industry*, 4 HASTINGS BUS. L.J. 135, 151 (2008) ("Instead of looking in the patent literature for a ready-made solution to an incipient problem, semiconductor companies prefer to reinvent the wheel, barricading themselves from any possible claim of willful infringement.").

this willful blindness,<sup>169</sup> which can lead competitors to decrease the patentee's market power. But risk-averse employers' distaste for allowing their employees to consult existing patents will likely linger for some time.

Patentees also might refrain from exercising their increased potential market power for other legal reasons. For example, some industries remain highly regulated, making it difficult to exercise any additional market power, whether obtained by patent or otherwise. In other industries, the Robinson-Patman Act,<sup>170</sup> state analogs,<sup>171</sup> and other statutes regulating market conduct may deter capitalizing on increased market power. Patentees might also avoid exercising their market power through tying and similar behavior so as to avoid a damaging finding of patent misuse.<sup>172</sup>

Non-legal reasons that have nothing to do with competitors might also lead patentees to refrain from exercising a potential increase in market power. When dealing with patents on life-saving technologies, patentees might hesitate for moral or political reasons. Non-profit and government-funded patentees such as universities, in particular, might exercise such restraint. For completely different reasons, patentees in industries susceptible to economies of scale in consumption (i.e. network externalities),<sup>173</sup> like software, might hold off on exercising market power while they attempt to establish a dominant position.<sup>174</sup> Overall, while increased market power provides

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169. 497 F.3d 1360 (Fed. Cir. 2007). *See supra* notes 119–21 and accompanying text. Some are skeptical that *Seagate* will reduce this willful blindness. *See, e.g., Callaway, supra* note 168, at 144 (“Time will tell whether *Seagate* eases the minds of corporate attorneys and engineering managers fearful of allowing employees to read patents.”).

170. Robinson-Patman Act, 49 Stat. 1526 (1936) (modifying Clayton Act § 2 and codified as amended at 15 U.S.C. §§ 13–13b, 21a (2006)). Although the Robinson-Patman Act's reach has been significantly curtailed since *Utah Pie Co. v. Cont'l Baking Co.*, 386 U.S. 685 (1967), by cases such as *Brook Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993), and *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*, 127 S. Ct. 1069 (2007), it still has teeth. *See* Clinton C. Carter & Kesa M. Johnston, *The Robinson-Patman Act: The Law of Price Discrimination*, 64 ALA. LAW. 246, 252 (2003) (“Price discrimination cases appear to be in [sic] the rise across the country.”). Posner has noted that predatory pricing is particularly dangerous in new-economy industries such as software. POSNER, *supra* note 12, at 255.

171. *See, e.g.,* MD. CODE ANN., COM. LAW § 11-204(a) (3) (2008) (prohibiting price discrimination in several situations).

172. *See supra* note 3 for a discussion on patent misuse. Note that current law clearly *does* allow for a finding of patent misuse if the patentee has market power. *See* 35 U.S.C. § 271(d) (5) (2006).

173. *See* POSNER, *supra* note 12, at 246.

174. That dominant position, once achieved, might provide the basis for substantial market power at a later date. *See, e.g.,* *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 19, 26–27 (D.D.C. 1999) (Jackson, J.) (discussing court's findings of fact 35, 62, 63, and others, which lead to the conclusion that defendant had significant market power and exercised it).



valuable evidence of nonobviousness, the absence of any increase does not indicate obviousness.

#### IV. COUNTERARGUMENTS TO USING INCREASED MARKET POWER

Part II of this Article discussed the different tools patent law could import from the antitrust context to measure patent-driven increases in market power. Part III made the case that courts should infer nonobviousness from increases in a patentee's market power. This Part addresses likely critiques of using market power as a new, tenth secondary consideration.<sup>175</sup>

##### A. *Creates Incentives to Inflate Market Power*

Many would argue that using increases in market power as evidence of nonobviousness creates incentives for patentees to inflate their market power. This objection has three variants: first, it might create incentives for patentees to engage in activities that artificially increase the appearance of market power; second, this new secondary consideration could encourage patentees to engage in illegitimate behavior that actually does increase market power; and third, it might persuade patentees to fully exercise all the market power they have. This Part addresses each of these three variants in turn.

First, faking increased market power would be very difficult. Market power measures data involving real money and takes into consideration the actions and preferences of diffuse competitors and customers. Patentees can, by contrast, artificially inflate the appearance of several other secondary considerations much more easily. Cooperation with others to increase the appearance of nonobviousness can occur with cross-licensing,<sup>176</sup> copying, statements

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175. One potential criticism has such little merit that it does not deserve discussion in the text: that market power is less jury-friendly. Leaving aside the issue that a non-trivial proportion of patent trials are bench trials, this objection has two facets. First, juries would not want to hear economics-heavy evidence. Yet, juries often play a key role in antitrust cases, and the complexity of the economics is likely to pale in comparison to the technical challenges in many patent disputes. Second, due to the populist strain in American culture that rails against monopolies and resulted in the Sherman Act, patentees might hesitate to present such evidence to juries. This, indeed, might weigh in favor of making increased market power just a type of proof of commercial success. *See* discussion *supra* Part I.D. Yet, the same objection might be raised against commercial success (e.g. defendants might argue the patentee is "gobbling up the market") or licensing evidence (e.g. defendants could assert that the patentee was "forcing a license down the throats of real companies"). American trial lawyers, moreover, have continuously shown endless ingenuity in presenting their cases.

176. *See* *Skil Corp. v. Lucerne Prods., Inc.*, 489 F. Supp. 1129, 1144 (N.D. Ohio 1980) (presenting an example of just such a situation); *see also* Priest, *supra* note 1, at

of professional approval,<sup>177</sup> and even progress through the PTO.<sup>178</sup> And patentees can use accounting tricks to inflate commercial success<sup>179</sup> and licensing evidence<sup>180</sup> much more easily than they can market power.

Second, attempting to illegitimately increase market power just to enhance the likelihood of a patent being found valid has a poor cost-benefit tradeoff,<sup>181</sup> making patentees unlikely to engage in such behavior. Increased market power, as only one of ten secondary considerations considered along with the primary technical evidence, would likely only slightly increase the odds of a finding of nonobviousness. Even if successful in defending a claim of nonobviousness, a patentee-plaintiff must also face a number of other challenges to validity or enforceability.<sup>182</sup> In particular, a patentee that attempts to exercise its patent illegitimately risks a finding of unenforceability due to patent misuse.<sup>183</sup> And even valid, enforceable patents are found infringed in only roughly half of all patent litigation.<sup>184</sup> Patentees would get little benefit from using illegitimate behavior to increase market power and make their patent appear more nonobvious.

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356-64 (discussing illegitimate patent license arrangements and the difficulty involved in exposing them).

177. For example, the holder of patent *A* praises the unexpected, amazing results of patent *B*, while the holder of patent *B* praises the unexpected, amazing results of patent *A*. Cf. *Skil Corp.*, 489 F. Supp. at 1144.

178. *X* avoids applying for a patent that might raise an interference with *Y*'s application, while *Y* similarly abstains from interfering with *X*'s application on a different invention. On interference substance and procedure, see generally CHISUM, *supra* note 3, §§ 2.07(7), 10.03.

179. This applies regardless of whether commercial success is measured via profits or revenues. If measured by profits, then a firm with multiple products can attempt to shift costs away from the relevant product. If measured by revenues, then the patentee can provide additional features or services with the product at or below cost.

180. *X* licenses patent *A* to *Y* for \$10 billion, *Y* licenses patent *B* to *Z* for \$10 billion, *Z* licenses patent *C* to *X* for \$10 billion.

181. This analysis admittedly only includes the benefits in terms of patent validity, not illicitly gained profits.

182. Other bases for a finding of invalidity include lack of utility, lack of novelty, having accidentally gone on sale before the bar, and failure to state the best mode of practice. Bases for a valid patent to be unenforceable include inequitable conduct and patent misuse. See 35 U.S.C. §§ 102-103, 112 (2006) (mandating several conditions for patentability).

183. See discussion *supra* note 3 on patent misuse.

184. Compare John R. Allison & Mark A. Lemley, *Empirical Evidence on the Validity of Litigated Patents*, 26 AIPLA Q.J. 185, 205 (1998) (forty-six percent of patents held invalid), with Paul M. Janicke & LiLan Ren, *Who Wins Patent Infringement Cases?*, 34 AIPLA Q.J. 1, 5-6 (2006) (noting that patentees, who must prove both validity and infringement, win only approximately one-quarter of the time). To get from validity in half of cases to both validity and infringement in one-quarter of cases would require a finding of infringement in approximately one half of the cases where infringement is found.

Furthermore, a patentee engaging in such behavior faces substantial expected costs under the antitrust laws, which provide for damages and even criminal penalties.<sup>185</sup> Admittedly, patents grant their holders some immunity from the antitrust laws,<sup>186</sup> but Sherman Act jurisprudence clearly does not countenance anticompetitive behavior beyond the valid extent of the patent.<sup>187</sup> Illicitly gaining and exercising market power, of course, can harm consumers, competitors, or both.<sup>188</sup> Under the theory that much anticompetitive behavior goes undetected,<sup>189</sup> the antitrust laws provide for a trebling of damages.<sup>190</sup> Yet, a patentee who uses illicit means to achieve increases in market power, and who then submits evidence of it *in court* during patent litigation, creates publicly available documentation of the increased market power. This would be foolish, as such a patentee would thus stand a much greater chance of detection and thus being subjected to treble damages. The cost-benefit ratio of such illegitimate market-power increases is extremely unfavorable, and so patentees are unlikely to engage in such behavior.

Third, fully exercising the increased market power derived from a patent is consistent with the goals of the patent system and with antitrust jurisprudence. Recent Supreme Court antitrust jurisprudence such as *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*<sup>191</sup> and *Bell Atlantic Corp. v. Twombly*<sup>192</sup> has strongly

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185. See 15 U.S.C. §§ 1, 2 (2006) (statutes on antitrust penalties); *United States v. Trenton Potteries*, 273 U.S. 392, 400–01 (1927) (reinstating conviction for price-fixing as a violation of the antitrust laws). Note that no violations of the patent laws carry criminal penalties.

186. See Priest, *supra* note 1, at 314–16 (discussing allowable price-fixing in patent licenses); *infra* note 195.

187. See *United States v. Masonite Corp.*, 316 U.S. 265, 277 (1942). The *Masonite* Court commented:

The owner of a patent cannot extend his statutory grant by contract or agreement. A patent affords no immunity for a monopoly not fairly or plainly within the grant. . . . Beyond the limited monopoly which is granted, the arrangements by which the patent is utilized are subject to the general law.

*Id.* at 277.

188. Note that suppliers can also theoretically be hurt, via monopoly power, but that has little relevance to the patent context.

189. *Englander Motors, Inc. v. Ford Motor Co.*, 186 F. Supp. 82, 85 (N.D. Ohio 1960) (“The essential nature then of a treble damage action [is] . . . as a deterrent against violations of the anti-trust laws, when otherwise such violations might well go undetected and unprosecuted by the government itself.”).

190. 15 U.S.C. § 15(a) (2006) (providing that an individual injured because of violation of the antitrust laws “shall recover threefold the damages by him sustained, and the cost of suit, including a reasonable attorney’s fee”) (emphasis added).

191. 540 U.S. 398 (2004).

192. 127 S. Ct. 1955 (2007).

endorsed the legitimate exercise and maintenance of market power, even outside the patent context.<sup>193</sup> The patent law itself has become an “anti-Sherman Act,” enabling patentees to behave in ways that would even be *per se* illegal without patents,<sup>194</sup> to allow them to reap the maximum benefit from the invention.<sup>195</sup> Overall, the critique that using increased market power creates incentives to inflate market power has little substance or support.

*B. “For those who have will have more given them”<sup>196</sup>*

Since a finding of patent validity in court will sometimes increase the market power accruing to a patentee,<sup>197</sup> some might argue that giving more market power to a patentee who has already increased its market power would be anticompetitive. At the extreme, this secondary consideration would facilitate a monopoly consolidating its dominant position. In addition to a reminder that this Article proposes to weigh only the *increased* market power rather than the *total* market power, this argument deserves a response.

A finding of validity and enforceability does not automatically mean that the patentee suddenly has additional power over its competitors. The patentee must still prove infringement to succeed

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193. *Trinko*, 540 U.S. at 407 (Scalia, J., writing for a majority of 6; the remaining 3 concurred in the judgment on standing grounds). The Court reasoned that:

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. To safeguard the incentive to innovate, the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive *conduct*.

*Id.* at 407; *see also Twombly*, 127 S. Ct. at 1971 (Souter, J., writing for a majority of 7) (“[R]esisting competition is routine market conduct . . .”). Such case law has a philosophical grounding in Schumpeterian economics. *See* JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 81–106 (3d ed. 1950) (discussing how breakthroughs in technology can lead to temporary, genuine monopolies, which then lead to economic growth and further technological innovation).

194. For example, patentees can engage in territorial allocation. *Compare* 35 U.S.C. § 261 (2006) (equating patents with personal property), *with* *United States v. Addyston Pipe & Steel Co.*, 85 F. 271 (6th Cir. 1898), *aff’d*, 175 U.S. 211 (1899) (imposing antitrust law on personal property in a manner not applicable to patents).

195. For further recent evidence of congressional intent to allow patentees to maximize their profits, *see* Patent Misuse Reform Act of 1988, Pub. L. No. 100-73, 102 Stat. 4674 (codified at 35 U.S.C. § 271(d)(4)–(5) (2006)), which allows patentees to engage in profit-maximizing price discrimination via tying. *Id.*

196. *Mark* 4:25 (Weymouth).

197. This will hardly always be true. To begin with, most patents convey zero or minimal market power regardless of whether valid. *See supra* note 12 (discussing in depth the lack of patent market power). Even if a patent does convey market power, then competitors can always attempt to invent around patents.

in court,<sup>198</sup> while the patent law even “encourages competitors to design or invent around existing patents.”<sup>199</sup> A finding of validity against one accused infringer does not procedurally bind others, who remain free to challenge the patent’s validity.<sup>200</sup> As a general matter, pre-existing market power will tend already to be the greatest—and hence most damaging—in markets with high barriers to entry, which tend to be declining markets,<sup>201</sup> which in turn generate fewer patents.

The argument that using increased market power would have anticompetitive effects has a closely related argument that increased market power would experience a “feedback loop” impairing its accuracy. Stated differently, having increased market power might enhance the perceived likelihood of the patent being found valid, which would increase market power, and so on. Similarly, losing market power for exogenous reasons would diminish the perceived likelihood of a finding of validity, decreasing market power further.

Several of the other secondary considerations have the same potential compounding effect. Heavy licensing of a patent will make it appear more valid to courts, regardless of whether actually litigated, often leading to more licensing success. But competitors have a much greater economic incentive to erode an invalid patentee’s increased market power than to challenge most licensing demands. Commercial success, regardless of how measured, may also lead to greater success in excluding competitors, in turn leading to more commercial success.

Many factors substantially mute any feedback loop artificially increasing market power. Most importantly, technical evidence remains a key determinant of nonobviousness, and the nine other secondary considerations would also play a role. And other considerations also mute any feedback loop, including considerations of validity and enforceability, as well as the requirement of infringement before damages are available.<sup>202</sup>

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198. See *supra* note 184 and accompanying text (noting the difficulty of proving infringement).

199. *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1355 (Fed. Cir. 1999). Of course, a competitor must still remain mindful of avoiding the doctrine of equivalents. *Id.* See generally 5B CHISUM, *supra* note 3, § 18.04 (discussing the doctrine of equivalents).

200. *Boutell v. Volk*, 449 F.2d 673, 678 (10th Cir. 1971).

201. POSNER, *supra* note 12, at 74. Those high technology markets that have high fixed costs will be a notable exception to this general rule. See, e.g., *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 20 (D.D.C. 2000) (discussing the effects of high fixed costs in high technology markets).

202. See *supra* notes 199–201 and accompanying text.

The lack of an inference of obviousness from no increased market power precludes a feedback loop *decreasing* market power. Two structural factors limit any feedback loop *increasing* market power.<sup>203</sup> First, increased market power typically comes with higher profits, giving competitors and new entrants an incentive to frequently reevaluate the technical merit of the patent and reweigh the costs and benefits of challenging it. Second, the uncertainty of patent litigation, combined with the fact that a single verdict of invalidity binds the patentee, will limit the likelihood of patentees over-asserting their patents.<sup>204</sup> Overall, using increased market power to determine nonobviousness will not give more market power to those who already possess it.

### C. Conflicts with Prospect Theory

The prospect theory of patent economics<sup>205</sup> conceives of patents as analogous to the grants of mining rights on federal lands, which encourage prospecting and mining.<sup>206</sup> By granting property rights on the patented invention, the government encourages investment in its commercialization and orderly improvement.<sup>207</sup> Prospect theory has had the most academic success of any of the non-classical theories of patent economics.<sup>208</sup> And some commentators argue that it has impacted the jurisprudence of the Federal Circuit.<sup>209</sup> Notably,

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203. Feedback loops in both directions, moreover, are dampened by the wide range of considerations that go into a finding of nonobviousness, including other secondary considerations and a full analysis of the technical background. An increase in market power by itself would probably increase the probability of finding the patent valid by relatively little, and the feedback back into market power seems intuitively likely to be perhaps an order of magnitude lower than the first increase.

204. See Ayres & Klemperer, *supra* note 116, at 986–87 (making a related point that uncertainty and cost in patent litigation prevent full extraction of the patent monopoly).

205. This prospect theory has no relation to the area of behavioral economics by the same name. For a general overview of prospect theory, see Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263 (1979).

206. Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 *J.L. & ECON.* 265, 266 (1977) (first putting forward the prospect theory).

207. *Id.*

208. See, e.g., Ann Bartow, *Separating Marketing Innovation from Actual Invention: A Proposal for a New, Improved, Lighter, and Better-Tasting Form of Patent Protection*, 4 *J. SMALL & EMERGING BUS. L.* 1, 14 (2000) (noting that classical reward-based theory and prospect theory are “[t]he two predominant economic theories of patents”).

209. Kevin Rhodes, Comment, *The Federal Circuit’s Patent Nonobviousness Standards: Theoretical Perspectives on Recent Doctrinal Changes*, 85 *Nw. U. L. REV.* 1051, 1094–1100 (1991). In addition to producing reasoning and results consistent with prospect theory, several Federal Circuit cases have cited directly to Kitch’s seminal 1977 article. E.g., *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 234 F.3d 558, 640 (Fed. Cir. 2000) (Newman, J., concurring in part and dissenting in part), *rev’d on*

prospect theory strongly supports the use of commercial success in deciding whether to uphold a patent,<sup>210</sup> and the Federal Circuit has placed increasing weight on commercial success.<sup>211</sup>

But prospect theory's predictions are starkly at odds with using increased market power in determining patent validity. Prospect theory specifically envisions and presumes that patentees face a nearly horizontal demand curve.<sup>212</sup> Such a curve, of course, implies that patentees have no market power, so no increased market power would ever be measured.

Prospect theory, however, has a basis in neither statute nor Supreme Court jurisprudence. Scholars have criticized prospect theory on many points.<sup>213</sup> Indeed, if courts do adopt increased market power as a secondary consideration, then litigants may well introduce market-power evidence in court that demonstrates that patentees face demand curves that are *not* nearly horizontal, as prospect theory predicts. If such evidence were indeed introduced, it would provide scholars with hard data disproving key tenets of prospect theory. Using increased market power as a new, tenth secondary consideration for patent validity would thus have the

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*other grounds*, 535 U.S. 722 (2002); *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1531 (Fed. Cir. 1995).

210. Prospect theory supports the use of commercial success to demonstrate nonobviousness because it indicates that the patent serves as the "foundation for a series of now valuable contract rights" formed in reliance on its validity. Kitch, *supra* note 206, at 283; *see also* Oddi, *supra* note 136, at 281–82 (providing a brief introduction to prospect theory).

211. *See, e.g.*, LANDES & POSNER, *supra* note 55, at 305; Merges, *supra* note 14, at 820–26.

212. *See* Kitch, *supra* note 206, at 274; Oddi, *supra* note 136, at 281 (stating how far the Federal Circuit has gone in augmenting the importance of commercial success).

213. *See, e.g.*, Roger L. Beck, *The Prospect Theory of the Patent System and Unproductive Competition*, 5 RES. L. & ECON. 193, 196–97 (1983) (challenging Kitch's assumptions that patents protect future developments); Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1043 (1989) (finding no support for the theory in judicial decisions); Shubha Ghosh, *Patents and the Regulatory State: Rethinking the Patent Bargain Metaphor After Eldred*, 19 BERKELEY TECH. L.J. 1315, 1353–57 (2004) (arguing that prospect theory has an unrealistic view of inventors as risk-averse and incorrectly assumes that commercialization furthers social good); Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 868–76 (1990) ("The real problem is not controlling overfishing, but preventing *underfishing* after exclusive rights have been granted."); Oddi, *supra* note 136, at 282 (arguing that the theory has had no success in predicting the outcome of individual patent cases); Frederic M. Scherer, *Comment on Edmund Kitch*, 8 RES. L. & ECON. 51, 52 (1986) (specifically criticizing the horizontal demand curve assumption). Indeed, some scholars have questioned what value economics has to the study of patent law. *E.g.*, George L. Priest, *What Economists Can Tell Lawyers About Intellectual Property: Comment on Cheung*, 8 RES. L. & ECON. 19, 24 (1986) ("I believe there is little hope that economic analysis can resolve the question of the appropriate scope of the protection of intellectual property.").

beneficial side-effect of providing scholars with empirical data with which to test prospect theory.

#### CONCLUSION

The importance of market power to antitrust law has led to a wealth of theories and methodologies for measuring it. Patent law's key factual inquiry of nonobviousness could gain from using these tools. Increased market power builds upon and enhances several related secondary considerations. It substantively improves on licensing acquiescence, while providing evidentiary benefits over commercial success. It also helps to detect long-felt need. Increased market power will often provide quantitative evidence that is more difficult to manipulate, but easier to obtain, than many of the existing secondary considerations.<sup>214</sup>

Increased market power's close relation to three already-existing secondary considerations should not prevent it from becoming a standalone tenth consideration. Many of the existing considerations overlap extensively. Increased market power's overlap with commercial success provides an alternative route into the case law, as another way to measure commercial success. Compared to commercial success, increased market power has a broader inferential basis and will frequently offer additional, more reliable evidence. Courts determining patent validity will make more accurate decisions if they can draw on the economic tools of antitrust law.

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214. *Cf.* Priest, *supra* note 1, at 326 (making a similar argument about the value of market data in detecting cartels versus the more qualitative evidence of "intent"). Note that often, the best qualitative evidence regarding nonobviousness might remain outside the reach of litigators, if internal to third parties to the litigation. For example, consider internal emails sent between engineers at a competitor who is not party to litigation. *Cf.* Am. Standard, Inc. v. Pfizer Inc., 828 F.2d 734 (Fed. Cir. 1987) (demonstrating the difficulty of discovering a non-party's internal records).