

## University of Minnesota Law School Scholarship Repository

---

Minnesota Law Review

---

2003

# Antitrust and the Costs of Standard-Setting: A Commentary on Teece and Sherry

Mark R. Patterson

Follow this and additional works at: <https://scholarship.law.umn.edu/mlr>

Part of the [Law Commons](#)

---

### Recommended Citation

Patterson, Mark R., "Antitrust and the Costs of Standard-Setting: A Commentary on Teece and Sherry" (2003). *Minnesota Law Review*. 783.

<https://scholarship.law.umn.edu/mlr/783>

This Article is brought to you for free and open access by the University of Minnesota Law School. It has been accepted for inclusion in Minnesota Law Review collection by an authorized administrator of the Scholarship Repository. For more information, please contact [lenzx009@umn.edu](mailto:lenzx009@umn.edu).

## Commentary

### Antitrust and the Costs of Standard-Setting:

### A Commentary on Teece & Sherry

Mark R. Patterson<sup>†</sup>

Professor David Teece and Edward Sherry make a valuable contribution to the literature on patents and standards.<sup>1</sup> Much of that literature treats the conduct of the patentee during the standard-setting process as the key factor in evaluating the propriety of enforcement of its patent.<sup>2</sup> Teece and Sherry, by contrast, call attention to two other important factors. First, they show that even where the patentee has arguably distorted the standard-setting process, society may benefit from reduced costs of standardization.<sup>3</sup> Second, they point out that members of standard-setting organizations can also have incentives to engage in anticompetitive behavior.<sup>4</sup>

This Commentary contends, however, that Teece and Sherry overstate the significance of these two effects. With regard to the first, they neglect several factors that reduce the cost reductions that patentees' inventions make possible and make it unclear whether the patentee is in fact responsible for the reductions that do result. With regard to the second, they emphasize the possibility of anticompetitive actions by standard-setting organizations without either demonstrating

---

<sup>†</sup> Copyright © 2003 by Mark R. Patterson, Professor of Law, Fordham University School of Law; Visiting Professor of Law, Suffolk University Law School. I am grateful for helpful comments from Jill Fisch, Ed Sherry, Steve Thel, and the participants at the Symposium on The Interface Between Intellectual Property Law and Antitrust Law at the University of Minnesota Law School.

1. See generally David J. Teece & Edward F. Sherry, *Standards Setting and Antitrust*, 87 MINN. L. REV. 1913 (2003).

2. See, e.g., Janice M. Mueller, *Patenting Industry Standards*, 34 J. MARSHALL L. REV. 897, 945-46 (2001).

3. See Teece & Sherry, *supra* note 1, at 1931-34, 1987-94.

4. See *id.* at 1929-31.

that such actions are likely or providing a test for determining whether they have occurred.<sup>5</sup> This response elaborates on my previous work addressing these issues.<sup>6</sup> That work anticipates some of Teece and Sherry's points, but their article suggests improvements to the analysis.<sup>7</sup> Like Teece and Sherry's work, mine does not focus on the conduct of the patentee, but rather on the market effects of the patentee's invention. In another respect, though, our emphases are different. My focus is on the demand for standards,<sup>8</sup> while Teece and Sherry focus on their capacity for reducing costs, both private and social.<sup>9</sup> Because the demand for standards is generally derived from their capacity for reducing costs, the two approaches are often similar, but an emphasis on costs illuminates some additional issues.

Part I below begins with a brief discussion of the differences between the demand-oriented and cost-oriented approaches. Part II discusses four possible objections to Teece and Sherry's cost-oriented approach. Part III then addresses Teece and Sherry's suggestion that standard-setting organizations may behave anticompetitively. This Commentary concludes that both patentees and standard-setting organizations contribute to the benefits of standardized products, and that antitrust law should seek to preserve the incentives of both.

It is worth noting at this point that the principles underlying the arguments made here are to a large extent those of patent law, rather than antitrust law. That is, they derive from the need to provide sufficient incentives for innovation, rather than from the goal of promoting competition

---

5. Teece and Sherry do cite a case in which there was anticompetitive conduct in a standard-setting organization, but that case arose in a very different context. See Teece & Sherry, *supra* note 1, at 1919 n.21 (citing *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 495-99 (1988)). Most importantly, it involved the manipulation of the standard-setting process by a single member of the standard-setting organization, rather than anticompetitive conduct by the organization collectively. In that respect, the case suggests more concern regarding the manipulation of the process by patentee members of a standard-setting organization than anticompetitive action by the organization as a whole.

6. See Mark R. Patterson, *Inventions, Industry Standards, and Intellectual Property*, 17 BERKELEY TECH. L.J. 1043, 1055-56, 1058-64 (2002).

7. Most significantly, it prompts a more explicit consideration of the costs of standard-setting. See *infra* text accompanying notes 40-50.

8. See Patterson, *supra* note 6, at 1056-78.

9. See Teece & Sherry, *supra* note 1, at 1931-34.

in the shorter term. Moreover, that is so despite the fact that this Commentary argues that antitrust law should impose some limits on patent law as it currently exists.<sup>10</sup> The reason for this apparent inconsistency is that it is not clear that patent law as it currently exists advances its own goals in the standard-setting context.<sup>11</sup> That is why antitrust has stepped into some of the cases. As is often the case, though, antitrust is not perfectly suited to redressing flaws in patent law.<sup>12</sup>

## I. THE COSTS OF AND DEMAND FOR STANDARDIZATION

My previous work contends that whether a patentee whose invention is incorporated in an industry standard is entitled to licensing revenues depends on the source of demand for the standardized product.<sup>13</sup> If the demand for the standardized product derives from the technical benefits of the invention rather than from the standardization, the patentee is entitled to profit from the demand that its invention creates. But it may be the benefits of standardization, such as interoperability, that create demand for the standardized product. In that case, there may be little or no demand for the particular means—the invention—by which the benefits of standardization are achieved, and the patentee is not entitled to revenues from demand to which it does not contribute.

Although Teece and Sherry do not explicitly propose an alternative approach, their Article suggests that they support a test based on whether the patentee's invention reduces the costs of complying with the standard.<sup>14</sup> This may appear to be a significantly different test. After all, cost is generally a supply-side consideration, rather than a demand-side one. In the standards context, however, this is true only in part.

Most often, the relevant consumer of a standard, and of an invention that is incorporated in it, is the manufacturer of the products that comply with the standard. The relevant demand,

---

10. See *infra* text accompanying notes 54-68.

11. Most importantly, to the extent that patent law allows patentees to appropriate the innovative contributions of standard-setting organizations, it fails to provide those organizations with the incentive to innovate that is the motivating goal of patent law. See *infra* text accompanying notes 45-68.

12. I am currently addressing this problem more generally in another article. See Mark R. Patterson, *Antitrust and the Quality of Intellectual Property Law* (draft on file with author).

13. See Patterson, *supra* note 6, at 1056-78.

14. See Teece & Sherry, *supra* note 1, at 1931-34.

therefore, is a derived demand.<sup>15</sup> That is, the manufacturer's demand is derived from that of the ultimate buyers of the standardized product.<sup>16</sup> The manufacturer's demand derives either from the fact that the standard/invention will make its product more attractive to the ultimate buyers or from the fact that the standard/invention will reduce its costs of manufacturing the product.

In the latter case, where the manufacturer's demand is derived from the ability of a standard or an invention to reduce costs, Teece and Sherry's cost-based approach is similar to a demand-based one. They emphasize, however, that the cost reduction itself can be a benefit to society.<sup>17</sup> In that respect, their focus is not confined to the effect of the cost reductions on demand. For that reason, they apparently favor allowing patentees to charge fees for their inventions that are greater than the benefits to manufacturers, so long as social costs are reduced.<sup>18</sup> Some objections to this approach are discussed below.

Interestingly, Teece and Sherry's focus on social costs, rather than private costs and benefits, brings to the fore certain issues that are less prominent when one focuses on demand.<sup>19</sup> The cost-based approach is somewhat more naturally suited to antitrust, with its emphasis on competition, than to patent law, with its focus on reward to the patentee. This is rather surprising given that Teece and Sherry's article generally emphasizes the benefits that patentees provide in the

---

15. This point is made both in my previous work and by Teece and Sherry. Patterson, *supra* note 6, at 1058; Teece & Sherry, *supra* note 1, at 1928.

16. A "derived demand" for a factor of production, such as a standard, is a demand "derived from the demand for the final good that the factor cooperates in producing." MIT DICTIONARY OF MODERN ECONOMICS 104 (David W. Pearce ed., 3d ed. 1986).

17. Teece & Sherry, *supra* note 1, at 1931-34.

18. *See id.* at 1931-34, app. at 1989-94.

19. The reverse is also true, in that a demand-oriented approach addresses other issues. For example, manufacturers may want to incorporate inventions in their products because the inventions provide technical benefits that are unrelated to cost reductions. A particular invention may be only one of several, equally expensive means of complying with a standard, but the invention may provide other benefits that the manufacturer's customers would demand. In that case, the invention would provide no reductions in cost, private or social, but it would nevertheless create a demand on the part of the manufacturers. Thus, the cost-based approach of Teece and Sherry does not come into play here, and I will not address this issue further. *See* Patterson, *supra* note 6, at 1064-73.

standard-setting context.<sup>20</sup> The explanation lies in a more complete exploration of the contributions of standard-setting to social costs.

## II. PROBLEMS WITH A COST-ORIENTED APPROACH

The sections below discuss four potential problems with a cost-based approach like Teece and Sherry's. Two of these problems, the more standard patent-law issues, are mentioned by them. First, even where overall social costs are reduced, the patentee's demand for royalties can impose a deadweight loss.<sup>21</sup> Although this is a necessary effect of patent law, there is reason to think that it could be especially undesirable in the standardization context. Second, the opportunity to reap licensing fees can lead to rent-seeking behavior on the part of potential patentees.<sup>22</sup> This is also a well-known effect of patent law, but again the effect can be especially significant in the standardization context.

Two other issues are not discussed by Teece and Sherry. One is that the proper allocation of the reward for a reduction in social costs is not as clear as they imply. Put simply, it often will not be clear whether the patentee or the standard-setters are more entitled to that reward.<sup>23</sup> Even if the standard-setting organization is not entitled to a patent for its efforts, the economics of standard-setting are not so different from those of the more typical innovation scenario. As a result, the economic argument for rewarding the standard-setters may be just as strong as the argument for rewarding the patentee.

Finally, Teece and Sherry treat the payments of royalties by the manufacturers of standardized products to patentees as a pure transfer.<sup>24</sup> Moreover, they appear to assume that the payments are profits to the patentee; that is, they assume that the payments do not compensate the patentee for any real costs incurred.<sup>25</sup> That may be an accurate view of the facts in some

---

20. In one sense, of course, this is not surprising at all, in that the benefits that the patentee provides are often exactly those that reduce the (private and social) costs of producing the standardized product. As discussed below, though, it may be the case that the patentee's inventive activities themselves impose social costs. See *infra* Parts II.A.2 & II.C.

21. See *infra* Part II.A.1.

22. See *infra* Part II.A.2.

23. See *infra* Part II.B.

24. Teece & Sherry, *supra* note 1, at 1931-32, app. at 1989-94.

25. See *id.*

standards contexts. If so, though, it would not justify conferring a reward on the patentee under the principles of patent law.<sup>26</sup>

#### A. STANDARD PATENT LAW PROBLEMS IN THE STANDARDS CONTEXT

##### 1. Deadweight Loss

Teece and Sherry make reference to the possibility of a deadweight loss created by a patentee's demand for royalties, but they apparently believe that this deadweight loss will be small and not a significant concern.<sup>27</sup> The magnitude of the deadweight loss is determined by the number of potential buyers who are priced out of the market and the buyer surplus that is thereby forgone.<sup>28</sup> In the usual case, the decisions of individual buyers are more or less independent, so there is no compelling reason to expect the loss to be either very small or very large.<sup>29</sup>

In the standardization context, though, where network effects will contribute to demand,<sup>30</sup> the buyers' decisions are likely to be interdependent. Indeed, they may follow a "tipping" scenario.<sup>31</sup> If a buyer expects most of its competitors to submit to the royalty payments, the buyer likely will do the same. Conversely, if the buyer expects a significant number of its competitors to decline to license, it may do so also. This might

---

26. See *infra* Part II.C.

27. See Teece & Sherry, *supra* note 1, at 1931 n.74, app. at 1992. Actually, they say little about the deadweight loss, beyond mentioning that it exists. This is somewhat surprising, given that the deadweight loss produced by monopoly pricing is generally the primary objection to the monopoly. On the other hand, the loss is generally viewed as an acceptable price to pay for the benefits of innovation that patent law provides.

28. "Deadweight loss consists of two components: (1) the extent of the lost satisfaction each consumer experiences who is unable to purchase a product because of its higher, more monopolistic price, and (2) the number of consumers who experience such loss." Glynn S. Lunney, Jr., *Reexamining Copyright's Incentives-Access Paradigm*, 49 VAND. L. REV. 483, 564 (1996) (citations omitted).

29. That is, in the usual case there is no particular reason to think that buyer demand is likely to be distributed in any particular way, so that it is difficult to make any predictions regarding the deadweight loss.

30. See generally Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479 (1998).

31. See Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1896-97 (2002).

lead to an all-or-none situation: Either demand will be more or less uniformly high, or it will be uniformly low. In the latter case, the patentee likely would lower its royalty rates or otherwise make licensing more attractive so as to “tip” the market to a uniformly high demand. The important point is that to the extent that there are network effects that drive demand, those effects derive from standardization, not from the patentee’s invention. That is, even buyers who otherwise would prefer not to license the patentee’s invention may feel that it is necessary to do so to gain the benefits of standardization. Patentees know this, of course, and some appear specifically to exploit it. For example, Rambus Inc. threatened that those who challenged its patents would have to pay a higher royalty than those who did not, perhaps seeking to create sufficient early acceptance of the standard at issue to cause “tipping.”<sup>32</sup>

One might respond that even if the buyers are forced by network-effect-augmented demand to pay the patentee’s royalties, so long as they do in fact pay, there is no deadweight loss. Although that is true, the magnitude of the resulting payments may be considerable.<sup>33</sup> That is not in itself a problem, at least if one takes a total-welfare approach to the analysis, but it contributes to the possibility of rent-seeking, the subject of the next section.

## 2. Patentee Rent-Seeking

Teece and Sherry also make reference to the possibility of patentee rent-seeking, but they do not assess the likely magnitude of this problem.<sup>34</sup> The typical rent-seeking problem

---

32. See Mike Magee, *Rambus Threatens Non-Compliant Dramurais*, THE REGISTER (Sept. 15, 2000), at <http://www.theregister.co.uk/content/archive/14279.html>.

Rambus says that it is willing to license its IP for non compatible platforms on reasonable, fair and consistent terms. That may be the carrot but the stick is that “those companies that decide to litigate will pay higher royalty rates” and “Rambus may not license those companies that litigate and lose.”

*Id.*

33. See, e.g., Tony Smith, *Rambus’ “Very High” DDR Royalty Revealed*, THE REGISTER (May 3, 2001) (reporting that Rambus was charging a royalty of 3.5% of sales for rights to patents that had been incorporated in a standard, as compared with a 0.75% rate for some of its other patents), at <http://www.theregister.co.uk/content/archive/18706.html>.

34. See Teece & Sherry, *supra* note 1, at 1933-34, 1934 n.77, app. at 1993 n.236.



in the patent context occurs when several inventors race to be the first to discover an invention and receive a patent.<sup>35</sup> Because only one will receive a patent, the efforts of the others are wasted, consuming societal resources without a societal benefit.<sup>36</sup>

This problem seems likely to be more severe in the standard-setting context than in others for two reasons. First, there are potentially two races. Inventors may race to acquire a patent on an invention that could be useful for standardization, and then patentees may race, in the sense that they may make efforts, to have their patented inventions adopted as industry standards. As a result, although in the usual case the race ends when a patent is received, here the race can continue until a standard is selected.

Second, the all-or-none network character of the standardized market makes winning the race even more important.<sup>37</sup> In the usual patent race, even the winner of the race may face competition from other products. Standardization, however, effectively eliminates competition by creating a compelling incentive to adopt the standard approach.<sup>38</sup> Consequently, the winner of the race receives assistance from the network demand effects in reaping a maximum reward from its efforts.<sup>39</sup> This increases the incentive for race participants to direct their efforts at winning the race.

## B. WHO REDUCES THE SOCIAL COSTS OF STANDARDIZED PRODUCTS?

Teece and Sherry illustrate their analysis through a figure

---

35. The economic literature on patent races is surveyed in Jennifer F. Reinganum, *The Timing of Innovation: Research, Development, and Diffusion*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 849 (Richard Schmalensee & Robert D. Willig eds., 1989).

36. *See id.* at 853-68.

37. *See* David Friedman, *Standards as Intellectual Property: An Economic Approach*, 19 U. DAYTON L. REV. 1109, 1121 (1994).

38. *See, e.g.*, Compl. ¶ 89, *In re Rambus Inc.*, (No. 9302) (filed June 18, 2002), <http://www.ftc.gov/os/2002/06/rambuscmp.htm> (describing rapid industry adoption of new standardized technology and replacement of previous technology).

39. *See id.* ¶ 105 (explaining that, because of widespread commitment to a JEDEC standard incorporating the technology of Rambus Inc, "it is not economically feasible for the industry to attempt to alter or work around the JEDEC standards in order to avoid payment of royalties to Rambus").

that shows how a patented invention can reduce the cost of compliance with a standard.<sup>40</sup> Their figure represents conditions in a market that already includes the standard, and therefore does not illustrate the contributions of the standard-setting organization to the reduction of social costs. When the efforts of the standard-setting organization are considered explicitly, the picture looks rather different.

Consider a typical standard directed at the interoperability of products of various manufacturers.<sup>41</sup> In general, interoperability does not require a standard. Instead, manufacturers could choose to produce their products according to whatever designs they prefer, and then they could coordinate among themselves later to achieve interoperability. For example, pairs of manufacturers could devise interfaces to allow their products to work together. An example of this approach to interoperability is the use of emulators that allow Apple computers to run DOS and Windows programs.<sup>42</sup>

The reason this approach is not often used, and the reason there is standardization, is that it is very expensive. It potentially requires a negotiation and design effort for each pair of products that need to work together. Standardization allows interoperability to be achieved with only one negotiation and design effort, which greatly reduces costs. The standard-setting effort, however, also imposes costs on the participants, as illustrated in Figure 1:

---

40. Teece & Sherry, *supra* note 1, app. at 1992 fig.1.

41. See Patterson, *supra* note 6, at 1069-73. So-called performance standards present different issues. See *id.*

42. See Operating Systems Solutions: Running Windows or Linux/UNIX Software on a Macintosh and Running MacOS on Other Platforms, <http://www.macwindows.com/emulator.html> (last visited Feb. 24, 2003) (describing alternatives for such emulation).

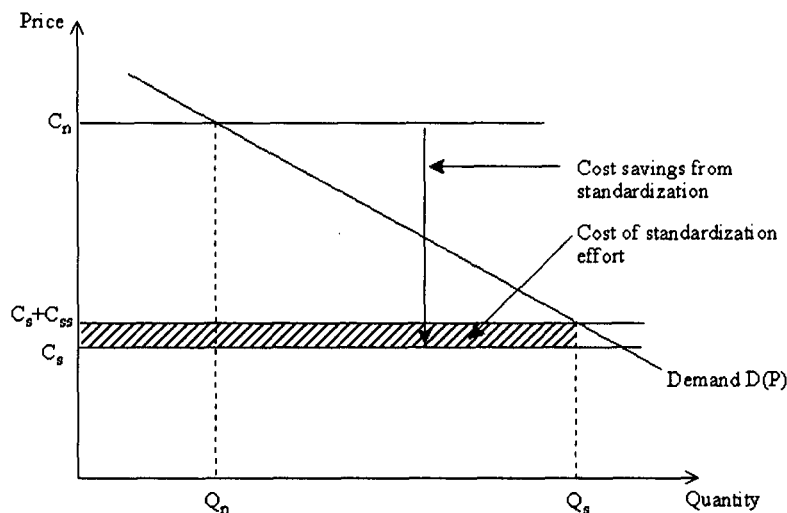


Figure 1

In Figure 1,  $C_n$  is the cost of achieving interoperability without standardization, and  $C_s$  is the much lower cost of using standardization.  $C_{ss}$  is the additional charge necessary to recoup the costs of the standard-setting organization's efforts.<sup>43</sup> Although this cost is generally not paid directly, it is incurred through payments to the organization or through the cost of employees' work hours in the standard-setting effort. Thus, if there is no patented invention at issue, the cost of achieving interoperability is reduced from  $C_n$  to  $C_s + C_{ss}$ . Moreover, the general approach of Figure 1 can be used to produce an alternative version of Teece and Sherry's figure:

43. It is possible that the total cost of the standardization effort would be a fixed, quantity-independent amount. In that case, the per-unit  $C_{ss}$ , shown in Figure 1, would be lower at higher quantities. But it is also possible that the cost of the effort would increase as higher volumes are expected, due to the greater costs of coordinating the effort. Which of these possibilities is actually the case is not important for the qualitative points made here, so  $C_{ss}$  is represented in the figure as a quantity-independent cost.

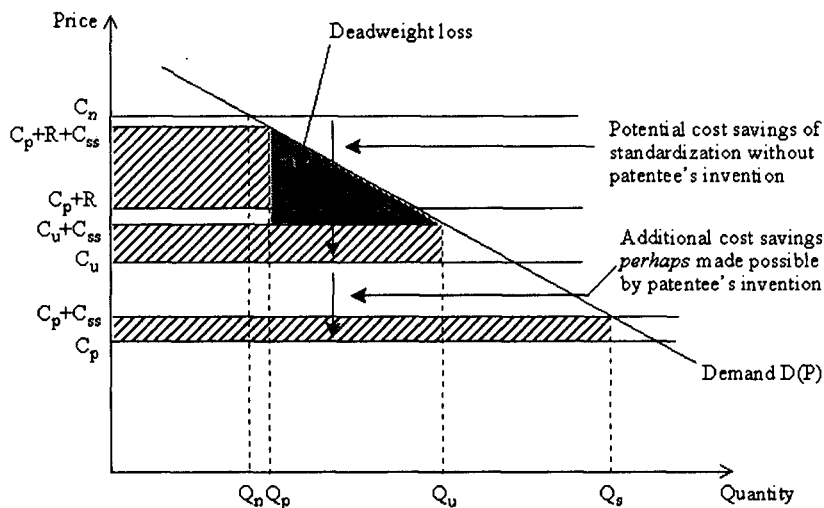


Figure 2

Figure 2 recreates Teece and Sherry's Figure 1, but adds the cost of the standardization effort,  $C_{ss}$ , to each of the three cost measures in their figure. It is important to note that the cost of the standardization effort is generally independent of whether the standard incorporates a patented invention<sup>44</sup> and of the royalty rate that the patentee establishes. Therefore, if the patentee imposes a higher royalty rate, resulting in a higher price and sales of fewer units, the additional cost per unit required to compensate for the standardization effort increases, to produce the same total compensation. Thus, the effect of the patentee's royalties is amplified by the greater costs per unit of the standard-setting, and the deadweight loss is correspondingly greater.

Figure 2 does not purport to provide a precise representation of the standardization "market" in any particular instance, any more than does Teece and Sherry's figure. The point of Figure 2 is simply to show that it is necessary to provide compensation not only to the patentee but also to the standard-setters. Moreover, it is not at all clear that

44. This is true, at least, if the standard-setting organization is unaware of the patent.

the compensation appropriate for the patentee will be the greater one, because both the effort of invention and that of standard-setting can, but need not, be significant.<sup>45</sup>

There are two ways in which incorporation of this consideration results in an analysis different from Teece and Sherry's. First, as described above,<sup>46</sup> the requirement that "royalties" be provided not just to the patentee but also to the standard-setters means that the deadweight loss, as Figure 2 shows, is greater than they describe. As they state, it is still an empirical question whether that loss will outweigh whatever cost savings are made available by the patented invention,<sup>47</sup> but it makes it more likely that the loss will predominate.

Second, if it is possible that the standard-setters will be unable to recoup their costs, they may choose not to engage in the standard-setting effort at all, and society may be forced to forgo the cost savings from that effort. In Figure 2, the cost  $C_p + R + C_{ss}$  is nearly as high as the cost  $C_n$  of achieving interoperability without a standard. If  $C_p + R + C_{ss}$  is expected to exceed  $C_n$ , the standard-setting organization will simply not engage in the standard-setting effort. This possibility may seem implausible, but statements from standard-setting organizations indicate that considerable resources can be expended to deal with patent issues.<sup>48</sup> Exactly this concern was raised by the director of the FTC's Bureau of Competition in connection with the agency's recent action against Rambus Inc.<sup>49</sup> Furthermore, the fact that in some of the cases potential

---

45. The costs incurred by the standard-setting organization may include not just the administrative effort of reaching agreement on a standard, but also the technical effort to discover an appropriate technical solution. See Friedman, *supra* note 37, at 1122 ("In such cases, the availability and quality of the standard may depend greatly on the reward provided, or not provided, by intellectual property law."). Note also that although Teece and Sherry seem to say that patentees incur no real costs in creating their inventions, that is not generally correct, an issue taken up in the next section. See *infra* Part II.C (discussing potential inventor social costs).

46. See *supra* text accompanying notes 41-45.

47. Teece & Sherry, *supra* note 1, app. at 1990-92.

48. See Daniel J. Weitzner, Supplemental Comments, Joint Roundtables on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy: Standards and Intellectual Property: Antitrust Law and Patent Landscapes (Nov. 6, 2002) (stating that "at least five of [the World Wide Web Consortium's] technology design efforts suffered material delay or required substantial investment of resources to resolve problems with potentially blocking patents"), at <http://www.w3.org/2002/11/15-doj-ftc-ipr-weitzner-suppl.html>.

49. The FTC's press release regarding that case said, "The conduct at

licensees have refused to pay the royalties demanded by patentees, and instead have risked patent infringement litigation, suggests that opt-out may be a real problem.<sup>50</sup>

To be sure, if the standard-setting organization knew of the existence of the patent, it could perhaps adopt an alternative unpatented standard, resulting in cost  $C_u + C_{ss}$ , rather than forgo a standard entirely. The problem that has arisen in the cases, though, is that the organization may not know which approaches are patented until after the standard is chosen.<sup>51</sup> In fact, Teece and Sherry suggest that this is desirable.<sup>52</sup> They argue that choosing an unpatented standard may result in greater social costs, implying that society benefits if the patentee keeps its patent secret until the organization is locked into the patented standard.<sup>53</sup> That may be true ex post the standardization effort, but if ex ante the organization does not know which standards are patented, or what royalties may be demanded for those that are, it may choose not to set a standard. In that case, society would lose the potential benefits of the standard-setting process.

Ultimately, it seems unlikely that it will be clear what approach will best minimize social costs. Regardless, from the perspective of patent law, if not antitrust law, a focus on social costs rather than private ones is beside the point. Patent law is intended to provide a return to the patentee, not to maximize social benefits, except indirectly and approximately.<sup>54</sup> Thus, it

---

issue here has done substantial harm to important technology markets, and threatens to undermine participation in industry standard-setting activities more generally.” Press Release, FTC, FTC Issues Complaint Against Rambus, Inc.: Deception of Standard-Setting Organization Violated Federal Law (June 19, 2002), available at <http://www.ftc.gov/opa/2002/06/rambus.htm> (quoting Joseph J. Simons, Director of the FTC’s Bureau of Competition).

50. See Smith, *supra* note 33 (reporting that several memory manufacturers had refused to accept Rambus’s royalty demands).

51. See, e.g., *Rambus Inc. v. Infineon Technologies AG*, 318 F.3d 1081 (Fed. Cir. 2003).

52. See Teece & Sherry, *supra* note 1, app. at 1989-94.

53. *Id.* app. at 1991. They suggest that the patentee may be willing to negotiate a lower royalty, so that  $C_p + R \leq C_u$ . *Id.* at 1990-91. This may not be the case if the standard-setting organization is already locked in to its selected standard. See *id.* at 1991 (noting that one would expect the patentee to moderate its demands “at least when the royalty rates are negotiated ex ante (prior to the adoption of the standard)”). Lock-in can be a serious problem in the standards context. See Compl. ¶¶ 105-09, *In re Rambus Inc.*, (No. 9302) (filed June 18, 2002), <http://www.ftc.gov/os/2002/06/rambuscmp.htm> (describing lock-in conditions).

54. *Mazer v. Stein*, 347 U.S. 201, 219 (1954) (“The economic philosophy

is appropriate to first determine the return that is appropriate under patent law, which depends on the demand for the patentee's invention. Consider Figure 3:

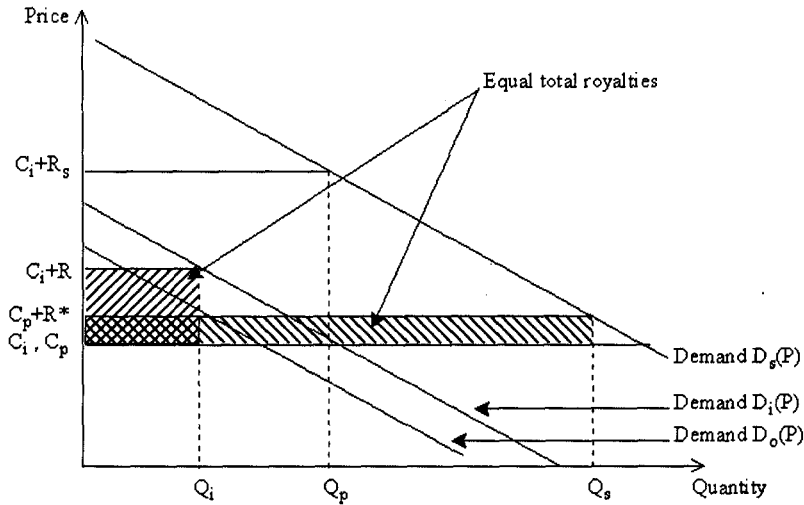


Figure 3

In this figure,  $D_s$  is the demand for the product with the standard, which incorporates the patented invention;  $D_i$  is the demand for the product with the patentee's invention, but without standardization; and  $D_o$  is the demand for the product with neither invention nor standard. The cost  $C_i$  of the product with the invention alone is assumed to be the same as the cost  $C_p$  of standardization using the patented invention. In most of the cases in this area, it appears that although there may be some demand for the invention without the standard, it is compliance with the standard, and the interoperability that the standard provides, that produces the greater increase in

---

behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and useful Arts.');

*Patlex Corp. v. Mossinghoff*, 758 F.2d 594, 599 (Fed. Cir. 1985) ("The encouragement of investment-based risk is the fundamental purpose of the patent grant . . ."), *modified on other grounds*, 771 F.2d 480 (Fed. Cir. 1985).

demand.<sup>55</sup> This is the condition represented in the figure.

In the absence of standardization, the patentee could maximize its profits by charging the royalty  $R$ , for a total cost of  $C_i + R$ , which would provide the profits shown in the upward hatched rectangle. To allow the patentee to charge a royalty  $R_s$  based on the demand for the standard  $D_s$ , would be to give it a return on the efforts of the standard-setter, thus conferring a windfall, at least if the invention did not provide any benefits specifically related to standardization.<sup>56</sup> Instead, the royalty to which the patentee is entitled can be derived by determining what royalty will produce the same return in the standardized context, where demand is  $D_s$ , as the return the patentee could have achieved in the non-standardized context, with demand  $D_i$ . This is represented in the figure as  $R^*$ , which produces a total cost of  $C_i + R^*$ , providing the profits shown in the downward hatched rectangle.

My previous article argued that this approach is consistent with current patent doctrine, at least in the damages context.<sup>57</sup> It also proposed a number of principles to aid in making this determination, and imposed on the patentee several burdens, both substantive and procedural.<sup>58</sup> The imposition of those burdens derived from the view that there is no a priori

---

55. Even in *Sony Electronics, Inc. v. Soundview Technologies, Inc.*, 157 F. Supp. 2d 180 (D. Conn. 2001), where the patentee alleged that an industry trade association was the vehicle for an antitrust “conspiracy to fix prices for patent licenses,” *id.* at 182, the demand for the invention was the result of an FCC-established standard, *id.* at 181. On the other hand, in the *Unocal* case, the invention at issue was directed at improved performance, rather than interoperability, and the standard was also performance-based. See *Union Oil Co. of Cal. v. Atlantic Richfield Co.*, 208 F.3d 989, 991-93 (Fed. Cir. 2000). In such a case, where alternative means of achieving the standard-mandated performance level exist, at least theoretically, the demand could be viewed as specifically for the invention. See Patterson, *supra* note 6, at 1069-73. In its recent complaint against *Unocal*, however, the FTC has alleged that the standard at issue would not have been adopted had *Unocal*’s patent position been known. Compl. ¶ 5, *In re Union Oil Co. of Cal.*, (No. 9305) (filed Mar. 4, 2003).

56. If the invention contributes to the success of the standard, the issue is more complicated, as is discussed in my previous article. Patterson, *supra* note 6, at 1069-73.

57. *Id.* at 1047-51.

58. Substantively, I argued that the patentee should be entitled to royalties for the use of its invention in a standard only if the standard-setting organization could not have chosen an alternative that did not incorporate the invention. *Id.* at 1058-61. Procedurally, I argued that the burden should be on the patentee to prove the absence of such an alternative, at least if the patentee was a member of the standard-setting organization. *Id.* at 1061.



principle to use in determining which is more entitled to the reward, the standard-setting body that engaged in a collaborative decision-making process to select a means of achieving interoperability, or the patentee that engaged in a research process to discover a means of solving a particular technical problem.

Indeed, it is possible that even with application of this approach, the incentive for standard-setting is currently too low. That is, it is possible that those who contribute to the work of standard-setting organizations do not currently receive a sufficient return on their contributions to provide the socially optimal amount of standard-setting. This would be most likely in a case in which only some of the manufacturers of a standardized product participated in the standard-setting activity, and thus bore its costs.<sup>59</sup> In that case, those manufacturers who did not participate could free-ride on the others' standard-setting investment, and could charge a lower price for the standardized product, thus making it impossible for the standard-setters to recoup their investments.<sup>60</sup> To avoid this possibility, it might be desirable to grant standard-setting organizations some sort of intellectual property protection, or to provide them with some other sort of legal protection that enables them to recoup their costs.<sup>61</sup>

One might, however, reject the view that standard-setters are entitled to returns on their efforts. One might instead take the view, which is a reasonable one in light of current patent law, that the patentee, and only the patentee, is entitled to royalties, simply by virtue of the fact of the incorporation of its patented invention in the standard. After all, regardless of what one thinks of the abstract entitlement of the standard-setting organization, the organization receives no patent on its

---

59. There may also be benefits to participating in the standard-setting activity. For example, employees who participate in such activities may gain technical knowledge, thus benefiting their employers. And those manufacturers that participate may gain knowledge of the likely results of the standard-setting activity before those that do not, thus giving them a first-mover advantage.

60. Referring back to Figure 1, those who do not participate in the standard-setting effort could charge  $C_s$ , thus making it impossible for the standard-setters to charge  $C_s + C_{ss}$ , the price needed to recoup  $C_{ss}$ , the cost of the standard-setting effort.

61. For example, one could provide the organization with freedom from antitrust liability when negotiating with patentees. See *infra* Part III. One might even permit the organization to restrict the benefits of its negotiating effort to those who participated in its standard-setting effort.

work. It is useful to consider, though, just how contingent patent law's current allocation of rights is in this context. In several respects, patent law in this area seems more a product of oversight than considered choices, providing little principle to support the current allocation of rights in the standards context.

First, the patent law provisions that prevent standard-setting organizations from receiving patents for their standard-setting activities relate more to formal requirements than to underlying principles. It is probably true that standard-setting organizations themselves do not generally create the technical inventions that are incorporated in their standards, but an organization could perhaps receive a patent on the use of an invention to achieve interoperability. Although this topic seems not to have been explored in depth in the literature,<sup>62</sup> there are presumably two patent-law requirements that could present problems here. First, the collaborative and sometimes fluid nature of the standard-setting process may make it difficult to determine the inventor or inventors of a standard.<sup>63</sup> Second, if the claim were not to the technical invention per se, but to its use as a standard (e.g., to achieve interoperability), the invention might be viewed as obvious.<sup>64</sup>

Only the latter of these requirements goes to the heart of the incentive rationale for patent protection, and it is likely that at least some standards would be determined to be nonobvious. The point here, however, is less to argue for the patentability of standards than simply to suggest that a reliance on patent law for the entitlement of patentees in this context is not entirely convincing. There are benefits to treating standards, at least in economic terms, as a form of intellectual property and to recognizing that the contributions of standard-setting organizations and patentees are similar.<sup>65</sup>

---

62. David Friedman has, however, suggested the possibility of patent protection for standards. Friedman, *supra* note 37, at 1129.

63. Improper identification of the inventors of the subject matter of a patent application can be sufficient to invalidate a patent, 35 U.S.C. § 102(f) (2000), but in the standard-setting process, public information may be mixed with the suggestions of various individuals from various organizations in a manner difficult to reconcile with a precise identification of the inventors. Challenges to the validity of a standards patent could be frequent and difficult to resolve.

64. See *id.* § 103(a) (stating that “[a] patent may not be obtained if . . . the subject matter as a whole would have been obvious”).

65. Patterson, *supra* note 6, at 1078-80.

More support for this view can be found in the patent law concept of prior users' rights. A prior user's right is a defense to patent infringement for one who used the invention before the patentee's creation of the invention or before its filing of a patent application.<sup>66</sup> Depending on specific requirements, such rights might be available if a standard were adopted before claims were made for an invention that was required for that standard. Although the United States does not provide generally for prior users' rights, other countries do provide for such rights.<sup>67</sup> In addition, United States law does provide such rights in certain circumstances for methods "of doing or conducting business."<sup>68</sup> The question whether a particular approach to standardization should be viewed as a method of doing business will not be addressed here. The point again is simply to suggest that patent doctrine is not so clearly, or so unassailably, on the side of the patentee in standards disputes.

### C. DO INVENTORS INCUR REAL SOCIAL COSTS?

When Teece and Sherry discuss the social costs of using a patented invention to achieve standardization, they include in those social costs only the cost of practicing the invention, not the patent license fees.<sup>69</sup> They treat the license fees as a simple transfer, and state that they reflect real cost savings.<sup>70</sup> This appears to assume that the patentee's actual social costs of creating the invention are zero. That would be possible if the patentee came across the invention in the course of some other activity, without incurring any extra costs. In that case, though, we could hardly say that patent law was serving its purpose by allowing the inventor to profit. Instead, it would be a miscalculation—perhaps a necessary one, given the nature of patent law, but a miscalculation nonetheless.

When a patentee demands royalties for the use of its invention, the usual assumption is that those royalties enable the inventor to recoup its investment in innovation. Indeed, that is the purpose of the royalties; they are not intended as a reward, but as compensation. To make this point more explicit, consider that the patentee's royalties could serve any of three

---

66. See Keith M. Kupferschmid, *Prior User Rights: The Inventor's Lottery Ticket*, 21 AIPLA Q.J. 213, 216 (1993).

67. See *id.* at 248.

68. 35 U.S.C. § 273(a)(3).

69. Teece & Sherry, *supra* note 1, app. at 1991-93.

70. *Id.*

functions: to compensate for real and socially valuable costs of inventive activity;<sup>71</sup> to compensate for real, but socially undesirable costs of rent-seeking behavior; or to provide payments where the patentee had in fact incurred no real costs.<sup>72</sup> These possibilities are not equal with regard to the purposes of patent law.

In the second case, real costs have been incurred, but at least some of them are wasted. This includes, of course, the classic concern regarding patent races that several inventors will seek to be the first to create the invention, resulting in a wasteful duplication of effort. In that sense, the “rent-seeking” behavior may not be objectionable in itself,<sup>73</sup> but becomes so when it is duplicated by another. It is also possible that a patentee may engage in other sorts of rent-seeking behavior, either in the standard-setting process or in the market more generally. In the standard-setting context, for example, the patentee might devote considerable effort to keeping its patent or patent application secret from the standard-setting body.<sup>74</sup> It is not a goal of patent law to provide compensation for any sort of rent-seeking behavior.<sup>75</sup>

In the third case, there are no real costs incurred by the patentee. If the patentee incurred no costs in creating its invention, however, there is no reason to compensate it. If creating the invention is costless, no incentive is needed to encourage the patentee to create. Patent law does not inquire into this issue before awarding patents, because it would be an impossible, or at least overly expensive, task to determine which inventions require the patent incentive for their creation. Nevertheless, if there were a class of patents that were granted for costless inventions, we would not say that patent law is serving its goals in granting monopolies for those inventions.<sup>76</sup>

---

71. This could include bearing the risk that the patentee’s inventive effort would not succeed.

72. In a particular case, more than one of these purposes could be served, of course.

73. Even the inventive activity of a single inventor with no competitors is “rent-seeking” behavior, because the inventor seeks the “rents” that a patent monopoly makes possible.

74. An extreme example of such efforts is alleged in the FTC’s complaint against Rambus. Compl. ¶¶ 39-88, *In re Rambus Inc.*, (No. 9302) (filed June 18, 2002), <http://www.ftc.gov/os/2002/06/rambuscmp.htm>.

75. Cf. Teece & Sherry, *supra* note 1, app. at 1993 n.236 (stating that resources consumed in rent-seeking must be considered as social costs).

76. See *supra* note 55 and accompanying text.

As stated above, a patent grant in such a case would be a miscalculation, not a justification.

Only in the first case, where the patent royalties compensate the costs of valuable inventive activity, is the real goal of patent law served. In that case, however, the rectangle labeled in Teece and Sherry's Figure 1 as "Real Resource Cost Savings" does not in fact represent costs saved but costs incurred.<sup>77</sup> That is, the costs saved by those selling the standardized product are offset by the costs incurred by the patentee in creating the invention. The royalty payments are a transfer, as Teece and Sherry state,<sup>78</sup> but it is a transfer about which we are indifferent, not one that reflects a savings in social cost.<sup>79</sup>

Perhaps Teece and Sherry treat the use of the patented invention as a cost savings because they assume that the patentee would have created the invention in any case, without regard to the possibility of standardization. Therefore, they may view the question simply as whether to take advantage of the already-created invention to reduce subsequent manufacturing costs. But this proves too much. If the patentee would in fact have created the invention anyway—that is, if the possible rewards from standardization were not part of the inventor's incentive calculus—then there is no reason for society to compensate the inventor for profits from standardization. This was the point of the discussion in the previous section regarding whether the demand that allows the patentee to charge royalties is truly demand for the invention or is instead demand for standardization.<sup>80</sup> If the patentee is permitted to charge for the benefits of standardization, society incurs a deadweight loss to provide royalties where no incentive to create was necessary.<sup>81</sup>

---

77. Teece & Sherry, *supra* note 1, app. at 1992 fig.1.

78. *Id.* at 1931.

79. This is true despite the fact that the invention costs may be sunk costs at the time the standard is selected. Regardless of whether the costs have already been incurred, the purpose of the monopoly pricing, and the consequent deadweight loss, made possible by the patent monopoly is to compensate the patentee for its costs.

80. See *supra* text accompanying notes 54-68.

81. One might take the view that the patent incentive is too low, so that any additional opportunity for royalty payments will provide a social benefit. To justify royalty payments for the benefits of standardization, however, would require some analysis of why additional payments are particularly desirable in the standards context, and why the extra royalties in the standards context are likely to provide the correct additional compensation.

### III. THE INCENTIVES OF PATENTEES AND STANDARD-SETTERS

Teece and Sherry also suggest that standard-setting organizations, or their members, may have incentives that are as distorted as those of patentees.<sup>82</sup> The concern most often expressed in this area is that a patentee may seek to extract royalties greater than it is due, by keeping the existence of its patent secret until a standard-setting organization has committed to a standard that incorporates the patented invention.<sup>83</sup> Teece and Sherry point out that it is also the case that the members of a standard-setting organization may seek to force a patentee to accept royalties lower than it is owed by joining together to negotiate.<sup>84</sup>

My previous article proposed an approach to addressing this problem.<sup>85</sup> The standard-setting organization, like the patentee, can be viewed as the creator of a valuable intellectual asset, the standard.<sup>86</sup> As such, when engaged in negotiations with a patentee, the organization can be viewed as negotiating on behalf of the standard, rather than on behalf of its members. The organization's role is then analogous to that of the patentee, which is generally viewed as negotiating on behalf of the patent, rather than on behalf of its licensees.

From this perspective, the organization's conduct is no more the product of collective action subject to antitrust scrutiny than is the patentee's. Moreover, in this context it is not significant that the standard-setting organization may not be able to receive a patent on its intellectual contribution. The antitrust analysis, unlike a patent infringement analysis, is not constrained by statutory requirements regarding inventorship and obviousness.<sup>87</sup> As long as the creation of the standard is economically analogous to the creation of the patentee's invention, antitrust could reasonably view the organization's activities as unilateral.<sup>88</sup>

---

82. Teece & Sherry, *supra* note 1, at 1931-34.

83. See Mueller, *supra* note 2, at 907-15.

84. Teece & Sherry, *supra* note 1, at 1955-57.

85. Patterson, *supra* note 6, at 1078-80 (suggesting that the members of the standard-setting organization be treated as a single entity for negotiation purposes).

86. David Friedman has made this argument more generally. Friedman, *supra* note 37, at 1119-24.

87. See *supra* text accompanying notes 63-64.

88. Cf. David A. Balto & Daniel I. Prywes, *Standard-Setting Disputes: The*

This position calls into question the allegation in *Sony Electronics, Inc. v. Soundview Technologies, Inc.*<sup>89</sup> that the members of a standard-setting organization conspired to refuse to purchase a license for a patent needed to comply with a standard.<sup>90</sup> The challenged actions in that case were coordinated through the standard-setting organization, and they appeared to be directed solely toward enabling compliance with the standard.<sup>91</sup> Hence, although the court refused to dismiss the antitrust claims, holding that the patentee properly alleged a conspiracy to drive down license fees,<sup>92</sup> the members of the organization might better have been viewed as vindicating the interests of the standard itself, rather than their own interests independent of the standard.

That is not to say, of course, that there is no possibility of collusive activity. It is certainly possible that the members of a standard-setting organization could use this sort of approach to reduce licensing fees. My previous article proposed to control this possibility through a test that examined whether the organization's activities had made a valuable contribution.<sup>93</sup> There appears to be no evidence, however, that this has occurred. Moreover, so long as whatever arrangements the standard-setting organization negotiates are applicable only for sales of products that comply with its standard, the members of the organization are still competitors in other respects.

Putting aside the concern about collusion, one might nonetheless be concerned about the lowering of the patentee's royalties in the negotiation process. For that to be a valid concern, though, one would have to be confident that the patentee was objectively entitled to a particular level of

---

*Need for Guidelines*, at <http://www.ftc.gov/os/comments/intelpropertycomments/baltopywes.htm> (last visited Feb. 24, 2003) (arguing that the members of standard-setting organizations should be permitted to jointly negotiate with patentees, so long as the resulting terms do not advantage any participants in the process).

89. 157 F. Supp. 2d 180, 182 (D. Conn. 2001).

90. *Id.* at 182.

91. *See id.* at 181-82.

92. *Id.* at 184-90.

93. Patterson, *supra* note 6, at 1079-80. The European Commission's block exemption for research and development agreements uses a similar test, allowing the exemption for joint exploitation of research results only when they "substantially contribute to technical or economic progress." Commission Regulation (EC) No 2659/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of research and development agreements, art. 3(4), 2000 O.J. (L 304) 7, 10.

royalties. Once one recognizes that the standard-setting organization also has some economic, if not legal, entitlement to a reward, and that its negotiation with the patentee will determine how the total amount available will be allocated between them,<sup>94</sup> it is not at all clear that the patentee is entitled to whatever royalties it would get in individual negotiations with the members of the organization.

### CONCLUSION

The creation of an industry standard is a process that has much in common with the creation of a patented invention. Indeed, if standards are not patentable, it is only because of certain doctrinal peculiarities of patent law. It is therefore important to preserve the incentives for organizations to incur the costs of standard-setting activity, so that society may gain the benefits of the resulting standards. The law can preserve those incentives by treating the contributions of industry standards as distinct from those of inventions that are incorporated in them. More specifically, antitrust law should ensure that the patentees of inventions incorporated in industry standards do not extract royalties that go beyond the value of the inventions to include the value of standardization.

---

94. See *supra* text accompanying notes 45-68.



