

# Note

## Experimenting With the Experimental-Use Exception: Proposals for a Tax Alternative

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### *Introduction*

Over the past several decades, universities have increasingly engaged in significant scientific research and technological development and have become owners of a substantial number of patents. Between 1969 and 1991, universities owned only 1.55% of U.S. utility patents not owned by the federal government.<sup>1</sup> By 2005, universities owned 4.18% of such patents.<sup>2</sup> This is due, in large part, to the enactment in 1980 of the Bayh-Dole Act,<sup>3</sup> which provides for the transfer to univer-

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<sup>1</sup> U.S. PATENT & TRADEMARK OFFICE, U.S. COLLEGES AND UNIVERSITIES—UTILITY PATENT GRANTS, CALENDAR YEARS 1969–2005, [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/univ/asgn/table\\_1\\_2005.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/univ/asgn/table_1_2005.htm) (last visited Oct. 29, 2007). Utility patents generally pertain to technological inventions and advances to technological products and processes, and they are the type of patent most often referred to in discussions of patents. See MARTIN J. ADELMAN, RANDALL R. RADER, JOHN R. THOMAS & HAROLD C. WEGNER, CASES AND MATERIALS ON PATENT LAW 18 (2d ed. 2003). Utility patents may be granted to anyone who “invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101 (2000).

<sup>2</sup> U.S. PATENT & TRADEMARK OFFICE, *supra* note 1.

<sup>3</sup> Bayh-Dole Act, Pub. L. No. 96-517, 94 Stat. 3019 (1980) (codified as amended at 35 U.S.C. §§ 200–212 (2000)).

sities and businesses of patents based on government-funded research.<sup>4</sup>

Even as universities increased their patent activities, however, many academic researchers and university administrators assumed that they were immune from liability for infringing others' patents.<sup>5</sup> This assumption was based on the belief "that patent infringement requires use for commercial purposes, and does not arise in 'pure' academic research."<sup>6</sup> Such a belief was founded, at least in part, on a judicially created patent-law doctrine called the "experimental-use exception," which was developed in a line of cases dating back to 1813.<sup>7</sup>

In 2002, the U.S. Court of Appeals for the Federal Circuit decided *Madey v. Duke University*,<sup>8</sup> which greatly limited the scope of the experimental-use exception as it applies to scientific and engineering research at universities.<sup>9</sup> The Federal Circuit explained that, regardless of whether a university engages in research for commercial gain, such research furthers the university's "legitimate business objectives," which include educating students and attracting faculty and research grants.<sup>10</sup> The Federal Circuit therefore held that the experimental-use exception does not shield universities engaged in research from liability for patent infringement.<sup>11</sup> Many legal commentators have weighed in on the subject of the experimental-use exception, both prior to and since the *Madey* decision.<sup>12</sup> Some com-

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<sup>4</sup> 35 U.S.C. § 202.

<sup>5</sup> Rebecca S. Eisenberg, *Patent Swords and Shields*, 299 SCI. 1018, 1018 (2003).

<sup>6</sup> *Id.*

<sup>7</sup> See, e.g., *Ruth v. Stearns-Roger Mfg. Co.*, 13 F. Supp. 697, 713 (D. Colo. 1935) (holding that "use of the patented machine for experiments for the sole purpose of gratifying a philosophical taste or curiosity or for instruction and amusement does not constitute an infringing use"), *rev'd on other grounds*, 87 F.2d 35 (10th Cir. 1936); *Sawin v. Guild*, 21 F. Cas. 554, 555 (C.C.D. Mass. 1813) (No. 12,391) (holding that a patent is infringed only where there is "an intent to use for profit, and not for the mere purpose of philosophical experiment"); *Whittemore v. Cutter*, 29 F. Cas. 1120, 1121 (C.C.D. Mass. 1813) (No. 17,600) (holding that "the making of a machine fit for use, and with a design to use it for profit, was an infringement of the patent right").

<sup>8</sup> *Madey v. Duke Univ.*, 307 F.3d 1351 (Fed. Cir. 2002).

<sup>9</sup> *Id.* at 1361–62; see, e.g., Jennifer Miller, *Sealing the Coffin on the Experimental Use Exception*, 2003 DUKE L. & TECH. REV. 0012.

<sup>10</sup> *Madey*, 307 F.3d at 1362.

<sup>11</sup> *Id.*

<sup>12</sup> See, e.g., Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017 (1989); Elizabeth A. Rowe, *The Experimental Use Exception to Patent Infringement: Do Universities Deserve Special Treatment?*, 57 HASTINGS L.J. 921 (2006); Katherine J. Strandburg, *What Does the Public Get? Experimental Use and the Patent Bargain*, 2004 WIS. L. REV. 81; Jordan P. Karp, Note, *Experimental Use as Patent Infringement: The Impropriety of a Broad Exception*, 100 YALE L.J. 2169 (1991); Tom Saunders, Case Comment, *Renting Space on the Shoulders of Giants: Madey and the Future of the Experimental Use*

mentators argue that the limited experimental-use exception set forth by the Federal Circuit will stifle research at universities and nonprofit organizations, thereby limiting innovations that are vital to the nation's economy and public health and welfare.<sup>13</sup> Others take a contrary view and argue that a broad experimental-use exception is detrimental to the patent system and decreases incentives to innovate.<sup>14</sup>

This Note argues that commentators such as Jordan Karp have correctly concluded that an overly broad experimental-use exception would be inappropriate, because permitting infringement by universities and other nonprofit organizations<sup>15</sup> may have a detrimental effect on incentives for innovation.<sup>16</sup> Infringing activity should not be automatically protected under the guise of academic research. This Note, therefore, advocates that patent owners be entitled to exercise their property right to exclude others from infringing their patents. It must be recognized, however, that universities and other nonprofit organizations perform an extremely important role, often with limited resources, in exploring the frontiers of science and technology.<sup>17</sup> Expanding these organizations' access to patents for research purposes can promote innovation.<sup>18</sup> Therefore, this Note argues that Congress should enact tax legislation that will effectively expand the application of the experimental-use exception while preserving patent owners' right to exclude infringers. This proposal falls between the

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*Doctrine*, 113 YALE L.J. 261 (2003); David G. Sewell, Note, *Rescuing Science from the Courts: An Appeal for Amending the Patent Code to Protect Academic Research in the Wake of Madey v. Duke University*, 93 GEO. L.J. 759 (2005).

<sup>13</sup> See, e.g., Miller, *supra* note 9, at \*8 (“[I]t is clear that, under the [Federal Circuit’s] new test, universities and non-profit organizations now face numerous obstacles to their performance of basic research, and it is this result and the fear that such a result will inevitably stifle the progress of science that has incited much outcry from the scientific community.”).

<sup>14</sup> See Karp, *supra* note 12, at 2176 (arguing that advocates of a broad experimental-use exception largely “fail to consider the disincentive effects a broad exception would have on innovation in those industries that rely heavily on patent protection”).

<sup>15</sup> Although universities and nonprofit organizations conduct similar types of research and often have the same types of concerns regarding experimental use of patented technologies, this Note will focus primarily on universities. Much of the discussion, however, is also applicable to nonprofit organizations.

<sup>16</sup> See Karp, *supra* note 12, at 2176.

<sup>17</sup> See, e.g., 1 NAT'L SCI. BD., SCIENCE AND ENGINEERING INDICATORS 2006, at 5-5 (2006), available at <http://www.nsf.gov/statistics/seind06/pdf/volume1.pdf> (stating that fifty-four percent of basic research in the United States in 2004 was performed at academic institutions); G. Steven McMillan, Francis Narin & David L. Deeds, *An Analysis of the Critical Role of Public Science in Innovation: The Case of Biotechnology*, 29 RES. POL'Y 1 (2000).

<sup>18</sup> See Maureen A. O'Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L. REV. 1177, 1198-99 (2000).

two positions discussed above and presents a compromise between proponents of free access and proponents of the right to exclude.

Part I includes a discussion of scientific and technological research at universities and examines the development of the experimental-use exception to patent infringement liability. Part II examines recent discourse on the experimental-use exception, including proposals for statutory codification and expansion of the exception. Part III proposes tax regimes as an alternative to the experimental-use exception and discusses the advantages to such a solution.

*I. The U.S. Patent System, University Research, and the History of the Experimental-Use Exception*

*A. Theoretical Foundations of the U.S. Patent System*

The Constitution provides the foundation for the U.S. patent system by granting Congress the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”<sup>19</sup> Pursuant to this provision, Congress created the U.S. Patent and Trademark Office and the modern U.S. patent system.<sup>20</sup>

The patent system is characterized by inherent tension between a policy in favor of disclosure of inventions to the public and a goal of creating incentives to promote innovation. To obtain a utility patent, the most common type of patent, an inventor must create and disclose to the public a new, useful, and nonobvious advance in technology.<sup>21</sup> In exchange for public disclosure of the invention, a patent owner is granted the “right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States” for twenty years, measured from the date the inventor filed the application for the patent.<sup>22</sup> A patent owner can thus prevent others from copying and selling its invention for the life of the patent.<sup>23</sup> As observed by the U.S. Supreme

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<sup>19</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>20</sup> See Patent Act of 1952, Pub. L. No. 593, 66 Stat. 792 (codified in scattered sections of 35 U.S.C.).

<sup>21</sup> See 35 U.S.C. §§ 101–103.

<sup>22</sup> *Id.* § 154(a).

<sup>23</sup> Perhaps the best illustration of the patent system at work is in the case of pharmaceutical drugs. If Company A invents and obtains a patent on a new disease-curing chemical compound, that company can prevent Company B from producing or selling that compound during the life of the patent. See *id.* Company A can thus ensure that it is the only source of the drug for the duration of the patent. Company A may be able to recoup its research and development

Court, “[t]he federal patent system thus embodies a carefully crafted bargain for encouraging the creation and disclosure of new, useful, and nonobvious advances in technology and design in return for the exclusive right to practice the invention for a period of years.”<sup>24</sup>

For the patent system to succeed in its objectives, an appropriate balance must be maintained between the grant of access to the public and the reward of exclusivity to patent owners.<sup>25</sup> Otherwise, if they do not have sufficient ability to exclude others from infringing their patents, patent owners may be more likely to protect their technology as trade secrets,<sup>26</sup> rather than patenting the technology, or invest less in research and development (“R&D”).<sup>27</sup> For example, if the term of a patent were only three years instead of twenty years, companies might fear that they would not be able to sell enough of their patented products during the life of the patent to recoup their investment. As such, a company might decide not to invest in a particular research project because of the greater risk that it would lose money on the project.

### B. Current State of University Research

Universities conduct a considerable portion of the scientific research undertaken in the United States.<sup>28</sup> In 2004, U.S. academic institutions performed fifty-four percent of basic research and fourteen

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costs, which often run into the billions of dollars for pharmaceutical drugs, through its exclusive sales of the drug. Without this ability to recoup its extremely large investment, Company A might not have engaged in research to begin with. In exchange for the right to exclude, however, the public is granted access, through publication of the patent, to the knowledge necessary to create the patented chemical compound. At the end of the term of the patent, anyone can begin to manufacture the compound and sell the drug. Thus, as a result of the patent system, Company A is rewarded for its investment in research and development, and the scope of public scientific knowledge is expanded.

<sup>24</sup> *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150–51 (1989).

<sup>25</sup> See FTC, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY ch. 1, at 8 (2003), available at [http://www.ftc.gov/os/2003/10/innovation\\_rpt.pdf](http://www.ftc.gov/os/2003/10/innovation_rpt.pdf) (“[B]y limiting the duration of a patent, [t]he Patent Clause itself reflects a balance between the need to encourage innovation and the avoidance of monopolies which stifle competition without any concomitant advance in the Progress of Science and useful Arts.” (quoting *Bonito Boats*, 489 U.S. at 146 (internal quotation marks omitted))).

<sup>26</sup> A trade secret is “secret, valuable business information” that a company protects from acquisition and misappropriation by others. ADELMAN, RADER, THOMAS & WEGNER, *supra* note 1, at 43. Various types of subject matter are protected by trade secrets, not all of which are patent-eligible subject matter, such as a company’s list of valued customers. See *id.* Nevertheless, trade secrecy can be used to protect patent-eligible subject matter and is the main alternative to the patent system. See *id.*

<sup>27</sup> See JOHN R. THOMAS, CONG. RESEARCH SERV., SCIENTIFIC RESEARCH AND THE EXPERIMENTAL USE PRIVILEGE IN PATENT LAW 3 (2004).

<sup>28</sup> See 1 NAT’L SCI. BD., *supra* note 17, at 5-5.

percent of R&D.<sup>29</sup> These figures show that universities are extremely important centers for scientific and technological research. Moreover, “[b]etween 1970 and 2004, average annual growth in R&D was stronger for the academic sector than for any other R&D-performing sector except the nonprofit sector.”<sup>30</sup> This indicates that, relative to their commercial-enterprise counterparts, universities are becoming even more important centers for innovation.

Much of the significant growth in R&D at universities over the last few decades can be traced to the 1980 enactment of the Bayh-Dole Act.<sup>31</sup> The Act enables small businesses and nonprofit organizations, including universities, to obtain patent rights to inventions resulting from government-funded research or development—something universities could not do before the Act went into effect.<sup>32</sup> Through the Act, Congress intended “to use the patent system to promote the utilization of inventions arising from federally supported research or development” and “to promote collaboration between commercial concerns and nonprofit organizations, including universities.”<sup>33</sup> In other words, the purpose of the Bayh-Dole Act was to encourage research and to use the sizable federal research dollars to fuel the engine of technological innovation and economic growth.

This was an important development because universities obtain a substantial portion of their funding for scientific and technological research from the federal government.<sup>34</sup> In 2003, the federal government provided sixty-two percent of the funding for academic R&D.<sup>35</sup> As a result of the Bayh-Dole Act, universities can now obtain patents on inventions resulting from many more of their research projects. As might be expected, the result has been an enormous increase in patenting activities by universities. The number of patents issued to U.S. academic institutions quadrupled from approximately 800 patents in 1988 to more than 3200 in 2003,<sup>36</sup> and, as noted above, by 2003, universities owned 4.33% of U.S. utility patents not owned by the federal government.<sup>37</sup> Moreover, universities are increasingly licensing their

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<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> Bayh-Dole Act, Pub. L. No. 96-517, 94 Stat. 3019 (1980) (codified as amended at 35 U.S.C. §§ 200–212 (2000)).

<sup>32</sup> *See* 35 U.S.C. § 202(a).

<sup>33</sup> *Id.* § 200.

<sup>34</sup> *See* 1 NAT'L SCI. BD., *supra* note 17, at 5-5.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.* at 5-7.

<sup>37</sup> *See supra* notes 1–2 and accompanying text.

patents, some with astounding success.<sup>38</sup> Even universities that already have sizable licensing revenues are trying to further increase those revenues.<sup>39</sup>

As summarized by Professor Eisenberg, “universities have become players in the patent system in a way that could hardly have been imagined before the Bayh-Dole Act.”<sup>40</sup> Universities have “moved from a philosophical experimentation model closer to a business for-profit model in research.”<sup>41</sup> Now, due to universities’ expanding patent programs, they find themselves increasingly running into issues with patents that they did not have to worry about previously. As a result of increased patenting and research activities, universities have been quite interested in recent developments with respect to the experimental-use exception.

### C. *Development of the Experimental-Use Exception*

The experimental-use exception<sup>42</sup> was first discussed in 1813 by Justice Joseph Story in *Whittemore v. Cutter*,<sup>43</sup> a case brought against the defendant for constructing a patented machine that produced cards.<sup>44</sup> In dictum, Justice Story stated that “it could never have been the intention of the legislature to punish a man, who constructed . . . a machine merely for philosophical experiments, or for the purpose of ascertaining the sufficiency of the machine to produce its described

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<sup>38</sup> In 2006, Columbia University earned more than \$230 million from patent licensing. Katie Reedy, *Patents Bring in the Cash to Columbia*, COLUM. DAILY SPECTATOR, NOV. 28, 2006, <http://www.columbiaspectator.com/?q=node/23146>.

<sup>39</sup> Harvard University, for example, which earned \$24.3 million in licensing revenues in 2003, created a new position of chief technology development officer after seeing the revenues of universities such as Columbia University and the Massachusetts Institute of Technology. See Nicholas M. Ciarelli, *Harvard Seeks to Raise Tech Revenue*, HARV. CRIMSON, NOV. 12, 2004, <http://www.thecrimson.com/article.aspx?ref=504431>. Harvard created the position to “beef up” and “coordinate licensing of its discoveries and technologies to outside companies.” *Id.*

<sup>40</sup> Eisenberg, *supra* note 5, at 1018.

<sup>41</sup> Rowe, *supra* note 12, at 923.

<sup>42</sup> The experimental-use exception discussed in this Note is not to be confused with the experimental-use negation to the “public use” bar to patentability. Section 102(b) prohibits an inventor from obtaining a patent on an invention that was in public use in the United States more than one year prior to the date of the patent application. 35 U.S.C. § 102(b) (2000). The experimental-use negation allows the inventor to negate the public use and still obtain a patent if the public use was for experimental purposes to assess the utility and scope of the invention. See, e.g., *City of Elizabeth v. Am. Nicholson Pavement Co.*, 97 U.S. 126, 134–36 (1877) (holding that the use of a new and improved wooden pavement on a public road for six years did not constitute public use where the inventor kept the invention under his control, tested the pavement, and did not sell the pavement or allow others to sell the pavement).

<sup>43</sup> *Whittemore v. Cutter*, 29 F. Cas. 1120 (C.C.D. Mass. 1813) (No. 17,600).

<sup>44</sup> *Id.* at 1120–21.

effects.”<sup>45</sup> Justice Story thus articulated for the first time the idea that the construction of a patented invention solely for experimental purposes was not considered infringement.

The focus of the experimental-use inquiry began with whether the alleged infringer intended to profit from using the patented invention.<sup>46</sup> In *Sawin v. Guild*,<sup>47</sup> a case decided later the same year as *Whittemore*, Justice Story elaborated on the experimental-use exception, explaining that “the making of a patented machine[,] to be an offence[,] . . . must be the making with an intent to use for profit, and not for the mere purpose of philosophical experiment, or to ascertain the verity and exactness of the specification.”<sup>48</sup> Justice Story further explained that for the construction of a patented machine to infringe a patent, “the making must be with an intent to infringe the patent-right, and deprive the owner of the lawful rewards of his discovery.”<sup>49</sup> Thus, the experimental-use exception could be asserted as a defense by any defendant in any context,<sup>50</sup> as long as the infringer did not intend to earn a profit from the infringement.

In 1935, in *Ruth v. Stearns-Roger Manufacturing Co.*,<sup>51</sup> a lower court first applied the experimental-use exception in the academic research context.<sup>52</sup> In *Ruth*, the defendant was a company that sold parts used by customers in machines that infringed a patented flotation machine.<sup>53</sup> The district court determined that the defendant contributed to its customers’ infringement by selling parts that were used in the infringing machines.<sup>54</sup> The court, therefore, found the defendant liable for contributory infringement for selling machine parts to customers who infringed the patent.<sup>55</sup>

One of the defendant’s allegedly infringing customers was the Colorado School of Mines (“CSM”), which used the infringing ma-

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<sup>45</sup> *Id.* at 1121.

<sup>46</sup> *See, e.g., Ruth v. Stearns-Roger Mfg. Co.*, 13 F. Supp. 697, 703 (D. Colo. 1935), *rev’d on other grounds*, 87 F.2d 35 (10th Cir. 1936); *Sawin v. Guild*, 21 F. Cas. 554, 555 (C.C.D. Mass. 1813) (No. 12,391); *Rowe*, *supra* note 12, at 927.

<sup>47</sup> *Sawin v. Guild*, 21 F. Cas. 554 (C.C.D. Mass. 1813) (No. 12,391).

<sup>48</sup> *Id.* at 555.

<sup>49</sup> *Id.*

<sup>50</sup> In other words, the experimental-use defense was not limited to research conducted by universities or other nonprofit organizations.

<sup>51</sup> *Ruth v. Stearns-Roger Mfg. Co.*, 13 F. Supp. 697 (D. Colo. 1935), *rev’d on other grounds*, 87 F.2d 35 (10th Cir. 1936).

<sup>52</sup> *Id.* at 703, 713.

<sup>53</sup> *Id.* at 699–700.

<sup>54</sup> *Id.* at 702–03.

<sup>55</sup> *Id.* at 713.



chines for separating minerals in the laboratory.<sup>56</sup> The court determined that CSM only used the machines in the laboratory for experimental purposes.<sup>57</sup> Despite finding the defendant liable for contributory infringement for selling machine parts to other customers, the court excluded sales to CSM because the court found that the School's use of the machines for experimental purposes did not constitute infringement.<sup>58</sup> This exclusion was based on the court's view that "[t]he making or using of a patented invention merely for experimental purposes, without any intent to derive profits or practical advantage therefrom, is not infringement."<sup>59</sup>

Over time, the focus of the experimental-use inquiry shifted to whether the alleged infringing use occurred in the course of an alleged infringer's business.<sup>60</sup> For example, in *Roche Products, Inc. v. Bolar Pharmaceutical Co.*,<sup>61</sup> Bolar, a manufacturer of generic drugs, planned to introduce a generic version of a sleeping pill as soon as Roche's patent on the active ingredient expired.<sup>62</sup> During the term of Roche's patent, Bolar began using the patented ingredient to perform tests necessary to obtain Food and Drug Administration ("FDA") approval.<sup>63</sup> In the infringement action brought by Roche, Bolar argued that its use of the patented ingredient was exempted from a finding of infringement under the experimental-use exception.<sup>64</sup> The Federal Circuit disagreed, reasoning that "tests, demonstrations, and experiments . . . which are in keeping with the legitimate business of the . . . alleged infringer are infringements for which experimental use is not a defense."<sup>65</sup> The court further explained that Bolar's so-called "experimental" use did not fall under the experimental-use exception because

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<sup>56</sup> *Id.* at 703.

<sup>57</sup> *Id.*

<sup>58</sup> *Id.* at 703, 713.

<sup>59</sup> *Id.* at 713.

<sup>60</sup> See, e.g., *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343, 1349 (Fed. Cir. 2000); *Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858, 862–63 (Fed. Cir. 1984), *superseded by statute*, Drug Price Competition and Patent Term Restoration (Hatch-Waxman) Act of 1984, Pub. L. No. 98-417, § 202, 98 Stat. 1585, 1603 (codified at 35 U.S.C. § 271(e) (2000)), *as recognized in* *Eli Lilly & Co. v. Medtronic, Inc.*, 872 F.2d 402, 406 (Fed. Cir. 1989); Rowe, *supra* note 12, at 928–29.

<sup>61</sup> *Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858 (Fed. Cir. 1984), *superseded by statute*, Drug Price Competition and Patent Term Restoration (Hatch-Waxman) Act of 1984, Pub. L. No. 98-417, § 202, 98 Stat. 1585, 1603 (codified at 35 U.S.C. § 271(e) (2000)), *as recognized in* *Eli Lilly & Co. v. Medtronic, Inc.*, 872 F.2d 402, 406 (Fed. Cir. 1989).

<sup>62</sup> *Id.* at 860.

<sup>63</sup> *Id.*

<sup>64</sup> *Id.* at 862.

<sup>65</sup> *Id.* at 863 (internal quotation marks and citation omitted).

it was “solely for business reasons and not for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry.”<sup>66</sup> The Federal Circuit held that Bolar was liable for patent infringement, noting that courts should not “construe the experimental use rule so broadly as to allow a violation of the patent laws in the guise of ‘scientific inquiry,’ when that inquiry has definite, cognizable, and not insubstantial commercial purposes.”<sup>67</sup>

The result in *Roche* was superseded by the Hatch-Waxman Act,<sup>68</sup> which permits experimentation on patented drugs before expiration of the patent so that manufacturers of generic drugs can prepare for FDA approval in time to take their product to market as soon as the patent expires.<sup>69</sup> Nevertheless, the opinion provided evidence of the Federal Circuit’s narrow view of the experimental-use exception and its refusal to apply the exception when allegedly infringing activity furthered a defendant’s business. In the Federal Circuit’s view, infringing activity conducted for business purposes was fundamentally inconsistent with the experimental-use exception.

In 2000, the Federal Circuit reaffirmed *Roche*’s reasoning in *Embrex, Inc. v. Service Engineering Corp.*<sup>70</sup> In *Embrex*, the plaintiff was the exclusive licensee of a patent on “methods for inoculating birds against disease by injecting vaccines into a specified region of the egg before hatching.”<sup>71</sup> The defendant, in an attempt to design around the patent, developed a machine that was supposed to be able to inject vaccines into a different region of a bird egg.<sup>72</sup> While testing the machine, most injections penetrated into the region covered by the patent.<sup>73</sup> In the suit for infringement, the defendant argued that its tests “did not infringe because they were scientific experiments and did not result in the sale of any machines.”<sup>74</sup> In evaluating this claim, the Federal Circuit confirmed that the experimental-use exception is a “narrow defense to infringement performed ‘for amusement, to satisfy idle

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<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> Drug Price Competition and Patent Term Restoration (Hatch-Waxman) Act of 1984, Pub. L. No. 98-417, 98 Stat. 1585 (codified as amended in scattered sections of 15, 21, and 35 U.S.C.).

<sup>69</sup> 35 U.S.C. § 271(e) (2000); *see also* Merck KGaA v. Integra Lifesciences I, Ltd., 545 U.S. 193, 202–03 (2005) (broadly interpreting 35 U.S.C. § 271(e)(1)).

<sup>70</sup> *Embrex, Inc. v. Serv. Eng’g Corp.*, 216 F.3d 1343, 1349 (Fed. Cir. 2000).

<sup>71</sup> *Id.* at 1346.

<sup>72</sup> *Id.* at 1346–47.

<sup>73</sup> *Id.* at 1347.

<sup>74</sup> *Id.* at 1349.

curiosity, or for strictly philosophical inquiry.’”<sup>75</sup> Applying these principles, the court held that the defendant’s activities infringed the patent because the tests were performed for the commercial purpose of demonstrating to potential customers the usefulness of its machine.<sup>76</sup>

Judge Rader wrote a concurring opinion in *Embrex* advocating abandonment of the experimental-use exception.<sup>77</sup> Judge Rader based his position on the Supreme Court’s 1997 decision in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*,<sup>78</sup> in which the Court held that intent is irrelevant to patent infringement.<sup>79</sup> Judge Rader suggested that if intent is truly irrelevant to the question of infringement, a court should not look to whether infringement was committed for scientific experimentation or idle curiosity.<sup>80</sup> Instead, Judge Rader argued that a court should find infringement and only take experimental use into account when calculating damages.<sup>81</sup>

Notwithstanding Judge Rader’s concurring opinion in *Embrex*, the focus of the experimental-use defense remained on whether the alleged infringer used the patented technology to further commercial purposes.<sup>82</sup> *Embrex*, however, was not the Federal Circuit’s final word on the experimental-use exception. The Federal Circuit would address the scope of the experimental-use exception again two years later in *Madey v. Duke University*.

#### D. *The Experimental-Use Exception Under Madey v. Duke University*

In 2002, the Federal Circuit decided *Madey v. Duke University*, in which it narrowed the experimental-use exception by shifting the focus of the defense away from the commercial-purpose inquiry.<sup>83</sup>

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<sup>75</sup> *Id.* (quoting *Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858, 863 (Fed. Cir. 1984), *superseded by statute*, Drug Price Competition and Patent Term Restoration (Hatch-Waxman) Act of 1984, Pub. L. No. 98-417, § 202, 98 Stat. 1585, 1603 (codified at 35 U.S.C. § 271(e) (2000)), *as recognized in* *Eli Lilly & Co. v. Medtronic, Inc.*, 872 F.2d 402, 406 (Fed. Cir. 1989)).

<sup>76</sup> *Id.* at 1349.

<sup>77</sup> *Id.* at 1352–53 (Rader, J., concurring).

<sup>78</sup> *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17 (1997).

<sup>79</sup> *See Embrex*, 216 F.3d at 1353 (Rader, J., concurring) (citing *Warner-Jenkinson*, 520 U.S. at 35 (“Application of the doctrine of equivalents, therefore, is akin to determining literal infringement, and neither requires proof of intent.”)); *see also* *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1519 (Fed. Cir. 1995) (“Intent is not an element of infringement.”).

<sup>80</sup> *See Embrex*, 216 F.3d at 1353 (Rader, J., concurring).

<sup>81</sup> *See id.* at 1352–53 (“When infringement is proven either minimal or wholly non-commercial, the damage computation process provides full flexibility for courts to preclude large (or perhaps any) awards for minimal infringements.”).

<sup>82</sup> *See, e.g., id.* at 1349.

<sup>83</sup> *Madey v. Duke Univ.*, 307 F.3d 1351 (Fed. Cir. 2002).

Madey was a professor at Stanford University when he obtained two patents on a free electron laser (“FEL”).<sup>84</sup> Duke University subsequently recruited Madey, and he moved his FEL lab from Stanford to Duke, where he served as director of the FEL lab for almost a decade.<sup>85</sup> A dispute eventually arose between Madey and Duke, and Duke demoted Madey from director of the lab.<sup>86</sup> Madey resigned from Duke, but Duke continued to operate some of the equipment in the FEL lab.<sup>87</sup> Madey subsequently sued Duke for infringing his two patents.<sup>88</sup> The district court determined that, under the experimental-use exception, Duke was not liable for infringement for using Madey’s patented laser technology because it used the technology for research purposes.<sup>89</sup> The district court relied on “the preamble of the Duke patent policy which stated that Duke was ‘dedicated to teaching, research, and the expansion of knowledge . . . [and] does not undertake research or development work principally for the purpose of developing patents and commercial applications.’”<sup>90</sup>

On appeal, the Federal Circuit rejected the district court’s analysis, stating that the research at issue furthered Duke’s “legitimate business objectives, including educating and enlightening students and faculty participating in these projects.”<sup>91</sup> Furthermore, the court noted that the research served “to increase the status of the institution and lure lucrative research grants, students and faculty.”<sup>92</sup> As such, the court held:

[R]egardless of whether a particular institution or entity is engaged in an endeavor for commercial gain, so long as the act is in furtherance of the alleged infringer’s legitimate business and is not solely for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry, the act does not qualify for the very narrow and strictly limited experimental use defense. Moreover, the profit or non-profit status of the user is not determinative.<sup>93</sup>

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<sup>84</sup> *Id.* at 1352.

<sup>85</sup> *Id.*

<sup>86</sup> *Id.* at 1352–53.

<sup>87</sup> *Id.* at 1353.

<sup>88</sup> *Id.*

<sup>89</sup> *Id.* at 1356.

<sup>90</sup> *Id.*

<sup>91</sup> *Id.* at 1362.

<sup>92</sup> *Id.*

<sup>93</sup> *Id.*

The court's decision in *Madey* has largely been interpreted to have eliminated the experimental-use exception as a defense to patent infringement by universities and nonprofit research organizations.<sup>94</sup> Given the expansive nature of the scope of the "legitimate business objectives" of universities such as Duke, it is unlikely that similar institutions could ever again use the experimental-use exception as a shield from liability for patent infringement.

### E. Current State of the Experimental-Use Exception

The experimental-use exception has only been successfully asserted as a defense in approximately five cases, all of which occurred before 1976.<sup>95</sup> Since *Madey*, courts have rejected attempts to assert the experimental-use exception as a defense because they have found that, regardless of commercial implications, research furthered the alleged infringers' business.<sup>96</sup> For all intents and purposes, the experimental-use exception now appears to be a legal doctrine with little possibility of application.<sup>97</sup>

Nevertheless, many university researchers do not think that academic research should constitute patent infringement.<sup>98</sup> Many researchers and commentators believe that universities should have

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<sup>94</sup> See, e.g., Eisenberg, *supra* note 5, at 1019 ("Although the *Madey* decision did not extinguish the experimental use defense entirely, it eviscerated it to the point that it is essentially useless to research universities."); Michael R. Taylor & Jerry Cayford, *American Patent Policy, Biotechnology, and African Agriculture: The Case for Policy Change*, 17 HARV. J.L. & TECH. 321, 360 (2004) ("In a recent decision, the U.S. Court of Appeals for the Federal Circuit narrowed the [experimental-use] exemption to the point of eliminating it for practical purposes."); cf. Paul Devinsky & Mark G. Davis, *2003 Patent Law Decisions of the Federal Circuit*, 53 AM. U. L. REV. 773, 883 (2004) (noting that the experimental-use defense "lives on as a narrow defense to a claim infringement").

<sup>95</sup> See Rowe, *supra* note 12, at 926 n.18 (listing four cases); *Ruth v. Stearns-Roger Mfg. Co.*, 13 F. Supp. 697, 713 (D. Colo. 1935) (holding that a school's use of otherwise infringing machines for experimental purposes did not constitute infringement).

<sup>96</sup> See, e.g., *Soitec, S.A. v. Silicon Genesis Corp.*, 81 F. App'x 734, 737 (Fed. Cir. 2003) (upholding the district court's refusal to distinguish research and development from later infringing commercial processes); *Third Wave Techs., Inc. v. Stratagene Corp.*, 381 F. Supp. 2d 891, 912 (W.D. Wis. 2005) (holding that defendant's infringing research activities did not come under the experimental-use exception when done for the purpose of obtaining FDA approval to market its product); *Applera Corp. v. MJ Research, Inc.*, 311 F. Supp. 2d 293, 296-97 (D. Conn. 2004) (refusing to allow defendant to present evidence or argument during trial that would suggest that a research university or laboratory cannot directly infringe a patent because the usage is non-commercial or not-for-profit).

<sup>97</sup> The only exception is in the pharmaceutical industry. See 35 U.S.C. § 271(e)(1) (2000). In the Hatch-Waxman Act, Congress essentially codified the experimental-use exception for the pharmaceutical industry, but only for the purpose of obtaining FDA approval to be able to market a generic product as soon as the patent expires. See *supra* note 69 and accompanying text.

<sup>98</sup> See Eisenberg, *supra* note 5, at 1018.

access to patented inventions for experimental purposes.<sup>99</sup> Some commentators make a compelling argument that requiring universities to license more patented inventions or be subjected to more lawsuits will have a chilling effect on university research. A solution to the experimental-use exception is, therefore, necessary.

## II. Current Debate and Previously Proposed Solutions to the Experimental-Use Exception

Several commentators and judges have weighed in on the debate about the experimental-use exception. At least one commentator has argued that Congress should stay out of the debate and allow courts to maintain the status quo of the judicially created experimental-use exception.<sup>100</sup> Another suggestion for maintaining the status quo calls for Congress to enact legislation that merely confirms the Federal Circuit's narrow view of the experimental-use exception, as set forth in *Madey v. Duke University*.<sup>101</sup> These proposals, however, would not allay commentators' and researchers' fears that they will not be able to perform research on patented inventions; nor would these proposals respond to patent owners' concerns about their ability to protect their statutory patent rights. Most commentators instead argue either for an expansion of the experimental-use exception to allow greater access to patented inventions or for a restriction of the experimental-use exception to help safeguard the rights of patent owners.

More often, commentators advocate expanding, to varying degrees, the experimental-use exception.<sup>102</sup> These commentators' arguments rest on the notion that scientific and technological research will be impeded or will even grind to a halt without an experimental-use exception. Judge Newman of the Federal Circuit, for example, explained in her dissent to *Integra Lifesciences I, Ltd. v. Merck KGaA*<sup>103</sup>:

The subject matter of patents may be studied in order to understand it, or to improve upon it, or to find a new use for it,

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<sup>99</sup> See, e.g., Eisenberg, *supra* note 12, at 1086; Sewell, *supra* note 12, at 778–79.

<sup>100</sup> See Rowe, *supra* note 12, at 924.

<sup>101</sup> See THOMAS, *supra* note 27, at 18.

<sup>102</sup> See, e.g., *Integra Lifesciences I, Ltd. v. Merck KGaA*, 331 F.3d 860, 878 n.10 (Fed. Cir. 2003) (Newman, J., dissenting), *vacated*, 545 U.S. 193 (2005); THOMAS, *supra* note 27, at 18–21 (discussing statutory solutions proposed by other commentators); Lauren C. Bruzzone, *The Research Exemption: A Proposal*, 21 AIPLA Q.J. 52, 68–69 (1993); Sewell, *supra* note 12, at 778–82 (suggesting an amendment to the Patent Act that would create exceptions to liability for patent infringement for academic and noncommercial research).

<sup>103</sup> *Integra Lifesciences I, Ltd. v. Merck KGaA*, 331 F.3d 860 (Fed. Cir. 2003), *vacated*, 545 U.S. 193 (2005).

or to modify or “design around” it. Were such research subject to prohibition by the patentee the advancement of technology would stop, for the first patentee in the field could bar not only patent-protected competition, but all research that might lead to such competition, as well as barring improvement or challenge or avoidance of patented technology. Today’s accelerated technological advance is based in large part on knowledge of the details of patented inventions and how they are made and used. Prohibition of research into such knowledge cannot be squared with the framework of the patent law.<sup>104</sup>

As a result, several commentators have suggested statutory solutions that would codify and expand the experimental-use exception.<sup>105</sup> Myriad options for a codification of the experimental-use exception exist. For example, one proposal calls for Congress to create a generally applicable experimental-use privilege, except for patented research tools.<sup>106</sup> Alternatively, Congress could create statutory experimental-use privileges limited to particular technological fields.<sup>107</sup> Such a proposal might focus on fields, such as genetic sequencing, that Congress believes deserve less patent protection.<sup>108</sup> Another option is for Congress to grant an experimental-use privilege in favor of universities or nonprofit research institutions, but retain the current law of experimental use with respect to for-profit enterprises.<sup>109</sup>

In 2004, the American Intellectual Property Law Association (“AIPLA”) released a report in which it endorsed recommendations

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<sup>104</sup> *Id.* at 875 (Newman, J., dissenting).

<sup>105</sup> *See, e.g.*, THOMAS, *supra* note 27, at 18–21; Bruzzone, *supra* note 102, at 68–69.

<sup>106</sup> *See, e.g.*, THOMAS, *supra* note 27, at 18–19; *see also Integra Lifesciences I*, 331 F.3d at 877–78 (Newman, J., dissenting) (explaining that she did not disagree with the result in *Madey* because it involved “the use of a patented laser device for the purpose for which it was made, not research into understanding or improving the design or operation of the machine,” but that she disagreed with the *Madey* decision’s “sweeping dictum, and its failure to distinguish between investigation into patented things . . . and investigation using patented things”).

<sup>107</sup> *See* THOMAS, *supra* note 27, at 19; *see also* Karp, *supra* note 12, at 2187. As discussed in Part III.C, *infra*, an experimental-use exception limited to certain technological fields would likely violate a treaty to which the United States is a signatory.

<sup>108</sup> *See* THOMAS, *supra* note 27, at 19 (citing the unenacted Genomic Research and Diagnostic Accessibility Act of 2002, H.R. 3967, 107th Cong. (2002)). For example, patenting in the area of genetic sequencing has been controversial because genes occur naturally. *See, e.g., In re Fisher*, 421 F.3d 1365, 1376 (Fed. Cir. 2005) (holding that “expressed sequence tags” for identifying nucleic acid sequences in maize genes lack specific and substantial utility, unless the function of the underlying genes is determined); *In re Deuel*, 51 F.3d 1552, 1553–54 (Fed. Cir. 1995) (granting a patent on the amino acid chain for human growth hormone).

<sup>109</sup> *See* THOMAS, *supra* note 27, at 19.

made by the National Academy of Sciences for reforming the U.S. patent system.<sup>110</sup> With respect to the experimental-use exception, AIPLA endorsed legislation that would exempt infringement when a patented invention is used for any of the following purposes:

- (1) evaluating the validity of the patent and the scope of protection afforded under the patent;
- (2) understanding features, properties, inherent characteristics or advantages of the patented subject matter;
- (3) finding other methods of making or using the patented subject matter; and
- (4) finding alternatives to the patented subject matter, improvements thereto or substitutes therefor.<sup>111</sup>

All of these proposals for expanding the experimental-use exception, however, are unsatisfactory because they would leave patent owners powerless to enforce their patents against at least a portion of the population.

In another proposal, Congress could effectively create a compulsory license scheme available to researchers under which researchers would be granted “the ability to experiment with the patented inventions of others—provided they compensate the patent holder at a specified royalty rate.”<sup>112</sup> Commentators have suggested, however, that “weakening patent protection by providing for compulsory licensing of patented inventions on reasonable terms would lead to greater reliance by firms on secrecy instead of patent protection.”<sup>113</sup>

At the other end of the spectrum, commentators and Judge Rader believe there should be a very limited experimental-use exception or no exception at all.<sup>114</sup> Judge Rader’s argument for abandoning the

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<sup>110</sup> AM. INTELLECTUAL PROP. LAW ASS’N, AIPLA RESPONSE TO THE NATIONAL ACADEMIES REPORT ENTITLED “A PATENT SYSTEM FOR THE 21ST CENTURY” 1–3 (2004), [http://www.aipla.org/Content/ContentGroups/Issues\\_and\\_Advocacy/Comments2/Patent\\_and\\_Trademark\\_Office/2004/NAS092304.pdf](http://www.aipla.org/Content/ContentGroups/Issues_and_Advocacy/Comments2/Patent_and_Trademark_Office/2004/NAS092304.pdf) [hereinafter AIPLA RESPONSE] (supporting a statute that would create an exemption for experimental research and would define the scope of experimental use). See generally NAT’L RESEARCH COUNCIL OF THE NAT’L ACADS., A PATENT SYSTEM FOR THE 21ST CENTURY (Stephen A. Merrill et al. eds., 2004), available at <http://books.nap.edu/html/patentsystem/0309089107.pdf> (setting forth the recommendations of the National Academy of Sciences).

<sup>111</sup> AIPLA RESPONSE, *supra* note 110, at 25. But see Karp, *supra* note 12, at 2180 (“Allowing parties seeking to develop commercially either useful improvements or substitute technologies, i.e., design-arounds, to experiment on patented inventions is not consistent with the policy of patent law” and “would decrease the level of public disclosure of new inventions as well as reduce innovative activity in those industries that rely on patent protection.”).

<sup>112</sup> THOMAS, *supra* note 27, at 20.

<sup>113</sup> Eisenberg, *supra* note 12, at 1032.

<sup>114</sup> See *supra* notes 77–81 and accompanying text; see also Karp, *supra* note 12, at 2187.



experimental-use exception<sup>115</sup> appears to be based solely on statutory interpretation and precedent.<sup>116</sup> Others, however, make a normative argument for restricting the experimental-use exception, asserting that a broad exception would actually be detrimental to the patent system because it would decrease incentives to innovate.<sup>117</sup> As one commentator notes:

Commentators who advocate an expanded exception fail to recognize that expansion would severely limit the ability of the patent system, through its reward and prospect functions, to assure to a patentee the appropriability of returns on her investment of resources in [R&D]. As such, they fail to realize that a broad experimental use exception, by discouraging inventors from relying on the patent system, would decrease the level of public disclosure of new inventions as well as reduce innovative activity in those industries that rely on patent protection. A broad exception, rather than fostering innovation, would have exactly the opposite effect.<sup>118</sup>

There is very little middle ground between the positions of commentators who advocate a broader experimental-use exception and those who advocate restricting or doing away with the experimental-use exception. What most commentators do agree on, though, is that the status quo is deficient. This Note suggests that a compromise is necessary—one that will uphold patent owners' right to exclude while creating incentives for patent owners to grant researchers free access to their patented inventions.

### III. Tax Alternatives to the Experimental-Use Exception

Congress should use its power of taxation to formulate a compromise between allowing researchers at universities access to patented inventions and upholding patent owners' right to exclude infringers. This Part discusses the advantages of a tax regime in general, proffers specific proposals for such a tax regime, and details the advantages of these proposals. Though this Note does not outline the exact contours of a tax regime, such as the specific tax rate or tax rates,<sup>119</sup> it argues

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<sup>115</sup> See *supra* notes 77–81 and accompanying text.

<sup>116</sup> See *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343, 1352–53 (Fed. Cir. 2000) (Rader, J., concurring) (“Because the Patent Act confers the right to preclude ‘use,’ not ‘substantial use,’ no room remains in the law for a *de minimis* excuse. Similarly, because intent is irrelevant to patent infringement, an experimental use cannot survive.”).

<sup>117</sup> See, e.g., Rowe, *supra* note 12, at 945–50; Karp, *supra* note 12, at 2187.

<sup>118</sup> Karp, *supra* note 12, at 2180.

<sup>119</sup> I would gladly leave that to government economists and tax policymakers.

that tax policy should be included as a possible solution in the debate surrounding the experimental-use exception.

#### A. General Advantages of a Tax Regime

Congress and state legislatures use taxation to regulate activity.<sup>120</sup> Legislatures create positive incentives for engaging in certain types of desirable behavior and create disincentives for engaging in certain types of undesirable behavior.<sup>121</sup> Tax policy can be used to create positive incentives for engaging in certain types of behavior through tax deductions and tax credits. The tax deduction for interest paid on home mortgages, for example, is designed to create an incentive for people to become homeowners instead of renting.<sup>122</sup> Examples of using tax policy to discourage behavior include so-called “sin taxes” on cigarettes, which are designed to discourage smoking,<sup>123</sup> and Europe’s high taxes on gasoline, which are designed, at least in part, to induce consumers to reduce their use of gasoline by driving less or buying more fuel-efficient vehicles.<sup>124</sup> Legislatures use both tax subsidies and increased taxes to achieve, for instance, energy-policy objectives.<sup>125</sup> Using tax policy to alter behavior has the advantage of discouraging unwanted behavior without banning it altogether. The person being taxed ultimately is able to decide whether she wishes to engage in behavior and pay the resulting taxes or to forego the behavior altogether.

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<sup>120</sup> The Supreme Court’s 1953 decision in *United States v. Kahriger*, 345 U.S. 22 (1953), established that Congress may enact a tax that has a regulatory effect, as long as the tax raises some revenue. *Id.* at 26–31.

<sup>121</sup> See, e.g., Lily L. Batchelder, Fred T. Goldberg, Jr. & Peter R. Orszag, *Efficiency and Tax Incentives: The Case for Refundable Tax Credits*, 59 STAN. L. REV. 23, 24 (2006) (“Each year the federal individual income tax code provides over \$500 billion worth of incentives intended to encourage socially beneficial activities, such as charitable contributions, homeownership, and education.”).

<sup>122</sup> See Batchelder, Goldberg & Orszag, *supra* note 121, at 24.

<sup>123</sup> See Colin F. Camerer, *Wanting, Liking, and Learning: Neuroscience and Paternalism*, 73 U. CHI. L. REV. 87, 108–09 (2006).

<sup>124</sup> See Michelle J. White, *The “Arms Race” on American Roads: The Effect of Sport Utility Vehicles and Pickup Trucks on Traffic Safety*, 47 J.L. & ECON. 333, 353 (2004).

<sup>125</sup> See SALVATORE LAZZARI, CONG. RESEARCH SERV., ENERGY TAX POLICY: AN ECONOMIC ANALYSIS 1 (2005) (“Energy tax policy involves the use of the government’s main fiscal instruments—primarily tax subsidies (tax credits, deductions, exemptions, and lower tax rates) as financial incentives, and increased taxes as financial disincentives—to alter the allocation or configuration of energy resources and thereby achieve policy objectives.”).

## B. *Tax Proposals*

This Part discusses two specific tax regimes that Congress could implement to encourage university access to patented technologies. The first proposal relies on the disincentive effects of increased taxes. The second proposal relies on the positive-incentive effects of tax credits. Congress could adopt one or both of these proposals—they are not mutually exclusive.

### 1. *Tax on Licensing Fees or Damage Awards Collected from Universities*

One potential tax solution would be to impose a high federal tax rate on royalties collected on licenses<sup>126</sup> granted to universities and on damages awarded to patent owners in infringement suits against universities. Such a tax would lessen the incentive for patent owners to enforce their patents against universities because their licensing royalties or their recovery in an infringement suit would be reduced by the tax. As with other taxes designed to deter certain types of behavior,<sup>127</sup> such a tax would discourage patent owners from certain undesirable behavior—that of asserting their patents against universities in infringement suits. This would help expand university access to patented technologies.

### 2. *Tax Credit for Patent Owners Who Reduce or Eliminate Licensing Fees for University Research*

Another potential tax solution would be to create a tax credit for patent owners who reduce or eliminate licensing fees for university research. Such a tax credit would offset some of the patent owner's foregone licensing revenues, thereby helping maintain the financial incentives for investing in useful inventions while also encouraging university and nonprofit access to useful patents. The value of the licensing fees could be determined using royalty rates paid by other licensees (e.g., corporations) for the same technology. To prevent collusion between a university and a patent owner,<sup>128</sup> the tax credit could

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<sup>126</sup> A patent license is “a waiver by the patent owner of its right to exclude the licensee from making, using, selling, offering for sale, or importing the claimed invention.” BRIAN G. BRUNSVOLD & DENNIS P. O'REILLEY, *DRAFTING PATENT LICENSE AGREEMENTS* 5 (5th ed. 2004). In other words, a patent license is a promise not to sue the licensee for any infringing activity.

<sup>127</sup> See *supra* Part III.A.

<sup>128</sup> For example, a corporation that collaborates with university researchers may have some worthless patents that it could “license” to the university for free and then receive a tax credit.

be made available only where the patent owner decreases or eliminates the licensing fee for a patent that is significantly used by the university during the tax year.

*C. Research That Should Be Covered by the Tax Regime*

Before moving on to the advantages of these tax regimes, one issue deserves discussion: which patented inventions should be included in a tax regime. There is a critical distinction between research *with* a patented invention and research *on* a patented invention. Research on a patented invention refers to studying a patented machine or process to determine whether and how it works. Research with a patented invention, on the other hand, refers to using an infringing product or process while conducting research. This is most common with patented research tools (e.g., a microscope), which are useful precisely because they help researchers conduct research. In this situation, the researcher is not investigating the patented invention, but rather is infringing the patented invention for the purpose of conducting unrelated research.

Research *with* a patented invention should not be covered under a tax regime, and such “experimental use” should continue to be disallowed under *Madey*.<sup>129</sup> Unlike most patented inventions, such as Post-it® Notes or pharmaceutical drugs, which have general consumer markets, researchers comprise the only potential market for a patented research tool. Conducting research with an infringing patented research tool is thus harmful to the patent owner because it reduces or eliminates the owner’s only market. Patent owners should, therefore, be able to exclude others from using such research tools.<sup>130</sup> Otherwise, there would be less of an incentive to innovate in the area of research tools. This is especially important in fields such as biotechnology, where many inventions are only useful in the laboratory, such as tools used to conduct gene sequencing. Thus, only research *on* a patented invention should be covered by the tax regime.

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<sup>129</sup> See, e.g., Bruzzone, *supra* note 102, at 67–69; Saunders, *supra* note 12, at 267–68 (arguing that the experimental-use exception should only afford protection to experimentation on an invention).

<sup>130</sup> See Eisenberg, *supra* note 12, at 1074, 1078 (“[A]n exemption from infringement liability for research users of a patented laboratory machine would effectively eliminate the benefits of patent protection for the invention.”).

#### D. Advantages of Tax Proposals

The tax regimes proposed above enjoy several advantages over prior proposals, discussed in Part II of this Note. One advantage of a tax regime is that it would leave control in the hands of patent owners instead of Congress. A tax regime would discourage patent owners from bringing infringement claims against universities while still allowing them the option of doing so if absolutely necessary. This would allow patent owners to make case-by-case assessments of the importance of preventing infringement of a particular patent by universities. This approach would preserve the benefits of university experimental use while avoiding the pitfalls of a blanket broadening of the experimental-use exception. A broad experimental-use exception would weaken the incentives to invest in patenting and innovation by depriving a patent owner of his right to exclude.<sup>131</sup> Under a tax regime, by contrast, a patent owner would be free to sue a university when the harm caused by an infringer would be significant to the patent owner. By leaving a patent owner free to prevent infringement, a tax regime would help maintain the incentives to invest in innovation.

Another advantage of a broadly applicable tax regime is that it would be more consistent with Supreme Court and Federal Circuit precedent, which maintains that intent is usually irrelevant to the question of patent infringement.<sup>132</sup> The experimental-use exception requires a court to look at whether the alleged infringing activity was “for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry.”<sup>133</sup> In other words, under an experimental-use-exception analysis, a court must look at the alleged infringer’s intent. As noted by Judge Rader in his concurring opinion in *Embrex, Inc. v. Service Engineering Corp.*,<sup>134</sup> this is inconsistent with the Supreme Court’s statements in *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*<sup>135</sup> Under a tax regime, courts would no longer have to conduct an inquiry into the alleged infringer’s intent. The infringement inquiry for a university or nonprofit researcher would be the same as for any other alleged infringer. The question would shift to whether the patent owner chose to prevent the alleged infringer from engaging in infringing activity.

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<sup>131</sup> See Karp, *supra* note 12, at 2180.

<sup>132</sup> See, e.g., *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 35–36 (1997); *Embrex, Inc. v. Serv. Eng’g Corp.*, 216 F.3d 1343, 1353 (Fed. Cir. 2000) (Rader, J., concurring).

<sup>133</sup> *Roche Prods., Inc. v. Bolar Pharm. Co.*, 733 F.2d 858, 863 (Fed. Cir. 1984).

<sup>134</sup> See *supra* notes 77–81 and accompanying text.

<sup>135</sup> See *Warner-Jenkinson*, 520 U.S. at 35–36.

A broadly applicable tax solution would also prevent potential conflicts with the Agreement on Trade-Related Aspects of Intellectual Property Rights (“TRIPS Agreement”),<sup>136</sup> a treaty to which the United States is a signatory. The TRIPS Agreement is a multinational agreement on intellectual property that resulted from the negotiations leading to the formation of the World Trade Organization (“WTO”).<sup>137</sup> The TRIPS Agreement sets forth minimum standards of intellectual property protection, by which every member of the WTO must abide.<sup>138</sup> Under article 28 of the TRIPS Agreement, signatories must grant patent owners the right to prevent third parties from “making, using, offering for sale, selling, or importing” a patented invention.<sup>139</sup> In addition, article 27 of the TRIPS Agreement provides that “patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.”<sup>140</sup> Read together, these provisions bar WTO members from permitting patent infringement in select “field[s] of technology”—a proposition completely at odds with an experimental-use exception that is available only for inventions in certain fields. As discussed above,<sup>141</sup> some commentators expressly call for such a discriminatory experimental-use privilege. Such proposals are presumably not viable under the TRIPS Agreement.<sup>142</sup> The tax proposals in this Note, on the other hand, would be generally applicable. Thus, they would not discriminate on the basis of the field of technology and would, therefore, not violate the TRIPS Agreement.

Finally, a tax regime could provide a compromise between those who support a broad experimental-use exception and those who believe such an exception decreases incentives to innovate. By creating incentives for patent owners to allow universities to use their patented technologies, a tax regime might help allay some commentators’ fears that university research and innovation will come to a halt. Furthermore, by allowing patent owners to make the ultimate determination whether to allow infringing activity, a tax regime might help allay

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<sup>136</sup> Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, 33 I.L.M. 1197 [hereinafter TRIPS Agreement].

<sup>137</sup> See ROGER E. SCHECHTER & JOHN R. THOMAS, INTELLECTUAL PROPERTY: THE LAW OF COPYRIGHTS, PATENTS AND TRADEMARKS § 12.3 (2003).

<sup>138</sup> *Id.*

<sup>139</sup> TRIPS Agreement, *supra* note 136, art. 28(1); see also THOMAS, *supra* note 27, at 19.

<sup>140</sup> TRIPS Agreement, *supra* note 136, art. 27(1).

<sup>141</sup> See *supra* notes 107–08 and accompanying text.

<sup>142</sup> See THOMAS, *supra* note 27, at 20.

other commentators' fears that an experimental-use exception will decrease the incentives to invest in technological innovation. A tax regime would allow these commentators finally to find some common ground.

### *Conclusion*

The experimental-use exception is a controversial subject. Some commentators predict that research conducted by universities will be severely impeded without a broad experimental-use exception, whereas others argue that universities deserve no special treatment and that a broad experimental-use exception decreases incentives for investing in technological innovation. As a compromise between these positions, Congress should adopt a tax regime that would increase university access to patented inventions without foreclosing the ability of patent owners to prevent researchers from infringing their patents.