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Patent Law:
The Sound and Fury of Patent Activity

Robin C. Feldman¹

“It is a tale . . . full of sound and fury,
Signifying nothing.”²

Patent reform is a hotly contested issue, occupying the attention of Congress, the Supreme Court, and many of the most innovative companies in the world. Most of that dispute centers on patent enforcement, and in particular on the role of non-practicing entities (NPEs), also known as “patent trolls” or “patent assertion entities” (PAEs)—companies that don’t themselves make products but sue those that do. To technology companies, NPEs are a drag on innovation, taxing them tens of billions of dollars every year while achieving no social purpose. To NPEs and their supporters, they are enabling the first inventor to get paid and creating a working market for the transfer of technology. Which is it?

This Chapter analyzes the effect of patent licensing demands on the economy. With the help of a National Science Foundation grant and experts in survey design, a survey went out to every US-based business with at least one employee and revenue of \$1 million or more—more than 45,000 companies. The survey targeted IP-licensing lawyers at companies and asked about their experiences with patent enforcement and the effects of patent licensing demands on subsequent innovation. The survey results provide important insights into the nature and limits of patent licensing demands and their role (or lack thereof) in driving innovation.

1. Summarized and excerpted from Robin C. Feldman & Mark A. Lemley, *The Sound and Fury of Patent Activity*, 103 MINN. L. REV. 1793 (2019).

2. WILLIAM SHAKESPEARE, *THE TRAGEDY OF MACBETH*, act 5, sc. 5, lines 25–27.

The Debate Over NPEs

The role of NPEs is central to the debate over patent reform. Roughly half of the patent suits filed in the last few years have been filed by NPEs.³ In some industries, notably computers and telecommunications, the percentage is much higher.⁴ NPEs are controversial because they do not make products themselves. As a result, patent enforcement by NPEs represents a tax on innovation because they file costly lawsuits and obtain substantial settlements from innovative companies. Courts, Congress, and private organizations have sought to cut back on problematic lawsuits by NPEs.⁵ Many of these efforts have been driven by concerns about the harm to innovation done by NPEs.⁶

Actual technology transfer happens within the patent system in the ex ante context.⁷ For example, universities and inventors create alliances with companies that can more easily develop and commercialize their inventions through joint ventures and other types of technology- and research-sharing agreements. These agreements frequently occur before a patent issues or even before any of the parties files for a patent.

Patent litigation and licensing demands for existing patents, by contrast, tend to occur well after the defendant has developed and implemented the technology. This is particularly true of NPE patent assertions and licensing demands, which some evidence suggests tend to happen in the last few years of the patent's life or even after expiration. NPE licensing demands and litigation against companies that are producing products do not seem to involve technology transfer or new innovation. Indeed, evidence suggests NPEs may buy patents with vaguely worded claims that are optimized for litigation but lacking in technical

3. Sara Jeruss, Robin Feldman & Joshua Walker, *The America Invents Act 500: Effects of Patent Monetization Entities on US Litigation*, 11 DUKE L. & TECH. REV. 357, 361 (2013).

4. John R. Allison et al., *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO. L.J. 677, 691–92 (2011).

5. See, e.g., Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified as amended in scattered sections of 35 U.S.C.); Saving High-Tech Innovators from Egregious Legal Disputes Act of 2013, H.R. 845, 113th Cong. (2013).

6. H.R. 845, 113th Cong. (2013).

7. ASHISH ARORA, ANDREA FOSFURI & ALFONSO GAMBARDELLA, *MARKETS FOR TECHNOLOGY: THE ECONOMICS OF INNOVATION AND CORPORATE STRATEGY* 116–17 (2001).

merit⁸ and that they may delay licensing of patents to increase revenue by targeting successful implementers after the fact.⁹

NPEs may attempt to collect payments on patents that are invalid or not infringed. Given the economics of patent litigation, however, a rational company may choose to pay a “nuisance-value settlement” and thereby avoid the costs and risks of a lawsuit. The patent in that case is not benefitting society at all but rather serving as a drag on innovation. Without some benefit in the form of innovation or technology transfer, patent enforcement by NPEs seems like a pure cost to society—one that runs many tens of billions of dollars per year.¹⁰

NPE defenders argue that NPEs can serve as business intermediaries between inventors and commercializers. The traditional theory of the patent system posits that patents encourage innovation by allowing inventors to exclude competitors from the market, thereby earning supracompetitive returns and recouping investment. A number of scholars have argued, however, that the patent system can encourage commercialization of inventions by allowing the inventor to control who can develop the technology. And if the inventor is not in a position to commercialize the invention at all, in theory, patents allow the inventor to provide her new idea to someone who can make use of it. On this theory, NPEs can serve an intermediation function, helping to deliver good ideas to companies who can put them to good use. One can think of this as the efficient-middleman hypothesis—NPEs are making a market for transactions in patents, and those patents help the world when they are put in productive hands.

For this theory to work, however, NPEs must actually facilitate the use of the patented inventions by companies who were not otherwise using them. A patent market is desirable only if it promotes innovation or technology transfer.¹¹ As described below, the evidence suggests that NPEs do not facilitate the development or use of new technology by

8. Josh Feng & Xavier Jaravel, *Crafting Intellectual Property Rights: Implications for Patent Assertion Entities, Litigation, and Innovation*, 12 AM. ECON. J.: APPLIED ECON. 140 (2020).

9. Erik Hovenkamp & Jonathan Masur, *How Patent Damages Skew Licensing Markets*, 36 REV. LITIG. 379, 405 (2017).

10. Mark A. Lemley et al., *The Patent Enforcement Iceberg*, 97 TEX. L. REV. 4 (2019) (estimating the total cost of patent assertions to assertion recipients in 2015 at between \$77.7 billion and \$122.2 billion).

11. Michael J. Burstein, *Patent Markets: A Framework for Evaluation*, 47 ARIZ. ST. L.J. 507, 514–20 (2015).

licensees.

As an alternative theory, perhaps NPEs serve the social good as tax collectors for small inventors whose ideas have been appropriated. Under this theory, the patent holder has properly contributed to learning and dissemination by publishing its ideas in the form of a patent, and the product company has simply taken the idea from the patent's disclosure. NPEs, therefore, would be operating as tax collectors to facilitate the transfer of an appropriate payment to the person who gave the idea to the world.

Several factors cast doubt on this theory, however. First, much NPE activity occurs in fast-moving technologies such as computers and telecommunications, where the patent is often on a technology that bears little resemblance to the defendant's product.¹² In these circumstances, the NPE asserts that the patent covers any means of solving a problem, even if the defendant's implementation looks nothing like the patentee's original idea. The distance between the patent disclosures in these cases and the allegedly infringing product makes it unlikely that the company making the product learned the idea from the patent's disclosure. That delay tends to be even greater when the patent is sold to an NPE prior to assertion. Second, the theory assumes a level of quality in patents and adequacy of patent disclosure that is generally not attributed to the modern patent system by scholars and commentators.¹³ Third, the evidence suggests that the overwhelming majority of patent cases involves not alleged copying but rather independent invention. If the parties taking patent licenses are doing so to avoid being sued on technology they themselves developed independently, the tax the patent system is imposing is a tax on one set of inventors (those who actually put their inventions to good use) for the benefit of another set of inventors (those who did not). Under these circumstances, patent licensing does not benefit society by encouraging learning or dissemination of the patentee's invention. The dissemination of that technology was already happening, no thanks to the patentee; the NPE is just collecting a tax from people who not only came

12. Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013 WIS. L. REV. 905, 907–08 (2013).

13. See, e.g., Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1500–01 (2001); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-465, INTELLECTUAL PROPERTY: ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY 45 (2013); cf. ROBIN FELDMAN, RETHINKING PATENT LAW 52–53 (2012) (describing limitations of disclosure in the modern patent system).

up with the idea on their own but also actually put the invention into practice.

One could argue that, in its tax-collector role, the NPE is at least returning dollars to original inventors, thereby encouraging innovation by facilitating the rewards that the patent system promises to those who invent and disclose.¹⁴ In the absence of technology transfer, however, it is questionable how much society should invest in moving money from one independent inventor to another. Further, studies suggest that such rewards are not flowing. In what economists are calling the “leaky bucket,” only an estimated twenty percent of the payments to NPEs get back to the original inventor or into internal research and development by the NPE.¹⁵ And there is some evidence that the prospect of later patent licenses is not what motivates many inventors, particularly in universities.¹⁶

Assessment of the value of NPEs thus turns on whether patent licensing demands—both individually and systemically—generate innovation. That question can be answered empirically.

Insights on the Nature of Patent Licensing Demands

In order to better understand the nature and effects of patent licensing demands, a survey was sent in 2017 to more than 45,000 US-based businesses with at least one employee and revenue of \$1 million or more in a variety of industries, including computers and related fields, life sciences and related fields, transportation, energy, and chemistry.¹⁷ The survey asked about their experiences both with licensing demands received from outside and about licensing demands they asserted against others. The survey meant to uncover what sorts of entities sent those requests, and what, if anything, happened as a result. The survey generated responses from 1,718 companies and provided the following insights.

First, NPE licensing demands almost never lead to innovation by the target firm. None of the indicia of real technology transfer was common

14. See, e.g., Stephen H. Haber & Seth H. Werfel, *Patent Trolls as Financial Intermediaries? Experimental Evidence*, 149 *ECON. LETTERS* 64 (2016).

15. Fiona M. Scott Morton & Carl Shapiro, *Strategic Patent Acquisitions*, 79 *ANTITRUST L.J.* 463, 482–83 (2014).

16. Brian J. Love, *Do University Patents Pay Off? Evidence from a Survey of University Inventors in Computer Science and Electrical Engineering*, 16 *YALE J.L. & TECH.* 285, 286 (2014).

17. The survey and its results are set out in detail in Feldman & Lemley, *supra* note 1.

in patent licensing demands. When operating companies asserted patents, two-thirds of respondents indicated that they never or almost never changed their products or developed new products as a result of the license demand, *even when they took a license to the patent*. Only eleven percent of respondents indicated that they always did so. Patent license demands by NPEs were even less likely to lead to new products or product changes. More than five in every six firms said they never or almost never changed their product or developed new products as a result of taking a license from an NPE; less than three percent indicated that they always did so. NPE demands were particularly unlikely to be accompanied by the sharing of know-how or employees, the creation of joint ventures, or the development of new products.

Second, NPEs do not seem to be a monolithic group. Federal labs that assert patents are most likely to transfer knowledge or drive new products when they license patents. Interestingly, those labs are the ones that depend least on patents themselves as drivers of licensing. The results for universities are more mixed, as more than half of respondents said university licensing requests almost never led to the creation of new products. University patent demands are more likely to drive innovation than demands by other sorts of NPEs, but still, most exhibit no indicia of technology transfer. That is consistent with the hybrid role university patenting plays. Sometimes university patents are in fact responsible for spinning new technologies out to the private sector. But at other times universities act as patent trolls, not disseminating new inventions but merely suing those who develop those inventions independently.

Third, the patent system works differently in different industries. Patent licensing demands almost never result in technology transfer or new innovation in the computer industry, particularly when NPEs are doing the asserting. They are somewhat more likely to be productive in the life sciences, but the industry variation does not map neatly to the traditional divide between life sciences and computers that has dominated the last decades of patent reform debates. Instead, areas such as energy see the greatest number of new products resulting from patent assertions. That suggests policy experts in the patent field need to acknowledge the reality of industry differences and look beyond the one-dimensional debate between computer and life-science firms. That being said, the differences are not all that great—no industry, including life science, exhibits all that much knowledge transfer or product improvement from patent assertions.

Fourth, firms told different stories about licensing their own patents than about licensing patents from others. Companies think their own

patents drive innovation by others somewhat more than they think others' patents drive their own innovation. While nearly 60% conceded that their outgoing patent licenses almost never led to technology transfer, almost a quarter said that their licensing demands to others always involved technology transfer. While it is possible that the firms surveyed happened to transfer a lot of technology out with their patents while taking in very little from other firms' patents, the more likely conclusion is that the survey responses reveal optimism bias: patentees think they are generating more innovation than licensees think they are, and licensees in turn think their own contributions are more important. Whichever way the skew cuts, this result also helps explain the very different perceptions of the patent system by patentees and defendants. They really do seem to see their contributions to the world differently.

Finally, and perhaps most importantly, a significant majority (75%) of respondents did not face patent licensing demands at all. In truth, this number may be even higher, because many of the companies that did not respond may have done so because they did not think the survey pertained to them. It is true that those companies may be smaller and less innovative than the ones that do face licensing demands. But given the raging debates over the patent system and its role in driving the economy, it is important to recognize that there are large swaths of American businesses that simply do not deal with patent licensing demands at all.

Conclusion

This comprehensive study of how American businesses respond to patent licensing demands paints a complex picture. Patent licensing is not a unitary phenomenon. It differs by the type of patentee, by industry, and by responding company. But one thing does stand out in the results: patent licensing by NPEs does not seem to promote innovation, knowledge transfer, or the development of new products. NPEs—the entities responsible for most patent litigation in the United States in recent years—do not seem to be contributing to society by licensing their patents.

To be clear, nothing in the data suggests that the patent system as a whole is broken or nonfunctioning. Patent acquisition and patent licensing remain important parts of the innovation ecosystem. And patent enforcement can promote innovation by giving operating companies exclusivity. But the *patent enforcement* system is not itself a driver of innovation.

There is a natural tendency to generalize in policy debates about the

patent system. To many of its defenders, the patent system is the main driver of innovation. Patents are good, so more and stronger patents must be better, regardless of the industry, or who owns them, or what happens with them. To some on the other side, patents themselves are an impediment to innovation, especially by patent trolls who tax innovative companies. The data show reality to be more complex.