

ON NPES, HOLDUPS, AND UNDERLYING FAULTS IN THE PATENT SYSTEM

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This piece offers commentary on two essays in the current volume of the *Cornell Law Review*: James Bessen and Michael J. Meurer's *The Direct Costs from NPE Disputes* and David L. Schwartz and Jay P. Kesan's *Analyzing the Role of Non-Practicing Entities in the Patent System*. Schwartz and Kesan's essay critiques Bessen and Meurer and offers some further thoughts on the role of empirical work regarding non-practicing entities (NPEs).¹ Before I begin my substantive comments on the two pieces, I must say that these two essays, which engage each other fulsomely, carefully, and respectfully, are models of how academic debate should be conducted. They provide great value to the reader in their thoughtful responses to each other's arguments. The pieces are each individually made more useful to the reader concerned about patent policy because they take opposing positions on a number of issues but do so in a way that illuminates both commonalities and differences in their analyses and arguments. This type of policy debate is exactly what the numerous policy disputes and empirical questions in patent law need.

All of the authors of the two essays agree that there has been very rapid growth in NPE patent assertion in recent years.² New business models have arisen in which entities unrelated to the original inventors acquire large portfolios of patents, or the rights to assert large numbers of patents, and then seek to monetize these patents through licensing and litigation rather than commercialization.³ Some amount of asserting patents that were never commercialized has always occurred,⁴ but the extent of activity and patent holdings of NPEs is a new phenomenon. Thus, some potential costs of patents

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¹ NPEs are entities that hold and assert patents but do not make the inventions for which they have the patents. See James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 390 (2014). There is considerable debate about who should be called an NPE. See *id.* at 396.

² See *id.* at 390–91; David L. Schwartz & Jay P. Kesan, *Analyzing the Role of Non-Practicing Entities in the Patent System*, 99 CORNELL L. REV. 425, 426 (2014).

³ See Schwartz & Kesan, *supra* note 2, at 429.

⁴ See, e.g., Bessen & Meurer, *supra* note 1, at 390 (noting the presence of “patent sharks” as early as the nineteenth century).

that the patent system adapted to minimize or control have grown greatly under this new dynamic. The most remarked-upon difference is that in the past, competitors with large patent portfolios rarely asserted them against each other, for fear of retaliation in the form of getting sued on patents in their competitors' portfolios.⁵ There is no counterbalancing concern on the part of NPEs about being sued by those against whom they assert patents.⁶ What this means is that problems with patent quality, overbroad claims, defects in notice function, and possible patent thickets were minimized in the past but have become much more apparent and problematic now that NPEs are doing a significant amount of patent assertion. It is this change in the patent ecosystem, coupled with the consequent costs that the change is imposing on those who are commercializing innovations arguably covered by patents owned by NPEs, that have generated significant attention, complaints, and calls for reform in the last several years.

Over the last few years, Bessen and Meurer have been attempting to quantify the cost to the patent system from assertion of patents by NPEs. In their latest empirical study, they use two new data sources to estimate these costs, and they arrive at results that are broadly consistent with their past analyses.⁷ Their conclusion remains that patent assertions by NPEs are very costly to the patent system and are a source of considerable social waste that is the reasonable subject of reform efforts.⁸

In their critique, Schwartz and Kesan take issue with Bessen and Meurer's results, methodology, sources, and conclusions. Rather than jumping directly into the dispute, I think it is useful to examine some of the underlying policy issues and assumptions that are at play in these two essays.

Bessen and Meurer contend that the data show that NPE patent assertion resulted in direct costs to defendants of \$29 billion in 2011.⁹ These costs include the costs to defendants of outside legal fees, discovery, prior art searching, jury consultants, and all other outside legal costs.¹⁰ Schwartz and Kesan dispute this, arguing that, mainly because of selection bias in who is reporting costs, the \$29 billion figure is an upper limit to the costs, and that the actual costs may be

⁵ Colleen Chien, *A Race to the Bottom*, 51 INTELL. ASSET MGMT. MAGAZINE 10 (2012).

⁶ See Brad D. Krueger, *Pulling Trolls Out from Under the Bridge: Proposed Patent Reforms*, GERMESHAUSEN CTR. NEWSLETTER (Franklin Pierce L. Ctr., Concord, N.H.), Winter/Spring 2005, at 4; see also FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION & PATENT LAW & POLICY chs. 2, 31 (2003).

⁷ See Bessen & Meurer, *supra* note 1, at 389, 394–95.

⁸ See *id.* at 422–23.

⁹ *Id.* at 397, 408.

¹⁰ All in-house legal costs were excluded from the data. *Id.* at 399 n.59.

significantly less.¹¹ While Schwartz and Kesan's critique is fair, the reader should keep in mind that the full costs to defendants may have been more than \$29 billion in 2011, given that Bessen and Meurer do not include the internal costs to defendants dealing with NPE patent assertions. These can be considerable in terms of both time and money.¹²

Bessen and Meurer also conclude that only 5%–20% of the direct costs from NPE patent assertions ever reach inventors.¹³ Their analysis of the data shows that almost half of the direct costs to defendants of NPE patent assertions “are eaten up by NPE operating costs, and [that] another 10%” of the costs go to NPE profits.¹⁴ Schwartz and Kesan dispute the analysis. They point out that some of the entities classified as NPEs, like Interdigital and Rambus, originally made large investments in research and development in attempting to commercialize their patents.¹⁵ Thus, according to Schwartz and Kesan, some of the profit NPEs earn from current payments from patent assertions should be thought of as compensation for early R&D investments. According to this way of thinking, much more of the NPE patent assertion revenue actually goes to compensate or encourage R&D.¹⁶

I will largely leave to the two essays the arguments over who has the better interpretation of the data, the reliability of the data, selection bias, and the best empirical approaches to analyze NPE assertion activity. As I have already said, the essays do an excellent job of setting out their arguments in these regards. They also do an excellent job of responding to each other's critiques.

What is important to realize is that underlying the dispute over the total direct cost of NPE patent assertion is a more fundamental problem with patent assertion by both NPEs and practicing entities—namely, that most of the patents being asserted were never copied or even known about by the defendants being accused of infringement.¹⁷ Schwartz and Kesan argue that the total cost of NPE patent assertion is probably substantially lower than the 2011 estimate of \$29 billion given by Bessen and Meurer. Schwartz and Kesan also believe that a greater percentage of the costs to defendants end up

¹¹ Schwartz & Kesan, *supra* note 2, at 433.

¹² See Bessen & Meurer, *supra* note 1, at 389–90.

¹³ See *id.* at 411.

¹⁴ *Id.*

¹⁵ See Schwartz & Kesan, *supra* note 2, at 443 & n.94, 444.

¹⁶ See *id.* at 444 (observing that “[i]t takes many years for research to translate into inventions and patents” and that Bessen and Meurer's analysis does not consider the value that R&D expenditures generate years later).

¹⁷ See Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, & Standard Setting*, in 1 INNOVATION POLICY & THE ECONOMY 119, 119–20 (Adam B. Jaffe et al. eds., 2001).

going to original inventors or firms that conducted the R&D underlying the patents being asserted. Schwartz and Kesan may be correct, but there could still be a fundamental problem with NPE patent assertion that would make both the assertion costs and the payments to original inventors or inventing firms a complete social waste. If the patents being asserted never led, directly or indirectly, to the products and processes that are alleged to infringe the patents, then paying anything to the inventors or owners of those patents is a socially wasteful tax on the economy.

Put differently, if inventors came up with patents for inventions that were never commercialized or disseminated, and if others subsequently invented and commercialized the patented products and processes, then the patents did nothing to foster innovation. If this is the case, making payments to the patent owners is wasteful for society. Evidence suggests that the vast majority of patents asserted by NPEs were never copied or known about by the alleged infringers.¹⁸ If this is true, then whatever the total cost from NPE patent assertion of unworked patents, and however much of it goes to the original inventor or inventing firm, these payments are completely wasteful.

If the patent system cannot distinguish between patents asserted wastefully by NPEs and other, non-problematic patents, then the social waste from NPE assertion is worth the cost—at least so long as the patent system on the whole encourages innovation. Schwartz and Kesan take this attitude in their essay, cautioning against precipitous changes to patent law that might affect innovation incentives as well as wasteful patent assertions.¹⁹

Bessen and Meurer, on the other hand, argue that the patent system on the whole fails to encourage innovation, at least outside of the pharmaceutical industry.²⁰ In their essay, and in prior work, Bessen and Meurer posit that one of the primary solutions to patents serving as a drag on innovation (rather than as a boost) is to solve the patent notice problem.²¹

¹⁸ James Bessen et al., *The Private and Social Costs of Patent Trolls*, 34 REG. 26, 32–33 (2011). As one example, Bessen and Meurer note that “RIM was forced to share the fruits of its success with NTP, a company that contributed nothing to [the success of] the BlackBerry,” and that “RIM was unaware of . . . [the] patent until after [it] had succeeded with [its] innovation.” Bessen & Meurer, *supra* note 1, at 420.

¹⁹ See Schwartz & Kesan, *supra* note 2, at 439, 455–56.

²⁰ JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, & LAWYERS PUT INNOVATORS AT RISK 4–5, 27 (2008).

²¹ See *id.* at 164; Bessen & Meurer, *supra* note 1, at 421. The notice problem of patent claims occurs when one cannot determine the boundaries of the patent entitlement by reading the claims and specification of the patent. This causes uncertainty as to the coverage of the patent and may lead to surprise when a patent is asserted against an invention that is very different from the primary embodiment in the patent but arguably falls under the uncertain boundaries of the claims. See BESSEN & MEURER, *supra* note 20, at 46, 62; Bessen & Meurer, *supra* note 1, at 393–94.

While the fuzziness of the scope of patent claims is undoubtedly a problem that results in much uncertainty and litigation, solving the notice problem cannot alone optimize efficiency in the patent system. Even if the boundaries of patents are very clear, when patents are granted for types of inventions that would be invented even without the patent incentive, allowing such patents to be asserted against other innovators who invent separately is a wasteful tax.

It is important to note that the patent system could be more beneficial to society if, for inventions that are never adequately disseminated, the patents granted were not enforced. As I have already noted, prior to the ascendance of NPE assertion, unworked patents were not very harmful. They were asserted much less often and thus served as a tax on innovation much less often. Part of the reason for this is that independent inventors often did not have the expertise or money to assert their patents.²² Another factor was that competitors often held these patents; asserting a patent for an invention in which the company was not making a product was often not worth the risk of countersuit.²³ Thus, unused patents were often simply held in firms' portfolios for defensive purposes.²⁴ With the advent of NPEs, however, patents could be acquired by entities that had the expertise and funding to assert the patents but had no exposure to the risk of countersuits.²⁵ This has allowed both independent inventors and firms participating in the market to sell or assign their patents to NPEs, thereby letting NPEs assert patents that formerly would not have been asserted.

Bessen and Meurer point out that NPEs are often successful in asserting patents for at least nuisance value because so many patents have notice problems.²⁶ While this is part of what makes NPE assertion costly to society, it also is simply a fact that many patents are granted that are never commercialized but are later enforced against surprised entities who have commercialized the claimed invention without ever knowing about the original invention and patent.²⁷ These unknown patents never show up in the market and are never copied by other independent inventors who subsequently put a product or process on the market that is covered by the claims of the unworked patent. Thus, these patents do not act as spurs to successful, commercialized innovation. Instead, if they are later

²² See James F. McDonough III, Comment, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 EMORY L.J. 189, 210 (2006).

²³ See Krueger, *supra* note 6, at 4–5.

²⁴ See Chien, *supra* note 5, at 11.

²⁵ See FED. TRADE COMM'N, *supra* note 6, at 31; Krueger, *supra* note 6, at 4.

²⁶ See Bessen & Meurer, *supra* note 1, at 421, 423.

²⁷ See Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law's Willfulness Game*, 18 BERKELEY TECH. L.J. 1805 (2003).

asserted, they act as taxes on those who do actually commercialize the innovation.

The aforementioned notice problem is part of the reason that patents can be granted but remain unknown to others who will later invent and commercialize an invention arguably covered by the patent.²⁸ The lack of clarity as to the boundaries of the patent claims can leave potential competitors completely unaware of their potential patent exposure. But more problematically, numerous claims, especially process claims, are abstract enough that the language of the claims can read on other products or processes that seem completely unrelated.²⁹ Thus, not only might a market participant miss finding a patent that could cover its inventions but the abstractness of many process patents is such that a firm would not realize that a given patent might be ruled to cover its product even if the firm read the patent from front to back. One example among legion is the assertion of a patent on an improved ATM graphical user interface against Amazon.com's 1-Click Internet ordering system.³⁰ Reading the patent showed that the patent was clearly drawn to ATM graphical user interfaces.³¹ But the claim language was such that a plausible case could be made that Amazon's Internet ordering system infringed.³² Amazon never knew about the patent before being sued. Even had Amazon searched for patents that might cover the 1-Click system, it was unlikely to find this patent on a completely different type of system. Moreover, had Amazon read the patent, it would not have helped Amazon with the work of coding the complex system that is the 1-Click ordering system.

But it is unlikely that Amazon ever would have searched, because of a feature of patent law that makes it dangerous to do so. The Patent Act allows the trebling of damages for patent infringement for willful infringement.³³ The Federal Circuit has interpreted the willfulness provision in the statute to include activity undertaken with knowledge that making a product or process could infringe a patent.³⁴ For this reason, many firms instruct their engineers and developers *not* to read patents, so that they can stay ignorant of patents in their field and avoid putting themselves in a position to be

²⁸ See *supra* note 21 and accompanying text.

²⁹ See BESSEN & MEURER, *supra* note 20, at 22–23.

³⁰ IPXL Holdings, L.L.C. v. Amazon.com, Inc., 333 F. Supp. 2d 513, 516 (E.D. Va. 2004).

³¹ Electronic Fund Transfer or Transaction System, U.S. Patent No. 6,149,055 (filed June 26, 1996) (issued Nov. 21, 2000).

³² See IPXL Holdings, L.L.C. v. Amazon.com, Inc., 430 F.3d 1377, 1384 (Fed. Cir. 2005).

³³ See 35 U.S.C. § 287 (2006 & Supp. V 2011).

³⁴ Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc., 682 F.3d 1003, 1005 (Fed. Cir. 2012).

liable for enhanced damages for willfulness if a product or process is found to infringe.³⁵

The fact that firms in certain fields instruct their engineers and developers not to read patents tells us a couple of things. First, firms must not think that there is enough to be learned by patents in their field to make reading them worth potential exposure to treble damages. Second, the relevant players will never know many of these patents. This means that what has been called the basic quid pro quo of the patent system—granting patents in exchange for disclosure of the invention³⁶—is often not functioning in a meaningful way. The system is set up so that even though unworked patents are freely available, many firms to whom they are potentially relevant affirmatively avoid reading them. In the meantime, others who do search for patents when seeking freedom to operate may never find them because the boundaries of some patents are too uncertain. In either of these cases, these patents are providing no help to society and instead are only functioning as a tax on innovation if they are later asserted against those who have independently commercialized the invention.

If this is the case, it would be better never to grant patents of these types at all. But how do we determine which types of innovation yield patents that are without benefit rather than patents that are useful as incentives? An easy place to start is to look at industries where it is widely reported that firms instruct their engineers and developers not to read patents. Common perception suggests this is generally true for high technology and software companies.³⁷ Given that firms in these industries do not seem to use patents to help them innovate, it makes sense to call them independent inventors or innocent infringers.³⁸ If there are a number of independent inventors who are being sued for patent infringement, then legislation proposed in Congress to exempt innocent infringers from liability might be the best solution to the problem of patents acting as a tax, whether NPEs or anyone else assert the patents.³⁹

There are two potential problems with an innocent infringer defense. First, it can be difficult at times to tell whether someone innocently infringed or copied. This same difficulty exists in

³⁵ Lemley & Tangri, *supra* note 27, at 1100–01.

³⁶ See *Brenner v. Manson*, 383 U.S. 519, 534 (1966).

³⁷ See FED. TRADE COMM'N, *supra* note 6, at 1–4.

³⁸ It is not innocent infringement if a firm copies a product in the market without knowing that the product is patented. There, the patent incentive does seem to have provided incentive for commercialization—commercialization that the firm subsequently copied.

³⁹ See Michael J. McKeon, *The Patent Marking and Notice Statute: A Question of "Fact" or "Act"?*, 9 HARV. J.L. & TECH. 429, 465 (1996).

copyright law, however, with regard to copyright law's independent creation defense. While independent creation defenses can at times be difficult on the facts, copyright law has developed a fairly robust way of dealing with this issue that courts administering a patent independent inventor defense can borrow.⁴⁰

Second, if the prospect of winning a race to patent an expensive new invention makes the difference between investing or not investing in the R&D needed to make the invention, then an independent inventor defense could deter or delay innovation. For instance, if four teams of researchers at four pharmaceutical companies were all interested in pursuing a promising new possibility for cancer treatment, but the research was expensive enough that each team did not want to engage in the research without the possibility of getting exclusive rights, then allowing an independent inventor defense could destroy any exclusive rights from the patent because each team would have the right to produce the cancer-fighting drug so long as they did all of the research on their own. Thus, the ability to win an invention race and lock out competitors for twenty years would be diminished or destroyed in some situations, and that could deter some innovation.⁴¹ Nevertheless, if the magnitude of the cost to society from the assertion of unworked, undissemintated patents is anywhere near what Bessen and Meurer determine—and there is good reason to think that it is—the cost of the patent tax being collected by NPEs and others may be great enough that some loss of invention incentive from an independent inventor defense may be more than outweighed.

An alternative reform to try to decrease the cost of NPEs and others' assertions of undissemintated patents is to eliminate patentability in areas of innovation where they are, on net, more costly than beneficial. I have already discussed that it is widely reported that many developers and engineers in high technology, software, and business methods do not read patents and, in fact, affirmatively avoid them.⁴² This strongly suggests that patents in these areas are not serving the function of disseminating information about

⁴⁰ See *id.* at 434–36, 466.

⁴¹ In other scenarios, however, an independent invention defense might not deter innovation at all. Patent races result in a lot of economic waste because the losers of the patent races cannot get any return from their invention or near invention (other than potential gains in knowledge or research skills that may be applicable to other problems). If each independent inventor could commercialize its invention, then the R&D of those who lost the race would not be wasted. This could result in more incentives for innovation instead of less. Even though the reward for invention would be lower (though independent inventors would likely engage in oligopoly pricing to the extent needed to make up for R&D costs), the risk would also be much lower since there would only be a complete loss of R&D expenditures if the team failed to invent anything rather than simply if the team failed to invent first.

⁴² Lemley & Tangri, *supra* note 34, at 1100–01.

invention in these fields. Moreover, because each assertion of an unworked and undisseminated patent is, by definition, an assertion against an entity that independently invented the product or process at issue, those assertions serve only as a tax on secondary, independent inventors, and do not benefit society.

It would save society even more cost if, instead of simply allowing an independent inventor defense (which will involve discovery and thus will still be costly to prove in court), we could eliminate broad swaths of patents that are much more likely to be asserted as taxes on innovation than to serve the purpose of encouraging needed innovation. As previously discussed, one way to do this would be to identify areas of innovation that do not appear to benefit from the patent grant, and eliminate patents for those subject matter.⁴³ Given that firms do not seem to read patents in software, high tech, and business methods, these fields are likely places to start for an analysis of whether patents are needed at all in these areas.

In addition to critiquing Bessen and Meurer's study, Schwartz and Kesan go on to suggest further avenues for empirical work to shed light on whether there really is a problem with NPE litigation and, if so, to what extent.⁴⁴ Bessen and Meurer agree that further study is merited, but they believe that the evidence to date is compelling enough to support patent reform to alleviate problems with a failure of the patent system in regard to NPE litigation. Schwartz and Kesan believe that the evidence is not yet strong enough to merit changes in the patent system.

I too have suggestions for future empirical work that would assist patent policymakers based on the issues I have discussed above. Research designed to study the question of whether patents could be beneficially eliminated in some areas of innovation would be of great value to patent policymakers. Researchers could study the incidence of copying in various areas of innovation. They could look for both intentional copying as well as copying without any knowledge of the patent on the part of the copyist. Only truly independent invention should be considered not to be copying. Copying a market trend without knowing that the trend is the result of patented innovation should still count as copying the patent for the purposes of determining whether the patent drove innovation.

Researchers could also look for data as to the average and median R&D costs in different areas of innovation. The lower the

⁴³ This is a way to improve the patent system that I have written about before. See David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 195 (2009) (arguing that patents should only be granted for subject matter for which the benefit of the patent grant outweighs the cost of the patent grant's monopoly deadweight loss and transaction costs).

⁴⁴ See Schwartz & Kesan, *supra* note 2, at 428–33.

R&D costs, the less likely these areas need patents. Likewise, researchers could look for data regarding the mean and median costs of copying an invention in various areas of innovation. If the costs of copying are very high,⁴⁵ then there is less need for patent protection. If the costs of copying are very low,⁴⁶ patents may be needed to prevent appropriation of the value of invention without bearing any of the costs. Of course, the cost of copying must be considered in light of the costs of initial invention. If initial invention costs were negligible, then even scant copying costs may be enough to prevent free rider problems that will deter innovation.

Researchers could also look for data as to the frequency with which patents are used to protect inventions in different areas of innovation. Researchers could also do the sort of analysis that Bessen and Meurer do in their essay but break down the analysis by type of innovation. If the evidence indicates that patents cost more than they benefit a particular area of innovation, then eliminating patents for these subject matters would make society better off and reduce some of the costs of the patent system. Empirical work designed to study line-drawing problems between areas of innovation that do not need the patent grant and areas that would be very helpful to patent policymakers. For instance, study could be made of the difficulty in distinguishing software patents from other types of process patents.⁴⁷

⁴⁵ Copying costs may be high for inventions where the patent enables invention but there is still a lot of work to do to reduce the invention to practice. For example, many software patents are described in flowchart form at a very high level of generality. A competitor could copy the method laid out in the software patent but would still have to hire a team of software developers, test the program, debug the program, and then advertise and get name recognition to sell the program and compete.

⁴⁶ Sometimes the costs of copying are low, especially compared to the costs of invention. In the pharmaceutical field, for instance, the costs of R&D and testing a drug can be enormous, whereas the chemical knowledge and facilities needed to copy a drug once the molecule has been disclosed in an enabling patent specification is very low.

⁴⁷ Some work has already been done along these lines, but it is far from conclusive. See, e.g., John R. Allison & Starling D. Hunter, *On the Feasibility of Improving Patent Quality One Technology at a Time: The Case of Business Methods*, 21 BERKELEY TECH. L.J. 729, 765 (2006) (“All attempts by courts and Congress to arrive at a workable definition for business methods have encountered intractable difficulties.”); John R. Allison & Ronald J. Mann, *The Disputed Quality of Software Patents*, 85 WASH. U. L. REV. 297, 334 (2007); Jay Dratler, Jr., *Does Lord Darcy Yet Live? The Case Against Software and Business-Method Patents*, 43 SANTA CLARA L. REV. 823, 870–71 (2003); Ricardo Bonilla, *A Patented Lie: Analyzing the Worthiness of Business Method Patents After Bilski v. Kappos*, 43 TEX. TECH. L. REV. 1285, 1295–98 (2011); Brian H. Lawrence, *Clarifying Patent Law’s Role in Financial Service: Time to Settle the “Bill”ski?*, 22 FED. CIR. B.J. 319, 345 (2012) (arguing that Signature’s “Hub and Spoke” method in *State Street* was considered a software patent at the time—despite intuitively also appearing to be a financial services patent—and that while this uncertainty poses labeling problems, the reality is that many patents overlap different industries). It should be kept in mind that while it may be difficult to distinguish between business methods and software processes, so long as these two types of processes can be distinguished from other processes reasonably well, eliminating patents on business methods and software could be socially beneficial if it is found that the costs of patents in these areas exceed their benefits.

CONCLUSION

Bessen and Meurer have made an important contribution to the study of patent assertion by NPEs in their essay. Schwartz and Kesan also have made an important contribution to the discussion by analyzing critically the study and conclusions of Bessen and Meurer. Schwartz and Kesan are certainly correct that it would be ideal if the data underlying the study could be fully examined and shared. Unfortunately, publicly available data on patent licensing and defenses against patent assertions are scarce.

Patent assertions by NPEs are changing the landscape of the patent system and are imposing significant economic costs. Studying these costs is very worthwhile. NPE patent assertions also point out flaws and faults in the patent system that were not costly enough to address before the rapid rise of NPE patent assertion. Notice problems, overbreadth, multiple invention, and needless patent grants mattered much less when patents were held more defensively than they are now. Thus, in some ways, patent assertions by NPEs do not raise unique problems that need to be solved in the patent system so much as they increase the severity of pre-existing problems. The independent invention defense may be a solution to part of those problems. Disallowing patents for certain subject matters of invention might be another part of the solution. I have suggested future empirical inquiries that could be done to help shed light on the effectiveness of these proposed solutions.

Because of the ever-changing nature of innovation and the economy, we will never have all of the empirical evidence needed before making patent law reforms. We will, to some extent, always have to rely on assumptions and intuitions in making patent law. But to the extent high quality empirical analyses can be conducted such as those conducted in the essays by Bessen and Meurer and Schwartz and Kesan, they are very helpful for informing our assumptions and intuitions and thus very helpful for the important task of adapting and reforming patent law.