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**MAKE THE PATENT “POLLUTERS” PAY:
USING PIGOVIAN FEES TO CURB PATENT ABUSE**

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MAKE THE PATENT “POLLUTERS” PAY:
USING PIGOVIAN FEES TO CURB PATENT ABUSE

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Patent reform bills, it seems, are suddenly falling like rain. On the heels of a widely reported uptick in egregious patent enforcement,³ five bills have been introduced in the last four months, proposing a wide variety of reforms⁴ in an attempt to stop so-called “patent trolls”—firms that acquire and enforce patents, but don’t make products—from shaking down firms that *do* commercialize useful technology.

These proposed reforms primarily focus on reducing the high cost of patent litigation, and admirably so. Litigation cost is undoubtedly a major contributor to patent system abuse.⁵ But,

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³ Most notably, the widespread patent assertion activities of Innovatio and Project Paperless, which have collectively targeted thousands of small businesses nationwide. See Amended Complaint at 19, *Cisco Systems Inc. v. Innovatio IP Ventures LLC*, No. 1:11cv09309 (N.D. Ill. filed Dec 28, 2011) (“Innovatio has sent more than 8,000 threatening letters to licensing targets [end users of Wi-Fi technology] in all 50 states”); Joe Mullin, *Patent Trolls Want \$1,000—For Using Scanners*, ARS TECHNICA, Jan. 2, 2013, <http://arstechnica.com/tech-policy/2013/01/patent-trolls-want-1000-for-using-scanners/>. The bills also follow news that in 2012 the number of patent suits filed by trolls exceeded the number filed by product-producing companies. See Sara Jeruss et al., *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, UCLA J.L. & TECH. (forthcoming 2013) (finding that NPEs filed roughly 52% of patent suits in 2012).

⁴ Saving High-Tech Innovators from Egregious Legal Disputes Act of 2013, H.R. 845, 113th Cong. (2013), available at <http://www.govtrack.us/congress/bills/113/hr845> (proposing a fee-shifting regime applicable to a subset of unsuccessful patent plaintiffs); Patent Quality Improvement Act of 2013, S. 866, 113th Cong. (2013), available at <http://www.govtrack.us/congress/bills/113/s866> (proposing the expansion of the scope and duration of the “transitional program for covered business method patents”); End Anonymous Patents Act, H.R. 2024, 113th Cong. (2013), available at <http://www.govtrack.us/congress/bills/113/hr2024> (proposing requirements inducing patent owners to identify themselves); Patent Abuse Reduction Act, S. 1013, 113th Cong. (2013), available at <http://www.govtrack.us/congress/bills/113/s1013> (proposing a number of reforms, including a discovery cost-shifting regime and a heightened pleading standard for patent suits). On May 23, 2013, Rep. Bob Goodlatte released an as yet un-introduced “discussion draft” of a patent reform bill, available at <http://judiciary.house.gov/news/2013/05232013%20-%20Patent%20Discussion%20Draft.pdf>, proposing a number of reforms, including a fee-shifting regime, a heightened pleading standard, patent ownership disclosure requirements, and codification of the customer suit exception. In addition, on June 4, 2013 the President released a set of executive orders and “legislative recommendations” expressing his support for many of the provisions included in these bills. Press Release, The White House, Office of the Press Secretary, Fact Sheet: White House Task Force on High-Tech Patent Issues (June 4, 2013), available at <http://www.whitehouse.gov/the-press-office/2013/06/04/fact-sheet-white-house-task-force-high-tech-patent-issues>.

⁵ See, e.g., Brian J. Love, *Expanding Patent Law’s Customer Suit Exception*, 93 B.U. L. REV. (forthcoming 2013) (noting that the most profitable course of action “[f]or patentholders whose rights are worth relatively little compared to the costs of litigation—roughly between \$1 to \$3 million for even suits of modest complexity—[is] serial nuisance filings”).

such singular focus on litigation is unwarranted. The patent troll problem is a multi-faceted one, in need of a multi-faceted response.

Notably, none of the proposals presently on the table strike at the heart of the mess we're in: a massive (and growing) glut of old high-tech patents that have long outlived the useful lifetime of the products they were initially intended to protect and thus, today, hold little practical value apart from use as vehicles for questionable enforcement.⁶

Maintenance Fee Reform

In addition to litigation-oriented reforms, Congress should attack the patent troll problem by strategically increasing Patent Office fees—a reform would actually help trim the impenetrable “thicket” of patents presently discouraging (or outright preventing) entrepreneurs’ from bringing new products to market.⁷

Patent “maintenance fees”—periodic fees patent owners must pay to prevent their rights from expiring prematurely—offer a powerful, but so far mostly overlooked, tool that could be used to curb patent abuse without unduly limiting the rights of companies engaged in vigorous research and design.⁸

The reason why is straightforward: legitimate innovators and patent trolls enforce their patent rights on very different timelines. So much so that all claims asserting the average product-company patent are resolved before the average troll-owned patent is asserted for the first time.⁹ In fact, companies that own patents purely for the sake of enforcement are responsible for more than two-thirds of suits, and more than four-fifths of all individual infringement claims, filed in

⁶ See Brian J. Love, *No: Software Patents Don't Spur Innovation, but Impede It*, WALL ST. J., May 13, 2013, at R2 (noting that there are roughly 400,000 software patents presently in force); Christina Mulligan & Timothy B. Lee, *Scaling the Patent System*, NYU ANN. SURV. AM. L. (forthcoming 2013) (estimating that, currently, about 40,000 software patents issue annually); James Bessen & Robert M. Hunt, *An Empirical Look at Software Patents*, 16 J. ECON. & MGMT. STRATEGY 157 (2007) (finding that, circa 2004, roughly 20,000 software patents issued annually).

⁷ See generally Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, in 1 INNOVATION POLICY AND THE ECONOMY 119 (Adam B. Jaffe et al. eds., 2000). In addition to trimming the large thicket of *issued patents*, increasing maintenance fees would likewise induce some inventors who are presently prosecuting (or considering whether to file) low value applications to abandon their efforts and, thereby, also reduce the large backlog of *pending applications* clogging the U.S. Patent and Trademark Office (PTO). See, e.g., Dennis Crouch, *The US PTO Patent Backlogs: Falling and Rising*, Patently-O (May 9, 2012 1:24 PM), <http://www.patentlyo.com/patent/2012/05/the-uspto-patent-backlogs-falling-and-rising.html>.

⁸ Much of the discussion that follows also supports reducing the patent term, something for which one of us has previously argued. Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309 (2013). However, an across-the-board term reduction is likely an infeasible reform at this time. *Id.* at 1357 (noting that “the United States is a party to the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), which requires WTO member nations to offer a minimum of twenty years’ patent protection.”).

⁹ *Id.* at 1309.

the last five years of the asserted patent's term.¹⁰ Additionally, many product producing companies enforcing old patents are likewise up to no good.¹¹

As a result, large fees payable late in the patent term would almost exclusively target patentholders acting opportunistically, leaving legitimate innovators (who have long since moved on to new products protected, if at all,¹² by new patents) largely unscathed.

Pigovian Patent Fees

Setting fees at socially optimal levels is likewise straightforward: patentees should pay an amount representing the deadweight loss resulting from their patent rights. Patent owners who amass patent rights that may later on wind up in the hands of patent trolls are, in many respects, like consumers who buy aluminum cans or motor oil that may one day wind up in a river instead of a landfill or recycling center. Why not “tax” the former much like we routinely tax the latter?¹³

In other words, using patent fees we could charge patent holders, much as we do polluters, an amount reflecting the negative externalities they impose on society, a mechanism known as Pigovian taxation.¹⁴

A “Pigovian” patent fee structure would, in its simplest form, dictate that if the roughly 2.2 million patents presently in force¹⁵ drain the U.S. economy of about \$23 billion a year as a result

¹⁰ *Id.* at 1309.

¹¹ *Id.* at 1348-50.

¹² Many high-tech innovators eschew patents entirely. See Stuart J.H. Graham et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 BERKELEY TECH. L.J. 1255, 1262, 1289–90 (2009) (finding in a survey of start-up companies that (1) first mover advantage, not patent protection, was the most “important” means to “capture competitive advantage” in the software industry; and (2) the majority of start-up companies in the software industry hold no patents at all).

¹³ California, for example, charges a “Oil Spill Response, Prevention, and Administration Fee” of \$0.065 per barrel of oil, California State Board of Equalization, Tax Rates – Special Taxes and Fees (last visited May 30, 2013 7:00 pm), http://www.boe.ca.gov/sptaxprog/tax_rates_stfd.htm#16, as well as a fee of “5 cents for each container under 24 ounces and 10 cents for each container 24 ounces or greater” for numerous recyclables, including aluminum cans, see California Department of Resources Recycling and Recovery, Frequently Asked Questions (last visited May 30, 2013 7:00 pm), <http://www.calrecycle.ca.gov/bevcontainer/ProgramInfo/FAQ.htm>.

¹⁴ See James Bessen, *Make the Polluters Pay!*, Wired.com (Sept. 6, 2012, 2:10 PM), <http://www.wired.com/opinion/2012/09/can-new-fees-fix-the-patent-system/>; James Bessen, Presentation at the Santa Clara University School of Law (Nov. 16, 2012), [http://law.scu.edu/hightech/file/2012%20Patent%20Conf/Bessen%20\\$\\$\\$%20mightier%20than%20words.pdf](http://law.scu.edu/hightech/file/2012%20Patent%20Conf/Bessen%20$$$%20mightier%20than%20words.pdf). Other economists have previously argued that renewal fees should be used to induce patentees to maintain their patent rights for a socially optimal period of time. See generally Suzanne Scotchmer, *On the Optimality of the Patent Renewal System*, 30 RAND J. ECON. 181 (1999); Francesca Cornelli & Mark Schankerman, *Patent Renewals and R&D Incentives*, 30 RAND J. ECON. 197 (1999).

¹⁵ See Dennis Crouch, *How Many U.S. Patents Are In-Force?*, Patently-O (May 4, 2012, 10:19 AM), <http://www.patentlyo.com/patent/2012/05/how-many-us-patents-are-in-force.html> (estimating that there were about 2.1 million patents in force in May 2012); U.S. Patent & Trademark Office, U.S. Patent Statistics Chart Calendar Years 1963–2012 (2012), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (showing that 276,788 patents total issued in 2012 compared to 121,696 in 1996).

of socially harmful patent litigation,¹⁶ then patent maintenance fees should, on average, cost about \$10,500 per year of protection.

Mapping that figure onto our existing framework for fees—which incorporates the commonsense proposition that rates should start low to accommodate cash-strapped startups and increase over time as inventions (hopefully) mature into money-making products and then inevitably become obsolete—the fee structure would morph as shown in the middle column of the Figure below:

Present Fee Structure		“Pigovian” Level Fees (mapped to current fee structure)		“Pigovian” Level Fees (with add’l fees delayed to target bad actors)	
Periodic Fee ¹⁷	Prorated annually	Periodic Fee	Prorated annually	Periodic Fee	Prorated annually
--	Yrs. 1-3: \$0	--	Yrs. 1-3: \$0	--	Yrs. 1-3: \$0
Yr. 4: \$1,600	Yrs. 4-7: \$400	Yr. 4: \$22,600	Yrs. 4-7: \$5650	Yr. 4: \$1,600	Yrs. 4-7: \$400
Yr. 8: \$3,600	Yrs. 8-11: \$900	Yr. 8: \$51,000	Yrs. 8-11: \$12,750	Yr. 8: \$3,600	Yrs. 8-11: \$900
Yr. 12: \$7,400	Yrs. 12-expiration: ¹⁸ \$1,233	Yr. 12: \$104,900	Yrs. 12-exp.: \$17,483	Yr. 12: \$173,250	Yr. 12: \$2,750 ¹⁹
					Yr. 13: \$5,500
					Yr. 14: \$11,000
					Yr. 15: \$22,000
					Yr. 16: \$44,000
					Yr. 17: \$88,000

Despite the marked increase from present levels, these proposed figures are hardly extreme by international or historical standards. It presently costs roughly as much to maintain widespread patent protection in Europe,²⁰ a region that remains popular with inventors and experiences far

¹⁶ Bessen and Meurer estimate that troll suits resulted in \$29 billion in direct costs to accused infringers in 2011. See James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. at *19 (forthcoming 2013). They also estimate that up to 5% of this amount was transferred back to inventors from whom asserted patents were acquired and that another 15% was used to fund in-house invention programs carried out by a small number of trolls. *Id.* at *20-22. The numerical example presented above assumes both are socially valuable, though we are skeptical about the latter. For simplicity’s sake, we also exclude all other sources of deadweight loss from the patent system, including troll defendants’ indirect costs like “diversion of resources, delays in new products, and loss of market share,” Bessen & Meurer, at *24, and deadweight losses attributable to patent disputes between product producing companies, see Bessen, *Make the Polluters Pay!*, *supra* note 14, even though both are likely quite large.

¹⁷ Only “large entities” pay fees at this level. “Small entities,” patentees that have fewer than 500 employees, pay half as much, 37 CFR 1.27, and “micro entities,” small players new to the patent system and universities, pay a quarter as much, 77 Fed. Reg. 75019. In our view, entity size distinctions shouldn’t apply to maintenance fee rates.

¹⁸ Most patents presently in force will receive a maximum possible term of about 17 years from the date they issue. See 35 U.S.C. § 154(a)(2) (providing that the term of a patent currently lasts twenty years from filing). Older patents last a bit longer on average, John R. Allison & Mark A. Lemley, *The Growing Complexity of the United States Patent System*, 82 B.U. L. REV. 77, 98 (2002) (finding that patents issued between 1996 and 1998 spent an average of 2.77 years in prosecution), and newer patents a bit less, Dennis Crouch, Average Pendency of U.S. Patent Applications, Patently-O (Mar 20, 2013 09:05 AM) (noting that patent issued between January 2009 and January 2013 spent, on average, about 3.3 years in prosecution), <http://www.patentlyo.com/patent/2013/03/average-pendency-of-us-patent-applications.html>.

¹⁹ In this example, fees remain at present levels through year 12, at which time the annual cost increases geometrically to reach the cumulative Pigovian target.

²⁰ See Gaétan de Rassenfosse & Bruno van Pottelsberghe, *The Role of Fees in Patent Systems: Theory and Evidence* 26 (Intellectual Prop. Research Inst. of Austl., Working Paper No. 7/10, 2010), available at http://www.ipria.org/publications/wp/2010/Working%20Paper%207_2010.pdf.

less patent troll behavior than the U.S.²¹ Additionally, patent maintenance fees in the U.S. have remained at or near an all-time low relative to GDP per capita for the last several decades, and in the past have been up to 10 times larger than recent levels.²²

Increasing maintenance fees in this manner—and, better yet, subdividing them into increasingly expensive annual payments, e.g., as shown in the third column above—would cost trolls dearly. No longer could trolls purchase middle-aged patents and hold them cost free. Maintenance payments of this magnitude would cost a large aggregator like Intellectual Ventures more than \$750 million annually.²³ Trolls with less capital would shutter their doors, and the growth of next generation of trolls would be stunted as more patents than ever before were allowed to expire before reaching the secondary market.²⁴

Legitimate innovators, on the other hand, would overwhelmingly avoid a similar fate. As mentioned above, product producing companies usually finish enforcing their patents by nine years after issuance, while trolls rarely can acquire and enforce them any earlier.²⁵ Further, innovators who actually do rely on long-term protection overwhelmingly operate in fields—like pharmaceuticals—with extremely low patent density. While the iPhone might infringe a quarter-million patents,²⁶ the average pharmaceutical is protected by just a handful,²⁷ which could be renewed quite cheaply relative to product revenue even after a fee increase.²⁸ In any event, simple modifications like excluding patents covering FDA approved products from these new fees entirely—perhaps combined with back loading fees even more so than at present—would ease (if not completely eliminate) product producers' pain.

²¹ The European Patent Office saw a record number of applications in 2012, almost two-thirds of which were filed from abroad. See European Patent Office, 2012 – A Record Year for the European Patent Office (Mar. 6, 2013), <http://www.epo.org/news-issues/press/releases/archive/2013/20130306.html>. Compared to the U.S., there are fewer patent disputes (per patent) in most European nations, and European patent disputes are cheaper than their U.S. counterparts. See Nicolas van Zeebroeck & Stuart Graham, *Comparing Patent Litigation across Europe: A First Look* 5, n.4, 12-13 (Working Paper, Sept. 8, 2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1924124&download=yes.

²² de Rassenfosse & Pottelsberghe, *supra* note 20, at 6.

²³ Intellectual Ventures purports to own roughly 70,000 acquired patents, in addition to several thousand more filed to protect inventions made in house. Intellectual Ventures, Our Patent Portfolio (last visited May 30, 2013 7:00 PM), <http://www.intellectualventures.com/index.php/inventions-patents/patent-portfolio>.

²⁴ Presently, about 50% of all issued patents expire for failure to make one of the three required payments. See Dennis Crouch, Patent Maintenance Fees, Patently-O (Sept. 26, 2012, 9:51 PM), <http://www.patentlyo.com/patent/2012/09/patent-maintenance-fees.html>.

²⁵ See Love, *An Empirical Study of Patent Litigation Timing*, *supra* note 8, at 1335.

²⁶ See, e.g., Brian J. Love, *Apple Bites Back: But Will the Company Come to Regret Its Huge Court Victory?*, L.A. TIMES, Aug. 30, 2012, at A15.

²⁷ See, e.g., Lisa Larrimore Ouellette, *How Many Patents Does It Take To Make a Drug? Follow-On Pharmaceutical Patents and University Licensing*, 17 MICH. TELECOMM. TECH. L. REV. 299, 316 (2010), available at <http://www.mttr.org/volseventeen/ouellette.pdf>.

²⁸ Lipitor, for example, was covered by just five patents, the renewal of which would have cost Pfizer only \$52,500 per year under our proposed Pigovian regime. *Id.* at 316, n. 101. By contrast, Pfizer was making more than \$5 billion per year in Lipitor sales, see Pharmaceutical Sales 2010, Drugs.com (last visited May 30, 2013 7:00 pm), <http://www.drugs.com/top200.html>, before patent rights to the drug expired in 2011, Josh Sanburn, *Lipitor Already Cheaper After Patent Expiration*, TIME.com (Dec. 1, 2011), <http://business.time.com/2011/12/01/lipitor-patent-expiration-wont-mean-cheaper-generics-yet/>.

In the fight against patent abuse, let's not treat the symptoms of patent "pollution," to the exclusion of their root cause. Policymakers take note: maintenance fee reform would make a simple²⁹ and, when properly formulated, uncontroversial addition to your toolkit for curbing patent abuse.

²⁹ Other noteworthy benefits of maintenance fee reform include: (i) it does not rely on a definition of "software" or "patent troll" that future firms might evade, but rather targets abusive activity per se; (ii) it lends itself to periodic adjustment and could be tweaked on a regular basis, perhaps under the auspices of an agency unit tasked with tracking patent system costs over time; and (iii) should broader reform efforts stall in Congress, it could be implemented (at least to a limited extent) under the U.S. PTO's fee-setting authority without Congressional approval. See generally Brian J. Love, *Let's Use Patent Fees to Stop the Trolls*, Wired.com (Dec. 20, 2012, 3:30 PM), <http://www.wired.com/opinion/2012/12/how-to-stop-patent-trolls-lets-use-fees/>.