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PATENT TROLLS, NUISANCE SUITS, AND THE FEDERAL TRADE COMMISSION

By Matthew Spitzer[1]

The Federal Trade Commission's ("FTC's") Patent Assertion Entity Activity Report ("The Report") includes a path-breaking collection of data. The Report was compiled with the object of changing policy, both in Congress and before the courts. Because of the FTC's ability to force businesses and individuals to provide information, a power that no ordinary researcher possesses, the FTC has amassed a data set that can potentially be of great value. For example, the Report's description of litigation Patent Assertion Entities' ("PAEs") and portfolio PAEs' structure and behavior is, although not entirely new, very instructive. Unfortunately, the FTC made analytical errors that preclude using its work to directly support policy prescriptions. First, the FTC claims that if a suit settles for less than $300,000, then the suit was likely Negative Expected Value ("NEV"). In addition, the FTC claims that NEV suits are bad. These claims are analytically false. Second, the FTC's policy recommendations have no connection to any of its factual analysis. Although this does not prove that the policy recommendations are bad ideas, the FTC's factual analysis gives the reader no help, at all, in deciding on the merits of the

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recommendations. Further, because the Report's analytics are so flawed, they cannot help one evaluate any proposed new policies. Therefore, in terms of providing normative guidance, the Report is a failure.

I. INTRODUCTION

The Federal Trade Commission ("FTC"), a powerful federal administrative agency whose jurisdiction includes competition policy and consumer protection, released in 2016 a Patent Assertion Entity Activity Report (the "Report") on the litigation activities of Patent Assertion Entities ("PAEs").[2] In this report the FTC denigrates the activities of PAEs, partly by calling them "patent

[2] FTC, PATENT ASSERTION ENTITY ACTIVITY: AN FTC STUDY (2016), https://www.ftc.gov/system/files/documents/reports/patent-assertion-entity-activity-ftc-study/p131203_patent_assertion_entity_activity_an_ftc_study_0.pdf. Patent trolls are also sometimes called Patent Assertion Entities (PAEs) or Non Practicing Entities (NPEs). In this article I will use the terms patent troll and PAE interchangeably.

trolls." The denigration of PAEs in the Report supports harmful policy initiatives that would change patent law in ways that are bad for society.

Patents are property rights to certain technologies, limited in time and scope, issued by the Federal government to inventors who satisfy a set of prerequisites.[3] Patents are explicitly authorized by the United States Constitution,[4] to "promote the [P]rogress of [S]cience." This phrase is understood today to encompass at least two different ideas. The first is that limited monopoly will incentivize inventors to invent—which will ultimately benefit many.[5] Second, the patent rights are extremely useful at commercializing inventions and providing a foundation for disclosing inventions to firms without worrying about theft of ideas.[6]

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[3] Patent law is codified in Title 35 of the United States Code. *See* 35 U.S.C. §§ 101–103 (2006). Section 101 allows patents in a useful "process, machine, manufacture, or composition of matter" that is "new and useful." § 101. Section 102 explains what it means to be "new," while § 103 requires that the invention not be "obvious" to a person of ordinary skill in the art. *See* §§ 101–102.

[4] U.S. CONST. art I, § 8, cl. 8 (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[.]").

[5] *See, e.g.*, KENNETH J. ARROW, *Economic Welfare and the Allocation of Resources for Invention*, THE RATE AND DIRECTION OF INVENTIVE ACTIVITY 609 (Richard R. Nelson ed., Princeton Univ. Press 1962); Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575 (2003); Richard C. Levin, *Appropriability, R&D Spending, and Technological Performance*, 78 AM. ECON. REV. 424 (1988). *But see, e.g.*, JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK (Princeton Univ. Press 2009); Michele Boldrin & David Levine, *The Case Against Intellectual Property*, 92 AM. ECON. REV. 209 (2002); Michele Boldrin & David K. Levine, *The Case Against Patents*, 27 J. ECON. PERSP. 3 (2013).

[6] *See* Stephen Yelderman, *Coordination-Focused Patent Policy*, 96 B.U. L. REV. 1565, 1572 (2016) ("Without some form of regulatory intervention, an inventor would be unable to appropriate enough of the benefits of her invention to recoup the cost of making it, leading to the under-production of inventions generally."); *see also* Daniel F. Spulber, *How Patents Provide the Foundation of the Market for Inventions*, 11 J. COMPETITION L. & ECON. 271, 274 (2015) ("Patents promote disclosure of inventions, which reduces costs of search and bargaining in the market for inventions.").

Commercializing inventions is crucial for making consumers better off; if the consumers cannot buy products utilizing new technology,[7] they are not enriched.

For most of our country's history, patents were usually asserted by patent-holders who were producing goods and services with their patented technology.[8] However, within the past twenty years,[9] the emergence of a new type of firm has challenged, for some, the positive arguments for patents. The new firms, known as either patent trolls or PAEs, acquire patents with the intent only to assert the patents against firms that manufacture and distribute goods. Under either name they are controversial. PAEs do not use the patents to manufacture or distribute their own goods. Hence, some commentators maintain that PAEs do not contribute to economic activity, but rather slow down the activity of other firms.[10] Other commentators have suggested changing patent laws to respond to PAEs' activities.[11]

The discomfort with patent trolls burst into the mainstream legal consciousness in *eBay Inc. v. MercExchange*[12] in 2006. *eBay* concerned patents, owned by MercExchange, that covered eBay's "Buy It Now" element.[13] eBay tried to license MercExchange's patents, but negotiations failed.[14] Following trial, a jury awarded

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[7] This includes products that are produced using the new, inventive techniques.

[8] David L. Schwartz & Jay P. Kesan, *Analyzing the Role of Non-Practicing Entities in the Marketplace*, 99 CORNELL L. REV. 425, 426 (2013).

[9] For example, Intellectual Ventures, arguably the largest Patent Assertion Entity, was founded in 2000. *Leadership*, INTELL. VENTURES, http://www.intellectualventures.com/about/leadership/nathan-myhrvold/ (last visited Feb. 9, 2018).

[10] *See* sources *infra* note 24-26.

[11] *Id.*

[12] eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006)*; see also* Robert P. Merges, *Introductory Note to Brief of Amicus Curiae in eBay v. MercExchange*, 21 BERKELEY TECH. L.J. 997 (2006); Sannu K. Shrestha, *Trolls or Market-Makers? An Empirical Analysis of Nonpracticing Entities*, 110 COLUM. L. REV. 114 (2010); Ryan T. Holte, *The Misinterpretation of eBay v. MercExchange and Why: An Analysis of the Case History, Precedent, and Parties*, 18 CHAP. L. REV. 677 (2015) (revisiting the impact of the *eBay* decision)

[13] *eBay*, 547 U.S. at 390.

[14] *Id.*

damages of $30,000,000 to MercExchange.[15] MercExchange moved for permanent injunctive relief, but was denied by the District Court Judge.[16] This denial of the request for an injunction ultimately made its way to the Supreme Court of the United States. In a unanimous decision the Court announced that patent-holders would no longer be routinely entitled to injunctive relief. Instead, trial courts were to apply a four-part test when a patent-holder requested an injunction.[17]

What was the reason for this massive change in the law? A four-Justice concurrence by Justice Kennedy spelled it out:

> In cases now arising trial courts should bear in mind that in many instances the nature of the patent being enforced and the economic function of the patent holder present considerations quite unlike earlier cases. An industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees. For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent. When the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations, legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest.[18]

Justice Kennedy's explanation implicitly contained a basic concern about PAEs: they would cause economic damage by asserting patents over small components of much larger products.

The full theory was also spelled out in 2006, in likely the best-known and most widely cited law review article on the topic, *Patent*

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[15] *Id.* at 391.

[16] *Id.*

[17] *Id.* ("A plaintiff must demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.").

[18] *Id*. at 396–97 (Kennedy, J., concurring) (citations omitted)*; see also* Kirti Gupta & Jay P. Kesan, *Studying the Impact of* eBay *on Injunctive Relief in Patent Cases* (Univ. Ill. Coll. of Law Legal Studies Research Paper No. 17-03), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2629399 (describing the impact of the *eBay* decision on injunctive relief in patent cases).

Holdup and Royalty Stacking, by Mark Lemley and Carl Shapiro.[19] The problem, explained by Lemley and Shapiro, stems from two issues.

One is Holdup. If the courts grant injunctions to those firms that hold patents on small components of larger products *after* the larger product has been designed and produced – a situation called patent holdup, the patent-holder will be able to shut down manufacture and sale of the larger product completely.[20] To escape the force of the injunction, the firms making the product ("producer") must get the assent of the patent-holder. There have been two traditional ways of doing this. First, if the patent-holder is also a *producer* of a product, the second firm (which is also a producer) can threaten to sue the patent-holder for infringement of patents that the second firm holds. The two firms then settle by cross-licensing. Second, the producing firm can offer to pay the patent-holder money, in theory up to the full value of the product. However, if the patent-holder does not produce (and, hence, is a troll or a Patent Assertion Entity), then no cross-licensing is possible. The only thing the producing firm can do is pay, and pay dearly. However, a rational firm, anticipating such

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[19] *See Articles*, GOOGLE SCHOLAR, https://scholar.google.com/scholar?hl=en&as_sdt=0%2C14&q=lemley+and+shapiro&oq=Lemley+and (last visited Sept. 1, 2018) (showing that Mark Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2006) has been cited over 1200 times); *see also* Ted Sichelman, *Most Cited IP Law Articles over the Last 10 years*, WRITTEN DESCRIPTION (Sept. 24, 2014), https://writtendescription.blogspot.com/2016/03/most-cited-ip-law-articles-published-in.html. Professor Sichelman reports that the Lemley and Shapiro article was the second-most cited article in all of Intellectual Property Law from 2004-2008. *See id*. That category includes Patent, Trademark, and Copyright. *See id*. Mark Lemley is likely the most influential scholar in the field. *See id*. He authored or coauthored the number 1, 2, 3, 4, 7, 11, 13, and 14 most cited articles in Professor Sichelman's list of 25. *See id*.

[20] *See, e.g.*, Einer Elhauge, *Treating RAND Commitments Neutrally*, 11 J. COMPETITION L. & ECON. 1, 2–3 (2015); Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L.J. 603, 603–04 (2007) ("In very broad terms, opportunism or hold-up arises when a gap between economic commitments and subsequent commercial negotiations enables one party to capture part of the fruits of another's investment, broadly construed."); Schwartz & Kesan, *supra* note 8, at 429.

hold-up behavior, may decide not to produce in the first place. Then we are all worse off because we have no product to consume.[21]

The other is Royalty Stacking. If there are many different patent-holders that have patents that read on a product, the injunction problem will be made much worse. Many injunctions will be very hard to navigate. But even if the court awards only damages to the patent-holders, the sum of the royalty payments may exceed the value of the product. If the patent-holders do not produce anything, cross-licensing is ruled out as a solution. Each patent-holder will have the incentive to ask for the largest award it can get, regardless of the effect on the size of the total royalty bill to the producer. Again, a producer, anticipating this situation, may choose not to produce in the first place; we are all worse off.[22] This narrative is reflected in many papers by Lemley and Shapiro[23] and in others.[24]

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[21] Mark Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 1993 (2006).

[22] *Id.* ("Such royalty overcharges act as a tax on new products incorporating the patented technology, thereby impeding rather than promoting innovation.").

[23] *See generally, e.g.*, Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1 (2012); Farrell et al., *supra* note 20; Joseph Farrell & Carl Shapiro, *How Strong Are Weak Patents?*, 98 AM. ECON. REV. 1347 (2008) (studying the value of determining patent validity prior to licensing patents to "downstream technology users"); Mark A. Lemley, *Ignoring Patents*, 2008 MICH. ST. L. REV. 19 (2008); Mark A. Lemley, *Are Universities Patent Trolls?*, 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 611 (2008) (arguing that universities should prioritize the social impact of their technology over licensing revenue); Mark A. Lemley, *Ten Things to Do About Patent Holdup of Standards (and One Not To)*, 48 B.C. L. REV. 149 (2007) (proposing solutions to the patent holdup problem); Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 BERKELEY TECH. L.J. 1135 (2013) (advocating a standard set of rules governing commitments between patent owners and implementers of standards to determine royalty rates); Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75 (2005) (noting, in part, that patent litigation settlements often have the negative side effect of limiting competition); Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280 (2010) (indicating that injunctions affect royalties negotiated between patent holders and technology users).

[24] *See generally, e.g.*, James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387 (2014) (estimating the size and

There are, of course, counter-narratives. For one, PAEs provide a middleman market for small inventors who otherwise would be unable to earn any money from inventive activity.[25] A small inventor cannot credibly threaten to sue a major industrial firm, and therefore cannot get a licensing deal. Instead, the small inventor can sell the patent to a PAE who can sue the major industrial firm, garnering some money. A second counter-narrative is that the arguments about patent holdup and royalty stacking prove far too much. They should apply with the most force to complex products with up to tens of thousands of patents that read on them. The force of these arguments should greatly slow or even stop innovation on smart phones, tablets, portable computers, automobiles, and so forth. And yet it is precisely in these areas that both casual empiricism and recent more formal analysis[26] suggests that the rate of innovation is extremely

impact of NPE patent assertions); George S. Cary et al., *The Case for Antitrust Law to Police the Patent Holdup Problem in Standard Setting*, 77 ANTITRUST L.J. 913 (2011); Bernhard Ganglmair et al., *Patent Hold-Up and Antitrust: How a Well-Intentioned Rule Could Retard Innovation*, 60 J. INDUS. ECON. 249 (2012); Anne Layne-Farrar et al., *Preventing Patent Hold Up: An Economic Assessment of Ex Ante Licensing Negotiations in Standard Setting*, 37 AIPLA Q.J. 445 (2009); Robert A. Skitol, *Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard Setting*, 72 ANTITRUST L.J. 727, 729–35 (2005); *see also* Schwartz & Kesan, *supra* note 8 (disputing Bessen and Meurer's methodology).

[25] Robin Feldman & Mark A. Lemley, *Do Patent Licensing Demands Mean Innovation*?, 101 IOWA L. REV. 137 (2015) (outlining the argument and then presenting survey evidence purporting to cast doubt on the argument).

[26] See J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 714 (2008), for the immediate, direct response to Lemley and Shapiro's *Patent Holdup and Royalty Stacking*, *supra* note 21. *See also, e.g.*, Alexander Galetovic & Kirti Gupta, *Royalty Stacking and Standard Essential Patents: Theory and Evidence from the World Mobile Wireless Industry* 2–3 (Feb. 2017), SSRN https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2790347; Jonathan M. Barnett, *Has the Academy Led Patent Law Astray?* 32 BERKELEY TECH. L. J. 1313 (2017); Einer Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?* 4 J. COMPETITION L. & ECON. 535 (2008); Alexander Galetovic & Stephen Haber, *The Fallacies of Patent-Holdup Theory*, 13 J. COMPETITION L. & ECON. 1 (2017); Douglas H. Ginsburg et al., *"Excessive Royalty" Prohibitions and the Dangers of Punishing Vigorous Competition and Harming Incentives to Innovate*, CPI ANTITRUST CHRON.

high and that consumers benefit greatly. A third counter-narrative is that "troll" or "PAE" is a far too broad category to be useful for policy arguments. Undoubtedly the best work in this vein is by Christopher Cotropia, Jay Kesan, and David Schwartz.[27] They show that these big terms include a wide range of litigators, including those who invent and patent new technologies, such as industrial laboratories, small inventors, and universities, former practicing entities who can make money by asserting their patents despite product failures in the marketplace, those who purchase patents for the purpose of asserting them, and others. For most people, intuitions vary widely as to the social value of each type of patent asserting entity. None of these counter-narratives has calmed the concerns with PAEs.

The America Invents Act ("AIA") of 2011[28] was seen, in no small part, as a response to PAEs. Some commentators have claimed that PAEs tend to own weak patents.[29] In response, the AIA made it

(2016); J. Gregory Sidak, *Does the International Trade Commission Facilitate Patent Holdup?*, 1 CRITERION J. INNOVATION 601 (2016); Kirti Gupta et al., *IP Leadership Brussels: Highlights and Economic Analysis*, COMPETITION POL'Y INT'L, https://www.competitionpolicyinternational.com/wp-content/uploads/2017/11/CPI-Gupta-Wong-Ervin-Coniglio-Naegele.pdf (last visited Feb. 7, 2018); Devlin Hartline & Matthew Barblan, *Debunking the Royalty Stacking Theory: Real-World Evidence From the Mobile Wireless Industry*, CTR. FOR THE PROT. OF INTELLECTUAL PROP. (Jan. 2016), http://cpip.gmu.edu/wp-content/uploads/sites/31/2016/01/Hartline-Barblan-Debunking-the-Royalty-Stacking-Theory.pdf.

[27] *See* Christopher A. Cotropia, Jay P. Kesan & David L. Schwartz, *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. 649 (2014). Some of this was anticipated, but without the empirical rigor of Cotropia, Kesan and Schwartz. *See also* Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117 (2013).

[28] Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011).

[29] *See generally* John R. Allison, Mark A. Lemley & Joshua Walker, *Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents*, 158 U. PA. L. REV. 1 (2009); Jay Pil Choi, *Live and Let Live: A Tale of Weak Patents*, 3 J. EUR. ECON. ASS'N 724 (2005); David Encaoua & Yassine Lefouili, *Licensing "Weak" Patents*, 57 J. INDUS. ECON. 492 (2009); Anne Layne-Farrar & Klaus M. Schmidt, *Licensing Complementary Patents: "Patent Trolls," Market Structure, and "Excessive" Royalties*, 25 BERKELEY TECH. L.J. 1121 (2010).

easier for those who opposed a patent to challenge its validity before the US Patent and Trademark Office.[30]

The concern with trolls/PAEs did not stop with the passage of the AIA. In February of 2013 President Obama condemned trolls in a speech.[31] In response, in June of 2013, the FTC decided to investigate PAE activity.[32] The FTC is a powerful administrative agency whose jurisdiction includes promoting competition and consumer protection.[33] The agency has authority to issue trade regulation rules, to review mergers, and to gather data and issue reports.[34] The FTC's data-gathering power is quite substantial:

> Another investigative tool, this one available in both competition and consumer protection matters, appears in Section 6 of the FTC Act, 15 U.S.C. Sec. 46. Section 6(b) empowers the Commission to require the filing of "annual or special . . . reports or answers in writing to specific questions" for the purpose of obtaining information about "the organization, business, conduct, practices, management, and relation to other corporations, partnerships, and individuals" of the entities to whom the inquiry is addressed. . . .
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> The Commission's 6(b) authority enables it to conduct wide-ranging economic studies that do not have a specific law enforcement purpose. . . . Section 6(b) enables the Commission to obtain answers to specific questions as part of an antitrust law enforcement investigation, where such information would not be available through subpoena because there is no document that contains the desired answers. Section 6 also authorizes the Commission to "make public from time to time"

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[30] *See* 35 U.S.C. § 311 (2017). The new process, called *Inter Partes Review*, allows a petitioner to challenge the validity of a patent under § 102 (novelty) or § 103 (obviousness).

[31] Diane Bartz, *Obama Says Patent Reform Needs to Go Farther*, REUTERS (Feb. 14, 2013, 8:55 PM), https://www.reuters.com/article/us-obama-patent/obama-says-patent-reform-needs-to-go-farther-idUSBRE91E03320130215.

[32] Edward Wyatt, *F.T.C. Is Said to Plan Inquiry of Frivolous Patent Lawsuits*, N.Y. TIMES (June 19, 2013), http://www.nytimes.com/2013/06/20/business/ftc-is-said-to-plan-inquiry-of-frivolous-patent-lawsuits.html. Note that the *order* of President Obama's condemnation and the FTC's data gathering is, from a logical point of view, completely backwards.

[33] *See What We Do*, FED. TRADE COMM'N, https://www.ftc.gov/about-ftc/what-we-do (last visited Feb. 12, 2018). Investigating PAE litigation activity probably fits best with the competition side of the agency.

[34] Authority stemming from 15 U.S.C. § 46 (2017), known as "section 6."

> portions of the information that it obtains, where disclosure would serve the public interest (15 U.S.C. Sec. 46(f)).[35]

The FTC gathered information and then issued the Report that this article critiques. The Report collected data on PAEs, organized it, reported on the data, and suggested four public policy changes.[36] This article will show that the FTC made critical analytical errors that greatly limit the Report's usefulness. But before we get to the sections explaining the errors we must spend a few pages reviewing the Report's intended purposes.

The FTC's data, collected under the authority of Section 6(b) of the Federal Trade Commission Act,[37] revealed some fascinating insights.[38] First, the FTC's data revealed two different types of PAEs: in the words of the FTC, "portfolio" PAEs and "litigation" PAEs. Their behaviors are very different. Portfolio PAEs tend to send demand letters to manufacturers (rather than suing first), to offer licenses to large portfolios of patents, to enter into licenses without ever suing the manufacturer, and to obtain licenses that typically run in the millions of dollars.[39] More than 80% of the reported revenue from patent licenses flow to portfolio PAEs, rather than to litigation PAEs. But the portfolio PAEs file a small minority of the lawsuits found in the FTC's study. In contrast to portfolio PAEs, *litigation* PAEs tend to file suit *before* contacting the target manufacturers, tend to own and license fewer than 10 patents, and tend to settle their lawsuits relatively quickly and for relatively small amounts of money.[40]

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[35] *A Brief Overview of the Federal Trade Commission's Investigative and Law Enforcement Authority*, FED. TRADE COMM'N, https://www.ftc.gov/about-ftc/what-we-do/enforcement-authority (last visited Feb. 12, 2018) (quoting 15 U.S.C. § 46).

[36] *See* FTC, *supra* note 2, at 1-13.

[37] 15 U.S.C. § 46(b) (2017).

[38] This description is a summary of the FTC's description. The underlying data has not been made available to researchers. My conversation with Suzanne Munck, Deputy Director and Chief Counsel for Intellectual Property at the Federal Trade Commission, strongly suggests that the FTC has no plans to release the data in any form.

[39] FTC, *supra* note 2, at 3.

[40] *Id*. at 92.

The portfolio PAEs and litigation PAEs operate in different structural fashion. The portfolio PAEs raise money from investors, often including investment funds and manufacturing firms. They then use the money to buy large numbers of patents and assemble them into one or more large portfolios. The portfolio PAEs assert the large portfolio(s) against a target manufacturer, obtain a large license fee, and pass part of the license fee back to the investors in the particular portfolio(s) that were asserted. Litigation PAEs, in contrast, are thinly capitalized and have between one and three individual owners. The litigation PAEs acquire a (small) portfolio of patents, assign the portfolio to an "affiliate", usually set up as an LLC, and the affiliate asserts through litigation the portfolio against a target manufacturer and usually obtains a relatively small amount of money for a license. Litigation PAEs tend to use "revenue sharing."[41] Thus, sellers of the patents keep a financial interest in the revenues derived from asserting the patents that they sell to the PAE, and sometimes the seller has to assist with the litigation.[42] Attorneys representing the litigation PAEs usually work on a contingency fee arrangement.

The *amount* of the license fees that flowed to litigation PAEs came in for special attention from the FTC. "77% of reported Litigation PAE licenses were for less than $300,000."[43] Because the FTC believed that $300,000 represents the lower bound on the costs of litigating a patent, small settlements indicated that many or most of the litigation PAEs' suits were "nuisance" suits.[44] Nuisance suits, as used in the FTC's PAE Report, are those that cost more to litigate than the expected recovery after trial. And such suits, according to the FTC, are bad. "Nuisance infringement litigation . . . can tax judicial resources and divert attention away from productive business behavior."[45]

We will have much to say in the pages that follow about nuisance suits and the FTC's jumping to conclusions about whether

[41] *Id.* at 48.
[42] *Id.* at 49.
[43] *Id.*
[44] *Id.* at 4.
[45] *Id.* at 9.

these patent lawsuits have social value. But before we get there, we must point out that the FTC made four policy proposals, ostensibly grounded in their observation about nuisance suits. The four proposed reforms are:

> 1. Develop rules and case management practices to address discovery burden and cost asymmetries in PAE litigation."[46] The FTC noted that Rule 26 of the Federal Rules of Civil Procedure requires parties to meet and work on producing a plan for discovery. The FTC suggested that Rule 26 should be amended, *inter alia*, to require early disclosure of asserted claims and infringement and invalidity contentions, as well as to limit discovery before preliminary motions together with provisions to ensure that such motions are decided quickly.
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> 2. Amend Federal Rule of Civil Procedure 7.1 to reach a broader range of non-party interested entities or persons."[47] This is to help judges know and understand when they have a financial interest in one of the parties to a lawsuit.
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> 3. Establish procedures encouraging courts to stay a PAE's infringement action against a customer or end-user, where the PAE has also sued the manufacturer of the accused product under the same theory of infringement."[48] The FTC reasoned that a manufacturer has much better information than retailers or end users do, and hence it would make sense, from a judicial economy perspective, to stay all suits other than the one(s) against the manufacturer(s).
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> 4. As courts continue to address the 'plausibility' of pleadings in patent cases, ensure that patent infringement complaints provide sufficient notice to accused infringers."[49] Because an amendment to the Federal Rules of Civil Procedure from 2015 essentially required greater specificity in patent infringement litigation, the FTC is, in essence, exhorting the Federal Courts to pay attention to the new rule.[50]

This critique of the Report demonstrates that the Report may be fundamentally misleading and induce counterproductive policy responses in at least two different ways.[51] First, the FTC's analysis

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[46] *Id*. at 9.
[47] *Id*. at 11.
[48] *Id*. at 12.
[49] *Id.*
[50] 28 U.S.C. § 2074 (2012).
[51] We will not address the numerous methodological issues with the FTC's PAE Activity Report. Those issues have been ably covered by others. *See* Kristen J. Osenga, *Sticks and Stones: How the FTC's Name-Calling Misses the Complexity of Licensing-Based Business Models*, 22 GEO. MASON L. REV. 1001 (2015); Anne

of the litigation data is potentially defective. Second, the policy recommendations neither flow directly from the data (even if the analysis were to have been done better), nor are they necessarily as innocuous as they seem at first glance.

Before we jump headlong into an analysis of the litigation data and its import, we must consider *why* we are doing so. Although there are no new patent reform bills that have any chance of passing at this time, it is crucial to understand the FTC's Report's failure now; when the federal government calms down and gets back to business, because of either elections or another reason, bills that *can* pass will be introduced, and the Report will undoubtedly be cited to support some of these bills. In addition, a court may utilize the Report to help decide a case or to reform doctrine. For these reasons, we must analyze and understand the Report.

II. LITIGATION DATA

To understand the FTC's litigation data, we must first focus on the difference between nuisance suits and meritless suits.[52] Meritless suits are those that, if taken to trial, would almost certainly lose. The judge or jury would rule against the plaintiff and the suit would fail. On the other hand, a nuisance suit, as used by a few analysts and the Report, is one which is not worth bringing *once one includes plaintiff's litigation costs*.[53] In some of the academic literature,

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Layne-Farrar, *What Can the FTC's Section 6(B) PAE Study Teach Us? A Practical Review of the Study's Methodology, Results, and Policy Recommendations*, 13 J. COMPETITION. L. & ECON. 1 (2017).

[52] The discussion in this section follows the excellent explanation in Kathryn E. Spier, *Litigation*, *in* 1 HANDBOOK OF LAW AND ECONOMICS § 4 (A. Mitchell Polinsky & Steven Shavell eds., 2007).

[53] This distinction, but with "frivolous" replacing "meritless," is exactly the same as used by William Hubbard in his recent paper. *See Sinking Costs to Force or Deter Settlement*, 32 J.L. ECON. & ORG. 545 (2016). "[A] 'nuisance suit' is a suit filed because it has positive settlement value, notwithstanding the fact that *it is common knowledge to the plaintiff and the defendant that the expected value plaintiff's claim is less than the plaintiff's cost of prosecuting the suit.*" *Id*. at 545 (emphasis in original). "'Frivolous litigation' in common usage and in the sense that . . . [we] will use the term herein, is a species of nuisance litigation. In a frivolous suit, the expected value of plaintiff's claim is less than

"nuisance" suits are called, more accurately, "negative expected value" suits.[54] That is because nuisance is pejorative, and can easily be mistaken for "meritless." However, the Report routinely uses the word "nuisance." For example, the Report states, "Given the relatively low dollar amounts of the licenses, the behavior of Litigation PAEs is consistent with *nuisance* litigation."[55]

The Report, in my opinion, has several fundamental problems when it describes the litigation data.

First, the Report consistently utilizes the phrase "nuisance suit," rather than the more neutral Negative Expected Value ("NEV") suit. This pejorative can mislead the reader into thinking that NEV suits are meritless. But this is not true. The category of NEV suits includes both meritless suits and meritorious suits. Whereas the former may be worthy of disapprobation, the latter have value, particularly in contexts like patent, where enforcing rights is supposed to guide conduct and produces spillover benefits.

Second, the Report incorrectly claims that a low settlement amount implies that the suit was a NEV suit. This is wrong. A low

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plaintiff's cost of litigating because the claim is extremely low merit—the likelihood of prevailing at summary judgment (let alone trial) is so low that the expected value of the claim is near zero." *Id.* Similarly, Lucian Bebchuk and Alon Klement state:

> It should be emphasized that an NEV [Negative Expected Value] suit need not be a frivolous suit—that is, a suit in which the plaintiff is unlikely to win. The expected judgment is a product of the likelihood of a plaintiff's victory and the amount at stake. Therefore, a meritorious suit—one in which the likelihood of a plaintiff victory is quite high—might be NEV if the litigation costs involved are sufficiently large relative to the amount at stake.

Lucian Bebchuk & Alon Klement, *Negative Expected-Value Suits* 53 (Harv. John M. Olin Ctr. for Law, Econ., and Bus., Discussion Paper No. 656, 2009).

[54] *See* Layne-Farrar, *supra* note 24*; see also* Robert G. Bone, *Modeling Frivolous Suits*, 145 U. PA. L. REV. 519 (1997) (discussing at length the definition of "meritless suits"). Defendants undoubtedly regard all suits as a "nuisance." No one likes to be sued. But if the plaintiff is likely to win at trial, using the term "nuisance" is likely to misleadingly convey the impression that the suit is meritless or, equivalently, "frivolous."

[55] FTC, *supra* note 2, at 4 (emphasis added).

settlement amount is completely consistent with both Positive Expected Value ("PEV") suits and NEV suits.

Third, putting the first two points together, there is absolutely no link between low settlement amounts and "bad" lawsuits.

A. *Nuisance Suits v. Meritless Suits*

The FTC repeatedly calls NEV suits "nuisance" suits, and does so in a way that demeans them. For example, consider the statement at page ten of the Report:

> The American Intellectual Property Law Association (AIPLA), which periodically surveys the costs of patent litigation, recently reported that defending an NPE patent lawsuit through the end of discovery costs between $300,000 and $2.5 million, depending on the amount in controversy. By this estimate, 77% of Litigation PAEs' settlements fell below a *de facto* benchmark for the nuisance cost of litigation. This suggests that discovery costs, *and not the technological value of the patent*, may set the benchmark for settlement value in Litigation PAE cases.[56]

What does the FTC mean by stating that it may not be "the technological value of the patent" that is helping to set the settlement value for cases that settle for less than the lower end of discovery costs, $300,000? On its face, the FTC's statement is almost always right. The *technological* value of the patent is reasonably interpreted to mean how useful the patented technology is in implementing an invention. But there is no reason that the technological value, by itself, ought to play a role in settlement value. Instead, it is the *economic* value of the patent that should play a role in determining settlement amount, which is likely what the FTC meant. Therefore, we will interpret the FTC to be claiming that if the settlement amount is less than $300,000, then the underlying *economic* value of the patent may have played no role in settlement amount. And, it is reasonable to infer that the FTC is claiming that such patents often have an economic value far less than $300,000.[57]

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[56] *Id*. at 10 (emphasis added) (footnote omitted).

[57] The patents that are settled for less than $300,000 might have low value (if, in fact, they do) either because they have little chance of being upheld in a court challenge, or because the patent claim is likely valid, but for very low damages. Either way, the assertion is that the patent is of very little value. For purposes of discussion below, we will discuss both possibilities.

The FTC reinforces the point about "nuisance" suits by producing the following chart at page 89 of the Report, entitled "Frequency Distribution of Patent Licensing Royalties." The FTC's ensuing discussion repeatedly refers to nuisance value. Thus, on page 91, the Report states:

> the revenues received in patent licenses, particularly those for relatively small amounts, may have been influenced heavily by the parties' desire to avoid the cost of litigation. To evaluate the possibility that PAE licenses may reflect nuisance-value settlements, the FTC compared license royalties to the estimated cost of patent litigation.[58]

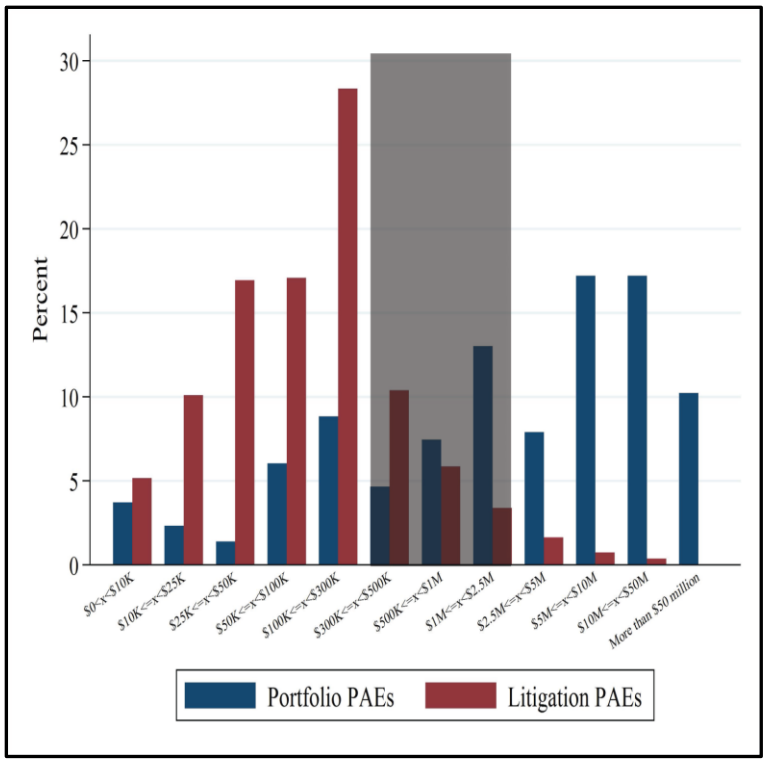

Figure 1: FTC's figure showing distribution of settlement amounts

[58] FTC, *supra* note 2, at 89 (footnote omitted).

And, after a discussion of the distribution of settlements in the chart above, the FTC concludes "By these estimates, 77% of Litigation PAE settlements were valued below an approximate benchmark representing the nuisance value of litigation, while 78% of Portfolio PAE licenses were equal to or greater than the nuisance value of litigation benchmark."[59]

The FTC's demeaning NEV suits by calling them "nuisance" suits is wrong. Those NEV suits that are meritorious should not be disparaged by the FTC. Meritorious suits may have social value by guiding the conduct of third parties. Thus, patent law has a role to play similar to the role of traditional common law—tort suits may deter costly torts;[60] contract law can encourage valuable exchanges;[61] and real property law can encourage people to build houses and improve land.[62] Patent law can help encourage people to invest in future inventions, and to commercialize inventions once they are made.[63] Meritorious patent suits, including those that cost so much that pursuing them is noneconomic for the plaintiff (and, hence, "nuisance" suits in the FTC's lexicon), can play a valuable role in setting incentives for third parties. For this reason, those suits should not be disparaged by calling them nuisance suits. Of course, the term "nuisance suits" also includes meritless suits, and these suits should, in general, be discouraged. But figuring out how to deal with a category that includes valuable suits and valueless suits requires far more nuanced analysis than that appearing in the FTC's

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[59] *Id.* at 92.

[60] *See* GUIDO CALABRESI, THE COST OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS (Yale Univ. Press 1970).

[61] *See* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW (2011); Alan Schwartz & Robert E. Scott, *Contract Theory and the Limits of Contract Law*, 113 YALE L.J. 541(2003).

[62] The analogy to property law can be very instructive. The FTC's reasoning would imply that suing to eject trespassers from cheap tract homes is less defensible than suing to eject the same trespassers from a very expensive home. The suit to recover possession of the tract home is, after all, much more likely to be NEV. This reasoning cannot be right.

[63] *See, e.g.*, Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV., PAPERS & PROC. 347, 355 (1967). *See generally* F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697 (2001); Spulber, *supra* note 6; Yelderman, *supra* note 6.

Report, and will likely produce policy recommendations that differ greatly from those in the Report.

B. *Low Settlement Amount and the Quality of the Lawsuit*

The FTC makes a second error when describing the litigation data; the Report incorrectly asserts that a low settlement amount implies that the underlying lawsuit was NEV—a "nuisance suit" in the FTC's terminology. This assertion is wrong, and almost certainly represents a major problem with the FTC's argument structure. There is, in reality, *no analytical connection between a lawsuit settling for a small amount of money and the underlying nature of the claim*. More precisely, the settlement amount tells us virtually nothing about whether or not the underlying suit was PEV, NEV, or even whether or not it was likely meritorious. Of course, the data represented in the chart above may be intrinsically interesting. But the FTC is (like the rest of us) interested in policy implications. Since the FTC has premised its policy recommendations on the incorrect claim that most litigation PAEs' lawsuits are "nuisance suits," the policy recommendations are not supported by the Report's facts and analysis.

To establish my central analytical point—the lack of connection between settlement amount and the nature of the underlying lawsuits—we will proceed through a series of different types of models of lawsuits. Some of them are explained through examples. None of the models demonstrate any connection between settlement amount and the nature of the underlying lawsuit. NEV lawsuits can settle for large amounts of money, and PEV lawsuits can settle for small amounts of money.

1. *Example 1—Symmetric Information and Positive Expected Value*

In this example we assume that one patent owner (plaintiff) sues one manufacturer (defendant). The plaintiff and defendant agree that if the case were to be taken all the way through trial the plaintiff would certainly prevail, and would be awarded $500,000. They also both agree that to push the case all the way to verdict will cost the plaintiff $480,000 and will cost defendant $400,000. With all these

facts in mind, and *before* litigation takes place, the parties will approach the issue of settlement.

Defendant makes final offer: Assume that the litigants agree that defendant will make the final offer. Note that this does not have to be the first offer, only the last one. It turns out that all the power lies with the person who makes the last offer.[64] Why would the defendant make the last offer? Likely because defendant has established a reputation for making an offer and never deviating from it. But it could also be that the defendant has found another commitment device not to waiver after his offer. How much will the defendant offer? Will the plaintiff accept? The defendant will first calculate the plaintiff's net gain from going through trial. That is $500,000 - $480,000 = $20,000.[65] Thus, to induce the plaintiff to accept the defendant must offer a bit more. In the limit, the offer is $20,001. The plaintiff will accept because $20,001 is more than $20,000. We will observe a settlement for only $20,001, even though the underlying lawsuit is completely meritorious and has PEV (in other words, *not* a nuisance.)

Plaintiff makes final offer: Assume, in contrast to Example 1.a., that the *plaintiff* will make the final offer. This may be counterintuitive. However, some lawyers work very hard at establishing a "thug" type of reputation. Consider Erich Spangenberg:

> If you're a corporate executive, this may be one of the last sentences you want to hear: "Erich Spangenberg is on the line." Invariably, Mr. Spangenberg, the 53-year-old owner of IPNav, is calling to discuss a patent held by one of his clients, which he says your company is infringing — and what are you going to do about it?

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[64] Having the right to make the final offer of settlement is a reflection of bargaining power. In this example the defendant has all of the bargaining power. Even in a multiperiod model with alternating offers, making the final offer gives that party all of the surplus from settlement. Spier, *supra* note 52, at 11-12.

[65] We are assuming no chance of the court awarding plaintiff attorney's fees. The recent case of *Highmark v. Allcare Health Management System* appears to have made it marginally easier for victorious plaintiffs to be awarded attorney's fees. *See* Highmark v. Allcare Health Management System, 134 S.Ct. 1744, 1749 (2014).

> Mr. Spangenberg is likely to open the conversation on a diplomatic note, but if you put up enough resistance, or try to shrug him off, he can also, as he put it, 'go thug.'
>
> He demonstrated what that sounds like in a brief bit of role-play recently, sitting in the apartment he is renting for the summer in Paris near the Arc de Triomphe. His voice dropped, the curse words flowed, and he spoke with carefully modulated menace.[66]

IPNav, Spangenberg's company, routinely sues when his offer to settle is refused. Between 2008 and 2013, IPNav sued 1,638 companies.[67] This is the sort of situation that case 1.b. models.

What is the highest offer the plaintiff can make that will be accepted? If the case goes to trial the defendant will lose the $500,000 damages, plus the $400,000 in costs. This sums to $900,000. The plaintiff has to offer something a bit less than $900,000 to induce the defendant to accept the offer. In the limit, the offer is $899,999. The defendant will accept because $899,999 is less than $900,000. Thus, we will observe a much higher settlement amount, even though nothing has changed about the underlying lawsuit.

Either plaintiff or defendant might make final offer: Assume that neither party is certain which of them has the resolve to commit to giving the final offer. The parties agree, however, that the defendant will make the final offer with probability p, and the plaintiff will make the final offer with probability with (1-p), where $0 \leq p \leq 1$.[68] In this case, the parties will settle for about p($20,001) + (1-p)($899,999). When p=1, we get Example 1.a.; when p=0, we get the settlement in Example 1.b.; and when p is in between, we get a settlement between those values. For any value of p>.68, the

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[66] David Segal, *Has Patent, Will Sue: An Alert to Corporate America*, N. Y. TIMES, July 13, 2013, at BU1*; see also* Amy Farmer and Paul Pecorino, *A Reputation for Being a Nuisance: Frivolous Lawsuits and Fee Shifting in a Repeated Play Game*, 18 INT'l REV. L. & ECON. 147 (1998) (providing additional economic theory).

[67] Segal, *supra* note 66.

[68] Thus, p represents the defendant's bargaining power, and 1-p represents the plaintiff's bargaining power. For an excellent discussion of bargaining power in the context of determining a reasonable royalty, see J. Gregory Sidak, *Bargaining Power and Patent Damages*, 19 STAN. TECH. L. REV. 1 (2015).

settlement will be less than $300,000, the FTC's value for concluding that a suit has NPV,[69] and is therefore a "nuisance."

Implications: What are the lessons to be learned? First, the FTC is wrong. Observing a suit settle for less than $300,000, possibly much less than $300,000, does not let us deduce that the suit is NPV. Of course, we cannot deduce that the suit is meritless. In the example above the suit had both merits and PEV. Second, it is bargaining power, represented in the examples by the likelihood of giving the final offer, which greatly determines the size of the settlement.

That is the theory. Is it borne out in practice? After all, as the old saying goes, the difference between theory and practice is much larger in practice than in theory. The answer is that it is very hard to confirm or disconfirm this bargaining theory in naturally-occurring environments. We have no way to observe, directly and in the field, the parties' beliefs about the likelihood of the plaintiff's prevailing and the expected size of damages. To test the theory, social scientists have resorted to bargaining games in laboratory experiments.

The experiments that are the most germane are probably those called "ultimatum" experiments. In an ultimatum game there are two subjects. Their task is to divide some money, say $10. One of them is chosen to make a first-and-final offer, while the other subject has the right to accept or reject the offer. Thus, the first subject might offer $3 to the second subject (and implicitly keep $7 for himself). The second subject can either accept with one outcome ($7, $3), or reject with another outcome (0, 0). If the ultimatum game is truly a single-shot interaction, game theory predicts that the first subject will offer only $1 (assuming one dollar minimum increments), and the second subject will accept because $1 is more than $0. This game gives all the bargaining power to the first subject.

However, when experimental economists first started running these experiments they found that offers were much greater than the theory suggested.[70] The experiments show that those who have

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[69] FTC, *supra* note 2, at 92.

[70] *See* Robert Forsythe, J. L. Horowitz, NE Savin & M. Sefton, *Fairness in Simple Bargaining Experiments*, 6 GAMES & ECON. BEHAV. 347, 349-51 (1994) (experiments run and sources)*; see also* Elizabeth Hoffman & Matthew L Spitzer,

bargaining power get more of the surplus from making a deal, depending on the circumstances. Thus, while dividing $10, the offerors in ultimatum experiments frequently offered $5 or $4. Many researchers originally thought that these offers represented a taste for fairness, and even developed utility functions that attempted to model the subject's tastes. However, in an extremely careful series of articles, Elizabeth Hoffman, Kevin McCabe, Keith Shachat, and Nobel Laureate Vernon Smith ("Hoffman, *et al.*") demonstrated the majority[71] of the deviation from the game theoretic ideal stemmed from other sources.[72] First, the students worried that

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The Coase Theorem: Some Experimental Tests, 25 J.L. & ECON. 73 (1982). Early bargaining experiments showed that in face-to-face negotiations, where the parties and their choices were observed by the experimenters, experimental subjects were much more altruistic than theory predicts. It appears that subjects are worried about getting a reputation for being selfish. Thus, the subjects are playing a very different game than the one represented in the bargaining game they are nominally playing. If, on the other hand, the experimenters take care to ensure that the subject's choices can be observed by neither the experimenter nor the other subjects, the subjects pay much closer attention to the experimental bargaining game they are playing, and often make choices so as to maximize their own payoffs.

[71] Fairness concerns, in some guise or other, do seem to play a role, as well. *See* Güth & Kocher, *infra* note 72.

[72] *See, e.g.*, Elizabeth Hoffman et al., *Preferences and Property Rights in Ultimatum Games and Dictator Games*, *in* 1 HANDBOOK OF EXPERIMENTAL ECONOMICS RESULTS 417-22 (Charles R. Plott & Vernon L. Smith eds., North Holland 2008); Elizabeth Hoffman et al., *Reciprocity in Ultimatum and Dictator Games: An Introduction*, *in* 1 HANDBOOK OF EXPERIMENTAL ECONOMICS RESULTS 417-22 (Charles R. Plott & Vernon L. Smith eds., 2008); Elizabeth Hoffman et al., *Prompting Strategic Reasoning Increases Other-Regarding Behavior*, *in* 1 HANDBOOK OF EXPERIMENTAL ECONOMICS RESULTS 423-28; Elizabeth Hoffman et al., *Social Distance and Reciprocity in Dictator Games*, *in supra*, at 1 HANDBOOK OF EXPERIMENTAL ECONOMICS RESULTS 429-35; (Charles R. Plott & Vernon L. Smith eds., 2008); Elizabeth Hoffman et al., *Preferences, Property Rights, and Anonymity in Bargaining Games*, 7 GAMES & ECON. BEHAV. 346 (1994); Elizabeth Hoffman et al., *Social Distance and Other-Regarding Behavior in Dictator Games*, 86 AM. ECON. REV. 653 (1996). For an excellent review of ultimatum games, stressing the complex interaction between fairness concerns and individually rational behavior, *see* Werner Güth & Martin G. Kocher, *More Than Thirty Years of Ultimatum Bargaining Experiments:*

they might be facing an opponent who would "punish" unfairness by rejecting the offer. If you think your counterpart might "punish" unfairness, the optimal strategy is to offer an amount considered "fair," and to maximize your expected value, which is the offer amount times the chance you will not be rejected. Second, students might also worry about their reputations among their fellow students and with the researcher. The student subjects did not want to look greedy. After all, their fellow students would likely be sources of jobs, club memberships, and maybe a spouse or two in the years ahead. The researchers, on the other hand, could provide access to more experiments, and also possibly letters of reference. All of this might be put at risk if a subject appeared too greedy. Third, the subjects needed to be induced to believe that the right to make the ultimatum offer was truly their right. Previous experiments used language that put the issue very much in doubt, suggesting that the right might be more communally owned.

To deal with the rights issue, Hoffman, *et al.*, distributed the right to make the ultimatum offer either by making the subjects compete in a contest, with the winner getting the right to make the offer, or by auctioning off the right to make the offer. These treatments induced more selfish behavior. To deal with the reputation issue, Hoffman, *et al.*, invented some very clever procedures that ensured students that their choices were anonymous, both from the other students and from the researcher. [73] Together, these procedures induced much more self-regarding behavior.[74]

In short, the implicit context in which the subjects found themselves mattered.[75] In spite of experimenters' initial attempts to

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Motives, Variations, and a Survey of the Recent Literature, 108 J. ECON. BEHAV. & ORG. 396 (2014).

[73] This was only used in the dictator game.

[74] By "self-regarding" we mean only that the offerors chose offers that were much closer to the prediction for a single-shot game—$1. It is not synonymous with "selfish," although it could be that behaviorally the two concepts would look much the same. Because the resulting offers were closer to $1, but *not equal* to $1, it is quite possible that the offeror was responding, in part, to his perception of the responder's utility, as well as his own.

[75] Elizabeth Hoffman, Kevin McCabe & Vernon Smith, *Social Distance and Other-Regarding Behavior in Dictator Games*, 86 AM. ECON. REV. 653, 654

put the subjects into a single-shot game, the students saw themselves as embedded in a different, longer run game where reputation mattered. And subjects needed to feel entitled to the right to make the ultimatum offer. After Hoffman, McCabe and Smith addressed these issues, subjects became much more self-regarding, and fairness concerns faded (but not quite entirely) into the background.

There is also strong evidence that a very large increase in stakes induces more self-regarding behavior.[76] When Andersen, *et al*., increased the stakes to equal the pay for about 1600 hours of work, the offers (as a percentage of the total amount at stake) went down, and the acceptance rate went up.[77] Smaller increases in stakes, however, do not produce the corresponding increase in self-regarding behavior.[78]

There is every reason to believe that litigants in patent suits will behave even more selfishly than did the subjects in Hoffman, *et al.*'s, experiments. First, the plaintiffs obtained the patents by purchasing them or by inventing something and getting the patent from the Patent Office. Purchasing the patent corresponds to purchasing the right to make the ultimatum offer, and getting a

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(1996). ("We explore in detail the large observed discrepancy between these two very disparate versions [fairness and reciprocity] of the dictator game. Our working hypothesis is that the difference is due to the concept of social distance or sense of coupling between the dictator and his or her counterpart, or others who know the dictator's decision. We systematically vary this distance by changing elements of the language and procedures that *a priori* bear on the degree of the dictator's anonymity, and social isolation, in each of these two polar treatments. The significance of social isolation is in the removal of all suggestion of the *quid pro quo* of reciprocity. We believe that this experimental exercise is fundamental to understanding the received evidence for other-regarding behavior that is frequently manifest in bargaining game experiments, but in which strategic reciprocity and utilitarian elements are confounded in interpreting observed outcomes.").

[76] Steffen Andersen et al., *Stakes Matter in Ultimatum Games*, 101 AM. ECON. REV. 3427, 3428 (2011).

[77] Andersen, et. al., *supra* note 76; *see also* Christopher Bechler, Leonard Green & Joel Myerson, *Proportion Offered in the Dictator and Ultimatum Games Decreases with Amount and Social Distance,* 115 BEHAV. PROCESSES 149, 153 (2015).

[78] Andersen, et. al., *supra* note 76, at 3432, fig.2.

patent from the Patent Office corresponds to the contest in Hoffman, *et. al.*'s, work. The plaintiffs in patent lawsuits should feel entitled to their rights. The reputation concerns that made student subjects concerned about appearing too greedy should work the opposite way with litigants. A reputation for being tough and unwilling to share should produce *higher* settlement amounts in the future.

In summary, there is no reason to refrain from using the theory to analyze patent suits and settlements. In fact, the Report cited some of the economics literature that created the theory for litigation.

2. *Example 2—symmetric information and negative expected value*

Is it possible that a plaintiff can extract a positive settlement amount even if both plaintiff and defendant know that the plaintiff will *lose* money if he pushes the case all the way through verdict? The answer is *maybe*. First, we will go through an example designed to show negative expected value suits might succeed, and then we will consider the response by Schwartz and Wickelgren.[79] Even if the NEV suit is successful, the settlement amount might be large, or it might be small depending on how much bargaining power the defendant has. Once again, the size of the settlement does not reveal whether the underlying suit is PEV or NEV.

To see how this works, consider a slight modification of the examples above.[80] In the modified version the plaintiff has a cause of action that will produce a verdict of $500,000 with certainty. But in this version, there are three stages of litigation, each with attendant costs for that stage. We will call the three stages S_1, S_2, and S_3. You may think of them respectively as pleading, discovery, and trial if you like. Each of the three stages has costs associated

[79] Warren F. Schwartz & Abraham L. Wickelgren, *Advantage Defendant: Why Sinking Litigation Costs Makes Negative-Expected-Value Defenses but Not Negative-Expected-Value Suits Credible*, 38 J. LEGAL STUD. 235 (2009).

[80] The following examples are based on Lucian A. Bebchuk, *A New Theory Concerning the Credibility and Success of Threats to Sue*, 25 J. LEGAL STUD. 1 (1996) (introducing the idea of stages of litigation into the formal literature). The stages of litigation allows a NEV plaintiff to (sometimes) gain a positive settlement. Bebchuk introduced the idea with a two-stage example, followed by a formal model. *See also* Spier, *supra* note 52, at 271-72.

with it, C_p for the plaintiff and C_d for the defendant. For this version assume that the costs are as listed in the following table:

Table 1. Cost of Suit

	S_1 (pleading)	S_2 (discovery)	S_3 (trial)
C_p (plaintiff's cost)	$75,000	$75,000	$400,000
C_d (defendant's cost)	$100,000	$100,000	$400,000

Bargaining before S_3: If the suit gets to the point right before S_3, we know how to figure out what the settlement will be. Note that at this stage the suit has become PEV. The plaintiff rationally ignores the expenditures from the pleading and discovery stages. Thus, the plaintiff will definitely push forward with the trial if no settlement is reached. At the end of the trial the plaintiff will be $100,000 better off ($500,000 verdict less $400,000 in trial expenses.) The defendant, on the other hand, will be $900,000 worse off ($500,000 verdict plus $400,000 in trial expenses). If the defendant has the right to make the final offer, he will offer $100,000 to settle.[81] On the other hand, if the plaintiff has the right to make the final settlement offer, he will offer $900,000. Now, assume that the parties agree that defendant will have the right to make the final offer with probability 1/2, and the plaintiff will make the final offer with probability 1/2. Then the settlement amount will be (1/2)($100,000) + (1/2)($900,000) = $50,000 + $450,000 = $500,000.

[81] Technically, $100,001. But to make the arithmetic easier we will assume that the parties accept offers when they are indifferent.

Bargaining before S_2: If the suit gets past S_1 the parties will be faced with the following situation. They both know that if they go through discovery (S_2), they will be facing trial (S_3). They both know that if they get that far they will settle for $500,000. This is more than the $75,000 that the plaintiff must spend to go through discovery. Thus, plaintiff will push ahead and go through discovery (S_2) if there is no settlement. How much is the settlement amount at S_2? If the parties were to fail to settle before S_2 the plaintiff would get $500,000 - $75,000 = $425,000. The defendant would lose $500,000 + $100,000 = $600,000. If defendant has the right to make the final offer then he will offer $425,000. On the other hand, if plaintiff has the right to make the final offer, he will demand $600,000.

Assume that they agree that at this stage (and at S_1) defendant will have the right to make the final offer with probability 1/2, and the plaintiff will make the final offer with probability 1/2. Then the settlement amount just prior to S_2 will be (1/2)($425,000) + (1/2)($600,000) = $212,500 + $300,000 = $512,500.

Bargaining before S_1: The parties know that if they fail to settle at S_1 that they will settle for $512,500 before S_2. By going through S_1, they will each incur litigation costs. The plaintiff will get, after S_1: $512,500 - $75,000 = $437,500. The defendant will lose, after S_1: $512,500 + $100,000 = $612,500. If defendant gets to make the final offer prior to S_1 he will offer $437,500; while if the plaintiff gets to make the final offer he will demand $612,500. Since we continue to assume that they agree that there is a 1/2 probability of each making the final offer, they will settle for (1/2)($437,500) + (1/2)($612,500) = $218,750 + $306,250 = $525,000.

Thus, it is possible for a NEV suit—a "nuisance suit" in the FTC's terminology—to settle for quite a bit of money. This is the contra-negative of the FTC's claim. A high settlement amount does not imply a PEV suit.

What would have happened if we had varied the bargaining power? Let's assume that the defendant has *all* of the bargaining power. We will show that there will be no settlement, and the plaintiff will *not* pursue the suit. Using the cost and value figures from above, before S_3 the parties would settle for (1)($100,000) +

(0)($900,000) = $100,000. Before S_2 the parties would settle for $25,000 (which is the $100,000 that the parties would settle for before S_3, less the $75,000 of plaintiff's litigation costs in S_2). But negotiations stall here. Before S_1 the plaintiff must spend $75,000 in litigation costs to get a $25,000 settlement prior to S_2. This is common knowledge. The defendant will, hence, refuse to offer anything and the suit will die at the beginning. The plaintiff will not proceed because it would be economically irrational.

In a response to Bebchuk's argument, Warren Schwartz and Abraham Wickelgren argue that a more realistic bargaining model than the one used above will render NEV suits extremely unlikely.[82] In particular, Schwartz and Wickelgren argue that the value of the plaintiff's "outside option"—going to trial— should limit the amount the plaintiff can expect just prior to S_3. In any reasonable description of the bargaining between the plaintiff and defendant, Schwartz and Wickelgren claim that the defendant should always have the option (in our example) to offer $100,000 (or, possibly, $100,001). Once the defendant has done so, plaintiff will not rationally proceed to litigation.[83] But once the parties know that the plaintiff will not get more than $100,000 prior to S_3, there will be no credible threat to proceed to trial prior to period S_1, and the suit will never be filed. Thus, argue Schwartz and Wickelgren, NEV suits are unlikely to be filed.[84] This, of course, impeaches the FTC's claim. If NEV suits are unlikely to be filed in the first place, low settlement amounts are very unlikely to imply that the underlying suit was NEV when filed.

Let's run through a final example (putting the Schwartz and Wickelgren critique to one side), otherwise identical to the one with equal bargaining power, but where the parties agree that there is a .9

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[82] Warren F. Schwartz & Abraham L. Wickelegren, *Advantage Defendant: Why Sinking Litigation Costs Makes Negative-Expected-Value Defenses but Not Negative-Expected Value Suits Credible*, 38 J. LEGAL STUD. 235 (2009).

[82] Schwartz & Wickelgren, *supra* note 79.

[83] *See id*. at 241.

[84] Schwartz and Wickelgren argue that it is possible, in some circumstances, for defendants, using multiple-stage affirmative defenses, to convert PEV suits into NEV suits. By doing so, even some PEV suits may be deterred. Even if not deterred, the settlement amounts may be lowered. *Id*. at 243-45.

probability that the defendant will give the final offer, and a .1 probability that the plaintiff will give the final offer. Then, just prior to S_3, the parties will settle for (.9)($100,000) + (.1)($900,000) = $90,000 + $90,000 = $180,000; just prior to S_2, the plaintiff would demand $180,000 + $100,000 = $280,000, and defendant would offer only $180,000 - $75,000 = $105,000. Hence, the parties would settle for (.9)($105,000) + (.1)($280,000) = $94,500 + $28,000 = $122,500. Working backwards, just prior to S_1, the plaintiff's suit is now credible. By spending $75,000 to get past S_1 (pleading stage) the plaintiff could settle for $122,500. Therefore, prior to S_1, the plaintiff would demand $122,500 + $100,000 = $222,500, while the defendant would offer only $122,500 - $75,000 = $47,500. The settlement before S_1 is (.9)($47,500) + (.1)($222,500) = $42,750 + $22,250 = $65,000. This is well below the $300,000 cutoff used by the FTC.

What does this example show? Sometimes, but not always, plaintiffs can get positive settlements in NEV suits. The plaintiff needs enough bargaining power to extract enough of defendant's saved costs to get a settlement in a NEV suit. When the plaintiff has significant bargaining power the settlement amount can be substantial. On the other hand, when plaintiff has just enough bargaining power (e.g., .1) to make a NEV suit viable, the settlement amount will be small (e.g., $65,000). Thus, small settlement amounts are, for NEV suits, neither necessary nor sufficient. To remind the reader, this example assumed that the plaintiff was certain to win if he went all the way through trial. The underlying suit is as meritorious as can be. Further, if the Schwartz and Wickelgren argument is correct, NEV suits will not be filed in the first place. Neither the size of settlement, nor whether the plaintiff chooses to pursue the case, at all, is probative of the merits of the underlying suit.

There are a number of other scenarios in which NEV suits might succeed in getting a positive settlement.[85] For example, the parties

[85] *See generally* Lucian A. Bebchuk & Alon Klement, *Negative-Expected-Value Suits* (Nat'l Bureau of Econ. Research, Working Paper No. 656, 2009). Also, see Robert G. Bone, *Modeling Frivolous Suits*, 145 U. PA. L. REV. 519

might be asymmetrically informed,[86] and the uninformed party might extend a settlement offer to a plaintiff with a NEV suit.[87] Alternatively, the defendant might have to spend significant money before the plaintiff does, inducing the plaintiff to file suit and the defendant to settle, regardless of merits.[88] Or, litigation costs might be divisible (as in the examples above) *and* the plaintiff might learn something part way through the litigation.[89] Or, the plaintiff and his attorney may structure their arrangements, possibly by using a retainer, so as to credibly convert a negative expected value suit into a positive expected value suit.[90] But none of these scenarios suggests that a small settlement amount allows one to deduce either that the suit is NEV or that the underlying suit is meritless. Thus, the FTC's claim fails in many different settings.

3. *Example 3—Asymmetric Information*

Screening model—one sided asymmetric information: When only one of the parties is fully informed the game changes, but not necessarily in a way that makes the Report become any more

(1997), for an excellent earlier review, focusing on *meritless* negative expected value suits.

[86] Lucian A. Bebchuk, *Suing Solely to Extract a Settlement Offer*, 17 J. LEGAL STUD. 437, 440–43 (1988); Avery Katz, *The Effect of Frivolous Lawsuits on the Settlement of Litigation*, 10 INT'L REV. L. & ECON. 3 (1990).

[87] Section 3.a., which immediately follows this discussion, analyzes the situation where the uninformed party extends the settlement offer.

[88] David Rosenberg & Steven Shavell, *A Model in Which Suits Are Brought for Their Nuisance Value*, 5 INT'L REV. L. & ECON. 3 (1985); David Rosenberg & Steven Shavell, *A Solution to the Problem of Nuisance Suits: The Option to Have the Court Bar Settlement*, 26 INT'L REV. L. & ECON. 26, 42–51 (2006).

[89] Bone, *supra* note 54; Joseph A. Grundfest & Peter H. Huang, *The Unexpected Value of Litigation: A Real Options Perspective*, 58 STAN. L. REV. 1267 (2006).

[90] *See* Zhiqi Chen, *Nuisance Suits and Contingent Attorney Fees*, 2 REV. L. & ECON. 363, 366 (2006) (discussing effect of contingency fees); Hubbard, *supra* note 53; Albert H. Choi & Kathryn E. Spier, *Taking a Financial Position in Your Opponent in Litigation*, AM. ECON. REV. (forthcoming 2018) (discussing shorting a defendant's firm); David C. Croson & Robert H. Mnookin, *Scaling the Stonewall: Retaining Lawyers to Bolster Credibility*, 1 HARV. NEGOT. L. REV. 65, 69–71 (1996) (discussing a non-refundable retainer).

appealing.[91] To understand why this is so, we will walk through an example where the plaintiff knows everything about his case, but the defendant does not know whether the plaintiff has a PEV suit or a NEV suit.[92] The uninformed defendant makes the offer to settle.

If the suit is PEV, we will use the following assumptions: The plaintiff and defendant agree that if the case were taken all the way through trial the plaintiff would certainly prevail, and would be awarded $500,000. They also both agree that if the suit is PEV it will cost the plaintiff $100,000 to push the case all the way to verdict. It will cost defendant $400,000. On the other hand, if the suit is NEV, both plaintiff and defendant agree that plaintiff's costs are *higher* than $500,000, so a rational NEV plaintiff will not push the case to trial. The parties also agree that the defendant (the uninformed party) will make the final offer.

What is the lowest offer the defendant can make that will be accepted? If the case is PEV and goes to trial the defendant will lose the $500,000 damages, plus the $400,000 in costs. This sums to $900,000. The plaintiff, on the other hand, will gain, net of costs, only $400,000. If the suit is NEV the plaintiff will never take it to trial. Further, the defendant can expect every NEV plaintiff will accept any positive offer to settle.

Recall that the defendant is uncertain about which type of suit has been brought against him. But he has an idea of the underlying distribution of potential suits, either PEV or NEV. Let's call the proportion of PEV suits in the underlying distribution of potential suits *r*.

If *r* is very close to one, the defendant will say to himself "I only want to settle PEV suits. In order to settle I have to offer $400,000. If I offer less than that almost no case will settle. But if I offer $400,000 to every plaintiff, I will be paying off some NEV plaintiffs. However, since there are so few of them, this is my best

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[91] See Bone, *supra* note 54, at 534, for a superb explanation of these models in the case of *meritless* suits. *See generally* Barry Nalebuff, *Credible Pretrial Negotiation*, 18 RAND J. ECON. 198 (1987).

[92] This model, in which the uninformed party makes the offer to settle, is often termed a *screening* model. We will review the other sort, where the informed party makes the offer to settle, termed a *signaling* model, after the screening model.

strategy." In this setting, some NEV plaintiffs get settlements, *but they get the same high settlement amount that the PEV plaintiffs get*. Thus, we cannot use, in this case, settlement amount to deduce whether the suit was NEV or PEV.

On the other hand, if *r* is so *very* close to zero that almost the entire universe of potential plaintiffs is NEV, the defendant may say to himself "I don't want to give money to the NEV plaintiffs, and they are almost all of the cases. So, I will offer nothing, and take my lumps with the few PEV plaintiffs who take me to trial."[93]

When *r* is in between zero and one, but close to neither, it is much more likely that the defendant will employ a mixed strategy, offering a settlement with probability *s*, and no settlement with probability 1-*s*. In response, all PEV plaintiffs will file suit, and NEV plaintiffs will file suit with probability *f*, and not file with probability 1-*f*.[94] In this setting, 1-*r* of the potential plaintiffs are NEV, and since they file suit with probability *f*, the frequency of NEV suits among all filings is:

$$(1-r)f \Big/ (r+(1-r)f)$$

Since the defendant offers *s* of the plaintiff's settlements, *s* times the fraction above is the portion of NEV suits that settle. But the important thing to note for our purposes is that if they settle, *the NEV suits settle for the same $400,000 amount that the PEV suits settle for*. Once again, we cannot use settlement amount to deduce the nature of the suit, contrary to the Report's claims.

Signaling model–one sided asymmetric information: If the *informed* party makes the offer to settle, things may change. In a very elegant paper by Jennifer F. Reinganum and Louis L. Wilde, the authors demonstrate that if the informed party (say, plaintiff)

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[93] Technically, such a result cannot be an equilibrium. If the defendant offers no settlement amounts, then there will be no NEV plaintiffs that will file suit. But that means that all plaintiffs are PEV, and the defendant will know this. In response, he will want to offer settlements of $400,000 to all plaintiffs. But that will induce NEV plaintiffs to file suit. Instead, defendant must use a mixed strategy, offering only a (small) portion of plaintiffs a settlement.

[94] *See* Avery Katz, *The Effect of Frivolous Lawsuits on the Settlement of Litigation*, 10 INT'L REV. L. & ECON. 3 (1990) (explaining the result).

makes the offer to settle, the high value plaintiffs will separate from the low value plaintiffs in their offers.[95] The defendants will still reject some of the offers in equilibrium. Translating their result into the topic of inquiry in this Critique of the Report is almost impossible. We can say the Reinganum and Wilde result means that suits that would be worth more (if there were perfect information) will settle for more money *if the informed plaintiffs make the offer to settle*. But we have not made the connection to NEV suits and PEV suits. Within the terms of Reinganum and Wilde's model, we cannot. That is because Reinganum and Wilde expressly assume that all plaintiffs have PEV suits.[96]

Fortunately, we do not have to guess what will happen if we put NEV suits into this model. Farmer and Pecorino extended the signaling model to include NEV suits.[97] Their inquiry shows that in equilibrium the NEV suits are separated from PEV suits, and *only* PEV suits are filed.[98] Because the NEV suits are not credible threats to go to trial, and because they are separated out, they do not get positive offers to settle. Anticipating the lack of an offer to settle, the NEV plaintiffs do not file suit.

Farmer and Pecorino's result further impeaches the Report's claim that a small settlement amount implies that the underlying suit was NEV. Because in the Farmer and Pecorino analysis no NEV suits are filed, no NEV suits will be settled. Thus, if one observes a settlement, one can be sure the underlying suit is *PEV*. Thus, within the signaling model paradigm, the Report's claim fails.

Two-sided asymmetric information: What if *both* plaintiff and defendant knew something about the case that the other did not? For example, the defendant might know whether or not the suit is likely to end in a finding of liability, while the plaintiff has only a rough guess. On the other hand, the plaintiff might know the extent of

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[95] *See* Jennifer F. Reinganum & Louis L. Wilde, *Settlement, Litigation, and the Allocation of Litigation Costs*, 17 RAND J. ECON. 557 (1986).

[96] *See id*. at 559.

[97] *See* Amy Farmer & Paul Pecorino, *Negative Expected Value Suits in a Signaling Model*, 74 S. ECON. J. 434 (2007).

[98] They also included positive costs of filing a suit, which is needed to make the model work. *See id*. It is a very reasonable assumption.

damages (if there is a finding of liability), while the defendant is quite uncertain.[99] An example of such a situation is in the table immediately below.

Table 2. 2-sided limited information

Only Plaintiff Knows	***Only Defendant Knows***
Damages = $500,000	Defendant .9 likely to be liable
Damages = $300,000	Defendant .3 likely to be liable

Only the plaintiff knows if damages are $500,000 or $300,000, while only the defendant knows whether she is .9 likely to be liable or .3 likely to be liable. In this setting we cannot figure out what the settlement offer will be without making an assumption about who, plaintiff or defendant, will be making the offer.

This is, undoubtedly, more complicated (and possibly more realistic) than the other examples we have considered. In general, the amount of information that is revealed in the final settlement amount depends on which party makes the settlement offer. That is, if the plaintiff makes the settlement offer, his private information may be revealed in the settlement amount, but the private information of the defendant who accepts the settlement will not.[100] Similarly, if the defendant makes the settlement offer, the defendant's private information may be revealed in the settlement

[99] *See* Andrew F. Daughety & Jennifer F. Reinganum, *Settlement Negotiations with Two-Sided Asymmetric Information: Model Duality, Information Distribution, and Efficiency*, 14 INT'l REV. L. & ECON. 283 (1994) (demonstrating the structure); *see also* Yoon-Ho Alex Lee & Daniel Klerman, *Litigation and Settlement under Correlated Two-Sided Incomplete Information* (Working Paper, 2016) (extending the framework); Joel Sobel, *An Analysis of Discovery Rules*, 52 L. & CONTEMP. PROB. 133 (1989).

[100] *See* Daughety & Reinganum, *supra* note 99, at 283. In their model, as in the one-sided information model, there are also pooling equilibria. Daughety and Reinganum rule them out by using a refinement on out-of-equilibrium beliefs. *See id*. at 289 n.7.

amount, but the plaintiff's private information will not. Thus, this situation lies somewhere between the extremes of asymmetric information with only one person uninformed, and either the informed or uninformed party to the suit makes the offer.

The parties' private information undoubtedly affects the settlement value of the suit, with more valuable suits settling for more money. But since only part of the private information—the part known by the offeror—may work its way into the settlement amount, this probably means that the potential dispersion in settlement amounts is less in this example than it would be in the one sided signaling model *if all of the information were known to the offering party*.

However, making the connection to the Report's claim is almost impossible. First, Daughety and Reinganum assume that all suits are PEV. Thus, within their model, there are no NEV suits to observe, settling or going to trial. Second, to my knowledge, no one has extended their two-sided model to include NEV suits, similar to Farmer and Pecorino's approach for the pure signaling model. If the Farmer and Pecorino approach carries over into this two-sided model, then there would be no NEV suits filed here either. But, pending more research, the best we can say is that the approach *might* carry over. However, we can say something stronger with respect to the Report's claims: *there is nothing in the two-sided signaling model that lends support to its claim that a low settlement amount implies that the underlying suit is NEV*.

4. *Example 4—including default judgments*

The best (and possibly the only) argument (to my knowledge) that settlement amount allows one to deduce something about the *merits* of the underlying case (but *not* about whether the underlying case was NEV) comes from William Hubbard.[101] Hubbard has a model in which settlements include a greater proportion of low-merits, high-stakes cases than high-merits, low-stakes cases.[102] The basic insight is that if the defendant can get out of the suit by

[101] *See* William H.J. Hubbard, *Sinking Costs to Force or Deter Settlement*, 32 J. L. ECON. & ORGAN. 545 (2016).

[102] *Id.* at 355.

defaulting in the latter cases—essentially paying the "low-stake" amount into court—then the remaining cases will be low-merits.[103] Let's cast this argument in terms of Example 1, but modify it so that the expected recovery, $500,000, is the product of the probability of plaintiff's victory, multiplied by the size of damages if the plaintiff is victorious. Let us consider two cases. One in which the probability of victory is .2, and the damages (if plaintiff wins) are $2,500,000, has expected value of $500,000. A second, in which the probability of victory is 1, and damages are $500,000, also has expected value of $500,000. A defendant in the second case could just default, pay $500,000, and save the litigation costs. But defaulting in the first case would cost the defendant $2,500,000, which is likely far more than litigation costs plus the expected $500,000 in liability. Thus, in the first case, the defendant will need a settlement at some amount less than the $2,500,000 prayer. And, says Hubbard's argument, the only settlement we see has a probability of victory at .2 in the underlying suit. Repeat this scenario over and over and we will get a pool of settlements in cases with low probability of victory, and a pool of defaults with high probability of plaintiff victory.

Hubbard's argument is smart,[104] but it doesn't seem to apply to the patent litigation setting. First, if it were to apply to patent litigation, the FTC should have found a large pool of default judgments in the data it acquired. However, the FTC found no such thing.[105] Second, there is a very good reason that a defendant does not want to default. Unless the patent has already expired at the time of the suit—an unlikely occurrence—the (alleged) infringement will

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[103] *Id.*

[104] Such a result requires that the true amount at stake is not only observable, but verifiable by a court virtually at the time of filing the suit. If the stakes are not verifiable, the low-stake plaintiffs can pretend to be high-stake plaintiffs early in the litigation process, preventing defendants from exercising a cheap default. *See id.* at 561.

[105] FTC, *supra* note 2, at 68. The FTC states in its Report's note 214 that "Independent review of the dockets in these lawsuits also identified two instances of a Responding PAE obtaining a default judgment." *Id*. at 69 n.214. This was out of "3,895 cases that were initiated in U.S. district court by 256 unique plaintiffs against 1,956 unique defendants between January1, 2009 and September 15, 2014." *Id*. at 68.

be ongoing. If the defendant defaults he only pays for past infringement, not future infringement. In addition, if the defendant were to default and then continue to infringe, he would be sued again. But in the subsequent suit the plaintiff would allege bad faith, intentional infringement.[106] After all, the plaintiff would claim, the first suit clearly put the defendant on notice of the infringement allegations, and the failure to defend constituted a type of admission. Thus, the plaintiff would claim, the second suit should trigger enhanced damages, as well as the award of attorney's fees.[107] To avoid this outcome the defendant must settle (or litigate to victory) the first suit. As part of the settlement the defendant will get a license to use the patents at issue.

5. *Example 5—Many Defendants*

Let us assume that a plaintiff owns a patent, infringed (with certainty) by all manufacturers in the industry. In addition, we assume that damages are equal to $50,000 for each percent of the total market the manufacturer has, and that the market (and damages) are arranged as in the following table:

Table 3. Many defendants in market

Manufacturer	% of Market	P's Litigation Cost	D's Litigation Cost	Damages
1	10	$480,000	$400,000	$500,000
2	10	$480,000	$400,000	$500,000
3	10	$480,000	$400,000	$500,000

[106] *See, e.g.*, Halo Elecs., Inc v. Pulse Elecs., Inc., 136 S.Ct. 1923 (2016).
[107] *See, e.g.*, Highmark v. Allcare Health Mgmt. Sys., 134 S.Ct. 1744 (2014).

4	10	$480,000	$400,000	$500,000
5	10	$480,000	$400,000	$500,000
6	50	$1,000,000	$400,000	$2,500,000

In addition, assume that manufacturer 6, with better lawyers and greater wealth, can impose greater discovery costs on the plaintiff. Thus, for all of the manufacturers 1 through 5, litigation costs look like they did in Example 1. Plaintiff and all defendants agree that to push the case all the way to verdict will cost the plaintiff $480,000 and each defendant $400,000. But in the case of defendant 6, it will cost plaintiff $1,000,000 and defendant $400,000. Further, assume that plaintiff, at the start of this example, is cash-constrained. He is not able to spend anywhere close to $1,000,000 in litigation costs.[108] Further, as in Example 1, neither party is certain which of them has the resolve to commit to giving the final offer. The parties agree, however, that the defendant will make the final offer with probability p, and the plaintiff will make the final offer with probability with (1-p), where $0 \leq p \leq 1$. In this case, the parties will settle for about p($20,000) + (1-p)($900,000). For the purposes of this example we will assume that p = .8.[109] Thus, the plaintiff will sue the first five defendants and settle with each for $196,000. This produces a total of almost a million dollars.

However, for manufacturer 6, things change. Because plaintiff has collected approximately $1,000,000 in settlements from the first five manufacturers, it can credibly threaten to take the case all the way to judgment. If plaintiff takes the case to judgment it will get $2,500,000 - $1,000,000 = $1,500,000. Defendant will lose $2,900,000. Thus, the plaintiff and defendant will settle for

[108] Also assume the secondary litigation finance market cannot provide the needed litigation expenses.

[109] In so doing we are incorporating some of the strength of Schwartz and Wickelgren's critique of settlement bargaining, *see* Schwartz & Wickelgren, *supra* note 79, as most of the bargaining power goes to defendant.

(.8)($1,500,000) + (.2)($2,900,000) = $1,200,000 + $580,000 = $1,780,000. The massive change in settlement amount occurs even though the underlying lawsuit is identical, except for damages, and the size of the defendant's litigation costs do not change. And it happens only because the first five suits, suits which the FTC would incorrectly label as "nuisance" (or NEV), settle first.

Because this sort of market structure is mathematically likely to occur (because you can't have several incumbents in an industry with 50% market share, but you can have several with 10% market share) it is likely that a scholar, including the FTC, will observe many settlements for small amounts of money, and only one for a larger amount of money. This does not mean that patent litigation is "broken" in any reasonable sense of the word.

6. *Example 6—Self Serving Bias*

There is literature, coming more from psychology and law than from economics, focused on why lawsuits fail to settle. This literature posits that often plaintiff's expectations of how much they will win at trial are greater than defendant's expectations of loss at trial. If the difference is larger than the expected trial costs, then the suit cannot settle; the maximum that the defendant will offer is less than the plaintiff's minimum willingness to accept. This difference in beliefs arises because of self-serving heuristics and biases.[110] We can deduce quickly the effect of self-serving bias on the rate of settlement—the rate decreases. However, the effect of this sort of self-serving bias on the settlement *amount*, when settlements occur, is ambiguous: although self-serving biases can often be detrimental in negotiation, that may not always be the case. Farmer and Pecorino show that a self-serving bias apparent to the other side can benefit the biased litigant by forcing the other party to make a more favorable offer.[111]

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[110] *See* Linda Babcock & Joshua Furgeson, *Bounded Rationality in the Settlement Process: Empirical Evidence on the Causes of Settlement Failure in Litigation*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF TORTS Ch. 14 (Jennifer H. Arlen ed., 2014).

[111] *See* Amy Farmer & Paul Pecorino, *Pretrial Bargaining with Self-Serving Bias and Asymmetric Information*, 48 J. ECON. BEHAV. & ORG. 163, 176 (2002).

Let's depict the settlement range from a modified version of Example 1, above. (Thus, we are working in the symmetric information setting.) In this variation of Example 1, with no self-serving bias, the plaintiff and defendant agree that if the case were taken all the way through trial the plaintiff would certainly prevail, and would be awarded $500,000. They also both agree that to push the case all the way to verdict will cost the plaintiff $380,000 and will cost defendant $300,000. Under these assumptions, if the plaintiff will make the final offer (i.e. has all bargaining power) the suit will settle for $800,000; if defendant will make the final offer (i.e. has all the bargaining power) it will settle for only $120,000.[112]

What happens when there are self-serving biases? Assume that the Plaintiff thinks that he is certain to win $600,000 if the case goes to trial, but the defendant believes that he will lose only $400,000 if the case goes to trial. We can see the impact of self-serving bias in the parties' expectations. Under these assumptions, the defendant will be willing to pay no more than $700,000 to settle the suit, and plaintiff will accept no less than $220,000 to settle the suit.

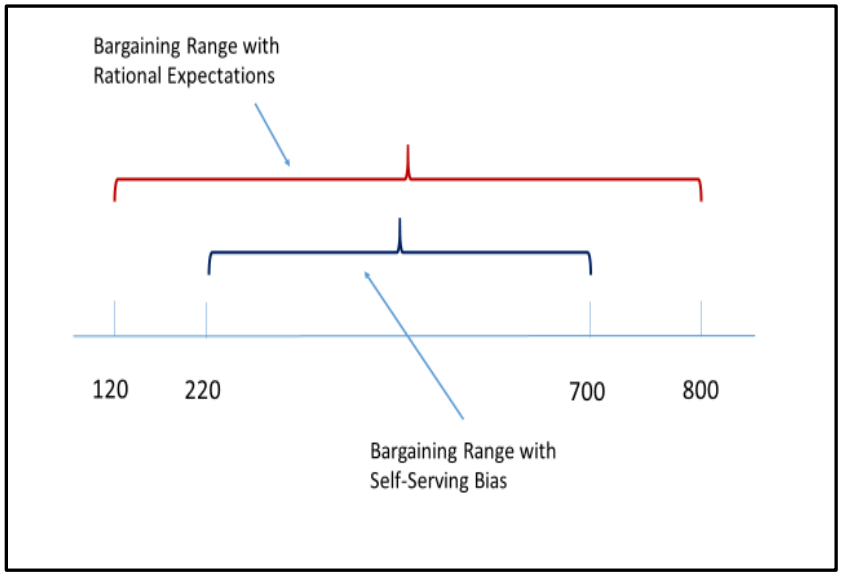

Figure 2

[112] We are abstracting away from the Schwartz and Wickelgren, *supra* note 79, critique of settlement bargaining.

Thus, we can see that self-serving biases shrink the bargaining range. When settlement does occur in the presence of self-serving biases, it will be restricted to a smaller range of values. In the limit, it will be harder and harder to distinguish situations where the plaintiff has the bargaining power from the situations where the defendant does. But none of this has obvious implications for NEV suits.

How do self-serving biases play out in the context of asymmetric information models? It is not easy to say. One would need to mash together self-serving bias with each of the previous models to understand the analytics. There are a few general papers that are in the field.[113] None of them produces the results we would need to make the connection between the models and NEV and PEV suits. And all of these papers are complex enough that intuition cannot make the connection. Until someone works out this complex relationship, we must refrain from using any of these papers in this critique. Thus, for the moment, we have to conclude that that the self-serving bias literature gives us no purchase on the question of whether a low settlement amount implies that the underlying suit was NEV. This implies, of course, that this literature gives no support to the Report's claim that a low settlement amount implies that the underlying suit was NEV.

C. *Summary on Litigation*

The Report claimed that if a suit were to settle for a small amount of money then one could conclude that the suit was NEV. By

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[113] *See* Andrea Gallice, *Self-Serving Biased Reference Points* (Collegio Carlo Alberto, Working Paper, 2011), www.carloalberto.org/working_papers (showing that with both self-serving bias and reference point-based utility functions, fewer lawsuits will settle); Amy Farmer & Paul Pecorino, *Pretrial Bargaining with Self-Serving Bias and Asymmetric Information*, 48 J. ECON. BEHAV. & ORG. 163 (2002); Farmer & Pecorino, *supra* note 111; Eric Langlais, *Cognitive Dissonance, Risk Aversion and the Pretrial Negotiation Impasse* (Munich Personal RePEc Archive, Working Paper, 2008) (employing a two-stage model in which parties are aware of their own biases); Muhamet Yildiz, *Bargaining with Optimism*, 3.1 ANN. REV. ECON. 451 (2011) (exploring, among other things, how optimism about future bargaining power leads litigants to wait until the last minute to settle).

routinely calling NEV suits "nuisance" suits, the FTC indicated that the suits were probably meritless, and consequently bad. All of this is completely wrong for the following reasons:

1. The category of NEV suits includes both meritless suits and meritorious suits. Whereas the former may be worthy of disapprobation, the latter have value, particularly in contexts like patent, where enforcing rights is supposed to guide conduct and produce spillover benefits.

2. The Report incorrectly claims that a low settlement amount implies that the underlying suit was NEV. This claim is almost certainly wrong. In the symmetric information models, low settlement amount is completely consistent with both PEV suits and NEV suits. Some of the other explanations of settlement that we explored allowed us to say something about the underlying suit. The signaling models (with either one-sided or two-sided information) provided a hint that a low settlement amount revealed the expected value of the lawsuit that was being settled. A low settlement amount may reveal low expected value. But these models provided absolutely no link to the Report's claims about NEV suits. Hubbard's model, including default judgments, allowed us to conclude that settled cases probably had lower probability of success on the merits. But it neither seemed to apply to PAE suits, nor did it have anything to say about NEV suits. None of the other models we explored provided any support for the FTC's position, either. When you put all of this together, we must reject the FTC's claim that a low settlement amount implies that the suit was NEV.

3. Putting the first two points together, the FTC has failed to establish any link between low settlement amounts and "bad" lawsuits.

II. POLICY RECOMMENDATIONS

For the purposes of discussion, we will divide policy recommendations into two groups: those that were not in the FTC's Report, and those that were. We will discuss the policy recommendations that *were* in the Report first.

The FTC made four policy recommendations, ostensibly related (somehow) to the empirical findings.[114] So, one might think, the four policy recommendations must fail, just as the empirical assertion about NEV suits failed. However, the *linkage* between the FTC's empirical assertions and their policy recommendations was far from clear in the Report. Thus, the policy recommendations might have appeal, regardless of the failure of the FTC's empirical assertions. But one would need to do more work, unconnected to the highly flawed analysis in the Report, to figure out which of the FTC's policy recommendations has appeal. To see why this is true, we will pick out the first of the FTC's recommendations.

Consider the first policy recommendation–to "[d]evelop rules and case management practices to address discovery burden and cost asymmetries in PAE litigation."[115] The FTC noted that Rule 26 of the Federal Rules of Civil Procedure requires parties to meet and work on producing a plan for discovery. The FTC suggested that Rule 26 should be amended, *inter alia*, to require early disclosure of asserted claims and infringement and invalidity contentions, as well as to limit discovery before preliminary motions together with provisions to ensure that such motions are decided quickly. The idea, in short, is to reduce defendants' costs, particularly early in the litigation.

Is this a good idea? Our conclusion from the previous section was that one could not tell from the Report's discussion of NEV and PEV suits whether this was a good idea. As an intuitive matter, however, the FTC's suggestion might make sense. After all, reducing costs is good. Let's look at one of the NEV examples discussed above to see that this is less clear cut than one might think. In particular, let's rewrite Table 1 above with greatly reduced costs for defendant (but not plaintiff). The reduced costs represent the effect of the suggested reform.

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[114] *See* FTC, *supra* note 2, at 8–13.

[115] *See* FTC, *supra* note 2, at 9. "One step toward achieving this goal would be to amend Federal Rule of Civil Procedure 26, which addresses discovery in civil actions, in a way that helps balance these relative burdens." *Id*. at 10.

Table 4. Cost of Suit

	S_1 (pleading)	S_2 (discovery)	S_3 (trial)
C_p (plaintiff's cost)	$75,000	$75,000	$400,000
C_d (defendant's cost)	$25,000	$25,000	$200,000

Recall that in this example the plaintiff is sure to win $500,000 if the case goes to trial.[116] Also, there is a 1/2 chance that defendant will make the last settlement offer at each stage, and a ½ chance that plaintiff will do so. In the original example, with high costs, the plaintiff and defendant would settle for $525,000. This represents a slight over-deterrence of the defendant's infringement, at least when compared to the $500,000 expected verdict if the case were to go to trial.

What will happen with lower costs? If we work through the arithmetic we find that the parties still settle, *but for $350,000*. Is that better than settling for $525,000? It is certainly better for the defendant. But is this better for society? The $350,000 settlement amount represents a significant under-deterrence of the defendant, rather than the slight over-deterrence of $525,000. It is difficult to know whether this is better for society or not. That, in fact, is our major point.

It is very difficult, without doing significantly more work, to know if the specific four proposals in the Report are good ideas or not. One must, for each reform, carefully trace through its expected effects on filing suits, settlement amounts, settlement rates, and returns to inventing and patenting. The FTC did not do this work, and neither will we in this critique. All we can say is that the case for these reforms has yet to be made.

[116] Again, we are abstracting from Schwartz and Wickelgren's critique. *See* Schwartz & Wickelgren, *supra* note 79.

As for policy recommendations that are not in the Report, our recommendation is much clearer. *Do not rely on the FTC's analysis for creating new policy recommendations.* For example, one might be tempted, given the analysis in the Report, to ban patent suits that are likely to settle for less than $300,000, and involve PAEs. Most of these are, according to the FTC, "nuisance" suits, and, hence, bad.[117] However, as we have shown, many of these suits may be meritorious, and have value.[118] Hence, getting rid of *all* such suits will likely have great costs. Instead, a reformer should set about to find and remove meritless suits. Unfortunately, nothing in the Report likely helps a reformer to do so.

IV. CONCLUSION

The Report includes a path breaking collection of data. Because of the FTC's ability to force businesses and individuals to provide information, a power that no ordinary researcher possesses, the FTC has amassed a data set that can potentially be of great value. For example, the Report's description of litigation PAEs and portfolio PAEs structure and behavior is, although not entirely new, very instructive. Unfortunately, the FTC made a pair of analytical errors that precludes using its work to directly support policy prescriptions. Consequently, in terms of providing *normative* guidance, the Report is a failure.

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[117] To be clear, this is not the FTC's recommendation. But it *could* be a recommendation of someone using the FTC's Report, without the benefit of this article.

[118] Bebchuk and Klement correctly sum up the ambiguous normative status of negative expected value suits: "With respect to NEV suits that are meritorious (and are NEV simply because the required litigation costs would be large relative to the amount at stake), an NEV plaintiff's ability to extract a settlement offer might well be socially beneficial. In contrast, with respect to NEV suits that are frivolous, an NEV plaintiff's ability to extract a settlement offer might well have undesirable consequences." Lucian Bebchuk & Alon Klement, *Negative Expected-Value Suits* 8 (Harv. John M. Olin Ctr. for Law, Econ., and Bus., Discussion Paper No. 656, 2009).