For "Patent Wars" Alarmists, Time to Make Peace with the Empirical Data

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Introduction

To hear it from some critics, the U.S. patent system is buckling under the weight of frenzied and unprecedented patent litigation.[2] The explosion in disputes—so the narrative goes—greatly increases transaction costs and significantly depresses innovation. Indeed, these critics have referred to (often hyperbolically) the purported increase in litigation as "patent wars."

Critics have especially focused on smartphone patent litigation as emblematic of a broken patent system.[3] Such commentators assert there exists a recent explosion in smartphone patent litigation—a so-called "smartphone patent war"—accompanied by abusive litigation practices, a costly patent portfolio arms race, burdensome lawsuits and high uncertainty costs.

At the center of the overhyped debates surrounding the so-called "smartphone patent wars" are standard essential patents ("SEPs"), which protect technology deemed by standard development organizations ("SDOs") to be essential to an industry-adopted technical standard. According to critics, SEPs are a root cause of, and the most devastating weapons used in, the "smartphone patent wars."[4] Critics claim that SEP owners can abuse SEPs, referring to this theoretical risk as patent "holdup": the risk that the SEP owner coercively demands—under the threat of a damages claim or an injunction—an unjustifiably high royalty rate from implementers seeking to use the

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[2] *See, e.g.*, Jorge L. Contreras, *Is Biopharma Ready for the Standard Wars?*, 7 Tex. A&M J. Prop. L. 43 (2021); Megan M. La Belle & Heidi Mandanis Schooner, *Fintech: New Battle Lines in the Patent Wars?*, 42 Cardozo L. Rev. 277 (2020); Tom Nicholas, *Are Patents Creative or Destructive?*, 79 Antitrust L.J. 405 (2014); Michele Bouldrin & David K. Levine, *The Case Against Patents*, 27 J. Econ. Perspectives 3 (2013); Richard A. Posner, *Why There Are Too Many Patents in America*, The Atlantic (July 12, 2012), https://www.theatlantic.com/business/archive/2012/07/why-there-are-too-many-patents-in-america/259725/.

[3] *See, e.g.*, Michael Carrier & Brian Scarpelli, *How Standard-Setting Orgs Can Curb Patent Litigation*, Law360 (June 15, 2020); https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3934899, Vivek Wadhwa, *Ending Patent Wars Will Be a Huge boon to the Tech Industry*, TechCrunch (Mar. 10, 2016), https://techcrunch.com/2016/03/10/ending-patent-wars-will-be-a-huge-boon-to-the-tech-industry/.

[4] Michael A. Carrier, *A Roadmap to the Smartphone Patent Wars and FRAND Licensing*, CPI Antitrust Chron. (Apr. 2012), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2050743. https://www.nytimes.com/2012/10/08/technology/patent-wars-among-tech-giants-can-stifle-competition.html?pagewanted=all&_r=0.

industry standard.[5] In order to prevent such abuse, SDOs virtually always require SEP owners to allow implementers access to their SEPs under fair, reasonable and non-discriminatory ("FRAND") license terms. Thus, FRAND commitments seek a balance between the interests of the patentee in recouping its investment and those of standards implementers in manufacturing products compliant with standards.

Critics warn that massive increases in litigation over SEPs signal the breakdown of the FRAND licensing framework. According to these critics, increased litigation and the associated risk of injunctions demonstrate that patent holdup is real, and is stymying innovation and economic progress.

The fearful narratives of "patent wars" generally and "smartphone patent wars" specifically have been espoused by various commentators. However, the narrative tends to eschew empirical data in favor of provocative rhetoric. This paper addresses this gap by examining empirical patent litigation data. The data depict a reality in stark contrast to the fictional story of a recent explosion in patent litigation, both generally and in the smartphone industry specifically.

Section 2 demonstrates that critics' myopic focus on a single flawed metric—the raw number of lawsuits—yields a fundamentally misleading picture of the current patent litigation landscape. In the first place, patent litigation has not increased. Any perceived increase is attributable to procedural changes enacted by the 2011 Leahy-Smith America Invents Act, which made joinder of defendants more difficult and accordingly increased the number of distinct lawsuits that may arise out of the same patents. Second, rationally measuring patent litigation trends over time requires normalizing the raw number of lawsuits by a factor accounting for the underlying drivers of litigation. Normalizing to account sensibly for relevant factors—for example, the number of lawsuits against total number of patents granted—actually reveals a decrease in overall patent litigation rates as compared to historical trends.

Section 3 focuses specifically on the so-called "smartphone patent wars." Here, the data show that smartphone patent litigation—when normalized to account appropriately for relevant economic and other factors—tracks overall trends by similarly decreasing in recent years. Further, the data reveal SEPs are not the primary drivers of smartphone patent litigation. Section 3 also presents qualitative rationales for why firms are choosing to litigate SEPs. Driving factors include rapid technological innovation and strategic maneuvering by implementers of technologies protected by SEPs (specifically, the problem of patent "holdout"), which are hardly evidence of a patent system broken in favor of innovators.

Ultimately, this paper's empirical analyses and qualitative explanations illustrate that the patent system remains aligned with its constitutionally derived task of

[5] *See* Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 Tex. L. Rev. 1991 (2007).

"promot[ing] the Progress of Science and useful Arts."[6] Inappropriate corrections based on misappraised risks would only upset the patent system's crucial balance. When it comes to bombastic calls for peacemaking intervention into so-called "patent wars," discretion is most certainly the better part of valor.

The Empirical Data Do Not Support the Narrative of "Patent Wars" in General

Critics who claim that patent litigation has exploded in recent years rely on incomplete data and unsound analysis. This section shows how careful analysis of the empirical data debunks the "patent wars" myth and disproves the narrative that patent litigation has reached all-time highs.

AIA Joinder Rules Are Responsible for Increases in Federal Court Patent Litigation

One of the major mistakes critics make is failing to adjust the data for the 2011 Leahy-Smith America Invents Act ("AIA"), which increased the raw number of lawsuits by making joinder of defendants more difficult. Prior to the AIA, many federal courts permissively allowed joinder under Rule 20 of the Federal Rules of Civil Procedure.[7] However, in 2011, Congress passed new joinder rules under the AIA to "end[] the abusive practice of treating [unrelated parties] as codefendants."[8] Now, under 35 U.S.C. § 299, federal courts apply a more stringent test for joinder, which has led to a decrease in the number of multiple-defendant lawsuits and an increase in the raw number of patent lawsuits.[9]

The impact of the new joinder rules is readily visible in Figure 1A, which shows a sharp, post-2011 uptick in the number of lawsuits per patent. We used this data to calculate an adjustment factor that controls the post-2011 raw number of patent lawsuits for the effects of the AIA joinder provision. As Figure 1B shows, failing to control for the effect of the AIA joinder rules greatly inflates the apparent level of patent litigation activity.

[6] U.S. Const., art. 1, § 8, cl. 8.

[7] *See* Dongbiao Shen, *Misjoinder or Mishap? The Consequences of the AIA Joinder Provision*, 29 Berk. Tech. L.J. 545, 547–50 (2014).

[8] 157 Cong. Rec. H4426 (daily ed. June 22, 2011) (statement of Rep. Bob Goodlatte).

[9] *See* Dongbiao Shen, *Misjoinder or Mishap? The Consequences of the AIA Joinder Provision*, 29 Berk. Tech. L.J. 545, 559–60 (2014).

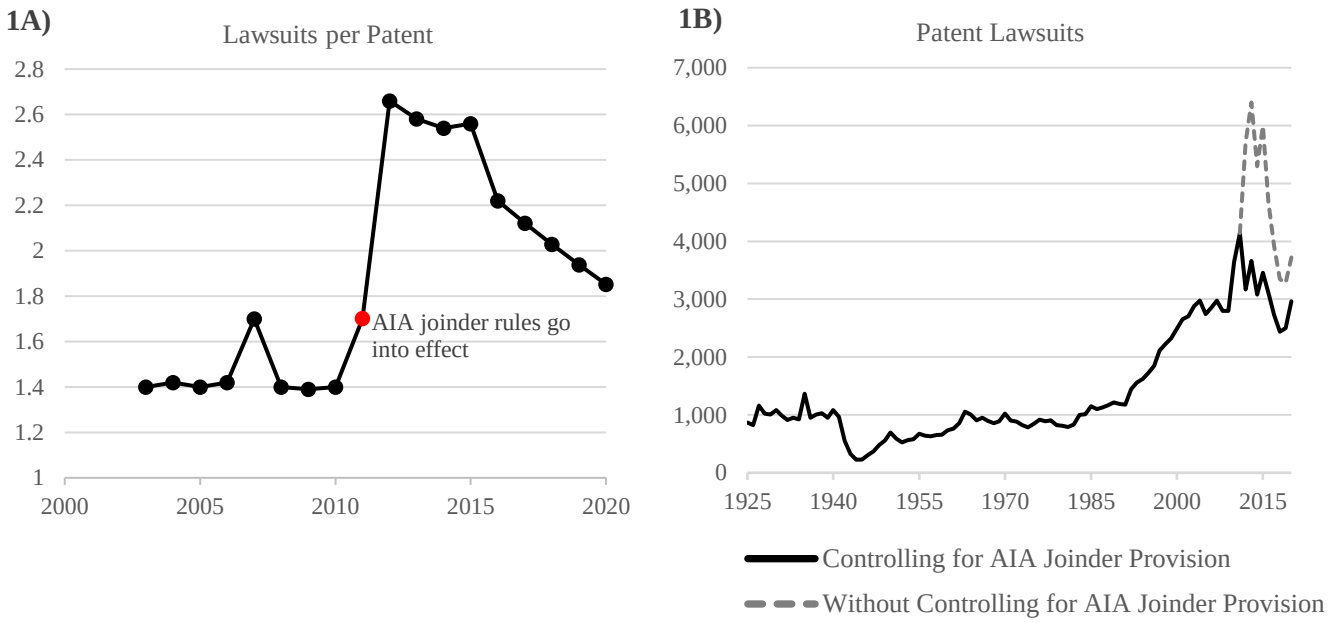

Figure 1. (A) The number of lawsuits per patent shows the effect of the AIA joinder rules. (B) Controlling for the effect of the AIA joinder rules shows that patent lawsuits have not actually exploded in recent years.[10]

The Normalized Data Show a Decrease in Federal Court Patent Litigation

Making sense of patent litigation data—rather than merely making a political point—requires normalizing the data to the underlying economic factors driving patent litigation.[11] When the raw number of patent lawsuits is normalized by any sensible factor, the data—as seen in Figure 2—show that patent litigation is commensurate with historical trends and has in fact *decreased* in recent years.

[10] Data source for Figure 1A: *uspto.gov, Patent Litigation Docket Reports Data*. The numbers for 2017-2020 are estimated based on the averages over the period 2012-2016. Data sources for Figure 1B: i) *uscourts.gov, Administrative Office of U.S. Courts, Civil Statistical Tables for the Federal Judiciary, tbl. C-2, 2000-2020*, ii) Ron D. Katznelson, A Century of Patent Litigation in Perspective 1 (Nov. 17, 2014) (unpublished manuscript), http://papers.ssrn.com/abstract=2503140.

[11] *See* Ron D. Katznelson, A Century of Patent Litigation in Perspective 1 (Nov. 17, 2014) (unpublished manuscript), http://papers.ssrn.com/abstract=2503140, page 2; Christopher Beauchamp, *The First Patent Litigation Explosion*, 125 Yale L.J. 848, 882 fig.4 (2016) (normalizing lawsuits by number of patents in force).

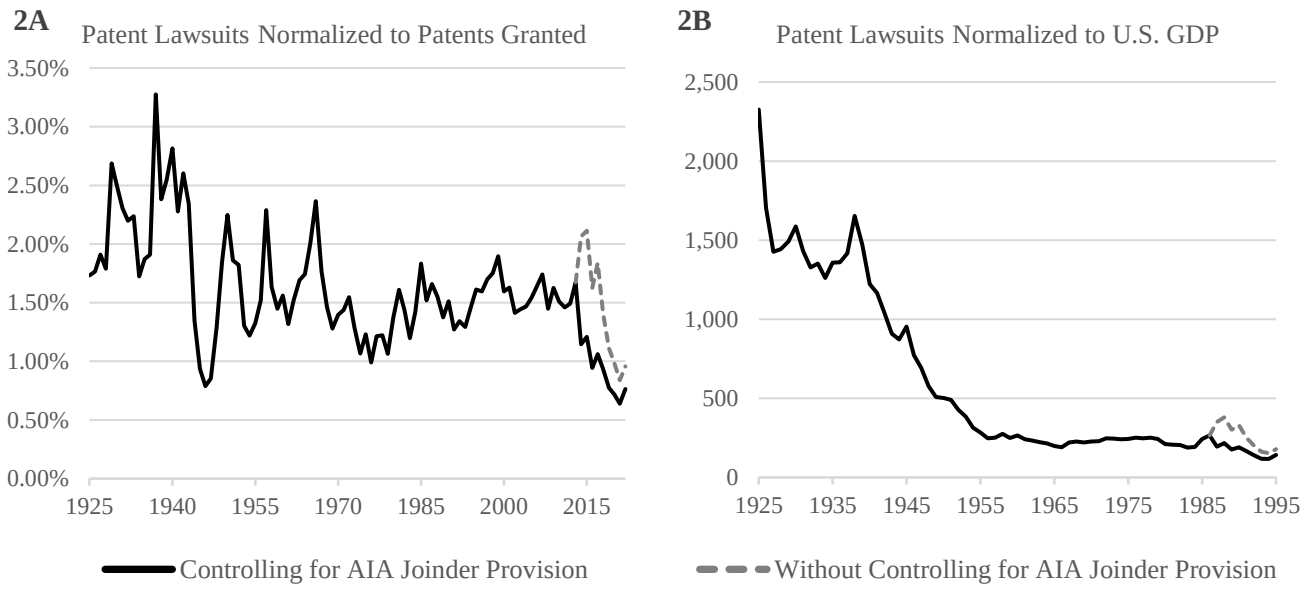

Figure 2. When normalized by either (A) the number of patents granted or (B) the U.S. Gross Domestic Product ("GDP"), the data show that patent litigation has actually decreased in recent years.

The ITC Data Further Contradict the "Patent Wars" Narrative

The previous sections considered litigation in federal district courts. An alternative venue for patent disputes is the U.S. International Trade Commission ("ITC"). Under Section 337 of the Tariff Act of 1930, a patent holder may petition the ITC (a federal agency responsible for international trade) to issue an exclusion order against an infringer, prohibiting importation and sale of the infringing product in the U.S.[12]

Like the data on federal district court litigation, the ITC data (*see* Figure 3) do not support the "patent wars" narrative. For one, the number of instituted ITC investigations has only mildly increased in recent years. Second, the percentage of ITC investigations finding a violation has increased, indicating that the patent system is working exactly as intended by giving patent holders the ability to vindicate and protect their intellectual property rights. If anything, this data tend to indicate that any "breakage" in the patent system is a result of weakened patent rights in countries that have encouraged infringement of valid patents, requiring patentees to resort to the court system in an effort to vindicate their rights.[13]

[12] 19 U.S.C. § 1337.

[13] *See* Yu Yang & Luo Rong, *A Brief Analysis on Sino-U.S. Intellectual Property Rights Trade Friction*, 3 J. WTO & China 72 (2013).

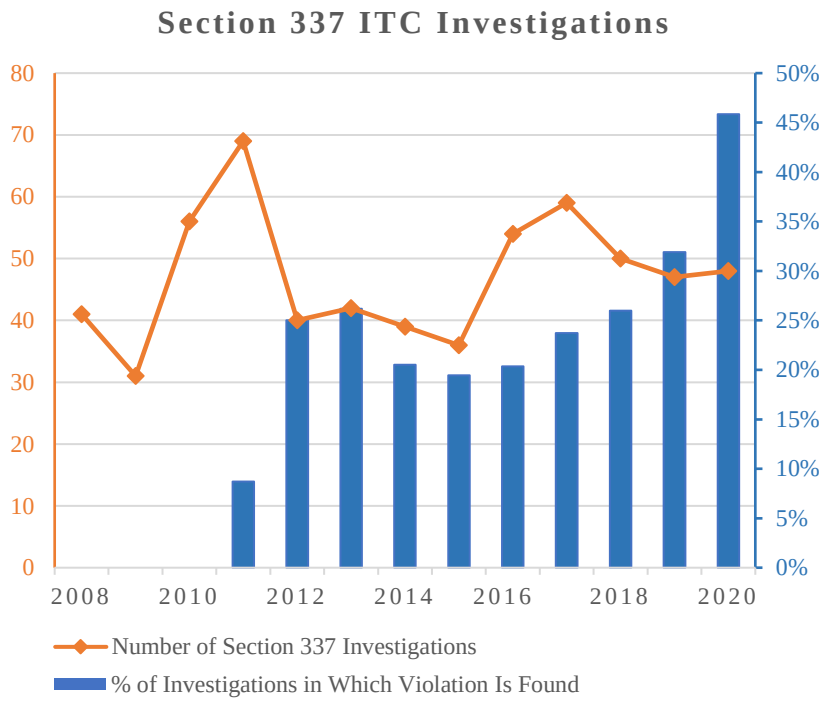

Figure 3. The number of ITC actions remains steady and consistent with the number of district court actions.[14]

Patent Litigation Is Not a Marker of a Broken Patent System

Putting aside the fact that patent litigation is not truly increasing, there is a fundamental flaw in the very logic of "more is bad." This reductive premise ignores the core purpose of the patent system, which is to provide a mechanism for the exercise of proprietary rights. In an age where innovation is increasing and more patents are being granted, some increase in litigation is a sign not that the system is failing, but rather that it is *working*.

Patent litigation has long been known to increase after periods of disruptive innovation, as competitors jockey for position in a developing marketplace. For example, technologies like Thomas Blanchard's turning lathe, Samuel F.B. Morse's telegraph, and Charles Goodyear's vulcanized rubber were heavily litigated during the 1840s and 1850s.[15] In the 1850s, contemporary newspapers dubbed the patent ligation over sewing machines the "Sewing Machine War."[16] The 1920s involved intense litigation over television

[14] Data source: *usitc.gov, Section 337 Statistics* (source for Section 337 investigations*: Number of Section 337 Investigations Brought by NPEs;* source for violations*: Number of Cases in Which Violation Is Found/Year*).

[15] Beauchamp, *supra* note , at 860-70.

[16] Adam Mossoff, *The Rise and Fall of the First American Patent Thicket: The Sewing Machine War of the 1850s*, 53 Ariz. L. Rev. 165, 166 (2011).

patents,[17] and fights over semiconductors characterized the 1980s.[18] In any period of American history, one can identify key technologies that have been the subject of concentrated patent litigation. Disruptive technologies create new economic sectors and intense competition as market participants scramble to gain footholds in the fast-changing technological landscape. It is no surprise, then, that intellectual property portfolios become a strategic focal point for businesses seeking to compete in dynamic industries. As Professor Lea Shaver aptly puts it, "[p]atent litigation is the continuation of business strategy by other means."[19]

Similarly, the early 21st century has been a period of intense technological innovation. With the advent of artificial intelligence, mobile communications, quantum computing and the Internet of Things, we are in a period of unprecedented technological disruption. Accordingly, economic competitors have engaged in patent litigation. But put in its proper context, this period of American innovation is no more prone to patent litigation than earlier periods of significant technological change, as demonstrated by the relative consistency of patent litigation rates throughout American history up to and including the present. *See* Figure 2A.

The Empirical Data Do Not Support the "Patent Wars" Narrative Specifically Within the Smartphone Industry

Section 2 examined overall patent litigation rates. Here, we focus on one particular field of rapid innovation: smartphone technology. This section empirically quantifies the scope of the so-called "smartphone patent wars," demonstrating that the leveraging of patents by companies like Google, Apple and Huawei are, contrary to critics' claims, not burdensome on innovation.

The Data Show a Decrease in Smartphone Patent Litigation

First, we identified the major mobile wireless device suppliers, which we defined as smartphone original equipment manufacturers (OEMs) with over 5 million shipments in at least one year over the period between 2005 and 2020. We identified 53 such OEMs. Next, we identified patent litigation in both U.S. federal district courts and the U.S. International Trade Commission occurring amongst these major smartphone companies, finding 85 cases involving 321 unique patents.[20] Of the 321 unique patents,

[17] Dan Maloney, *Philo Farnsworth, RCA, and the Battle for Television*, Hackaday (July 3, 2018), https://hackaday.com/2018/07/03/philo-farnsworth-rca-and-the-battle-for-television/.

[18] Bronwyn H. Hall & Rosemarie Ham Ziedonis, *An Empirical Analysis of Patent Litigation in the Semiconductor Industry*, *available at* https://eml.berkeley.edu//~bhhall/papers/HallZiedonis07_PatentLitigation_AEA.pdf.

[19] Lea Shaver, *Illuminating Innovation: From Patent Racing to Patent War*, 69 Wash. & Lee L. Rev. 1891, 1927 (2012).

[20] The data set excludes component suppliers and non-practicing entities because the "smartphone patent wars" are typically defined by disputes amongst major OEMs. *See, e.g.*, Jessie Yang, *The Use and*

115 were SEPs and 206 were non-SEPs.[21] Using this novel data set, Figure 4A shows the number of smartphone patent lawsuits between 2005 and 2020

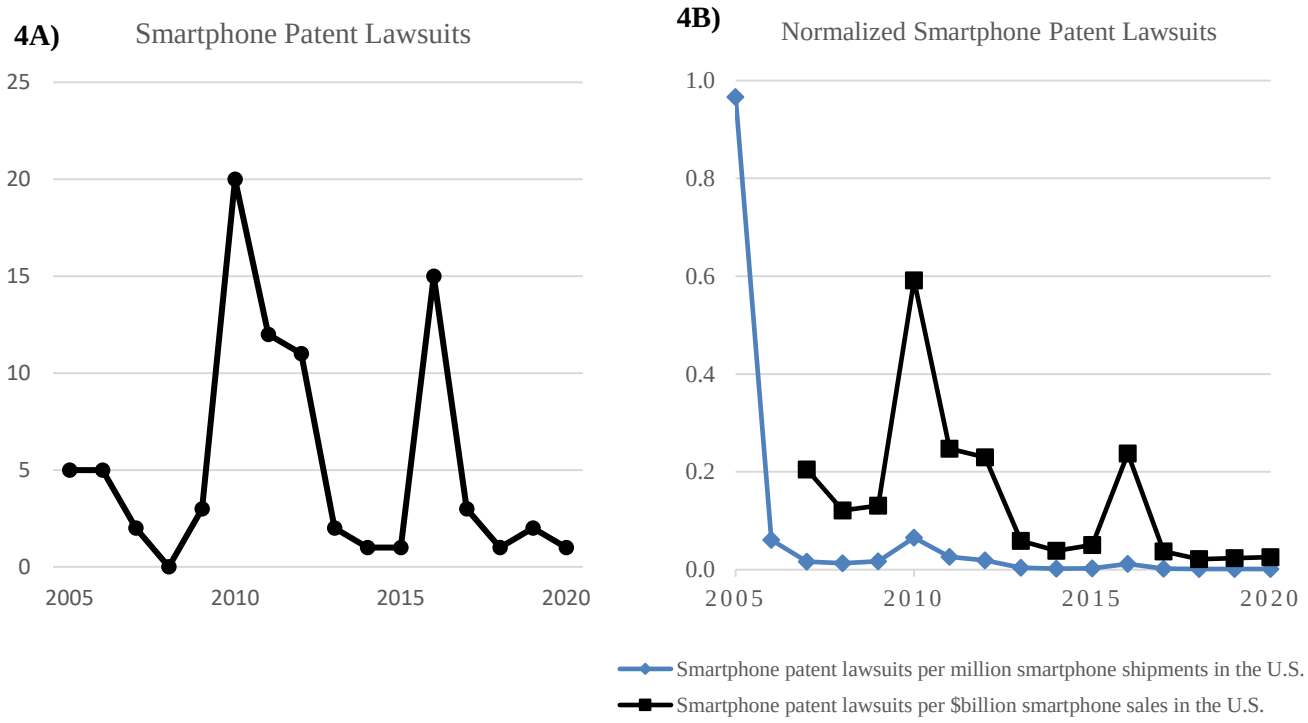

Figure 4. Smartphone patent litigation rates, when normalized to the size of the smartphone market, are actually declining.

Again, normalizing the raw number of patent cases is crucial to any meaningful analysis.[22] In Figure 4B, we normalized by both the number of U.S. smartphone shipments and the total dollar volume of U.S. smartphone sales. In both cases, the normalized patent litigation rate shows that smartphone patent litigation has actually

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Abuse of Patents in the Smartphone Patent Wars: A Need for Change, 5 J.L., Tech. & Internet 239, 243 (2014); Jacob Goldstein, *The Smartphone Patent War, In 1 Graphic*, NPR (Aug. 17, 2011), https://www.npr.org/sections/money/2011/08/17/139723088/the-smartphone-patent-war-in-1-graph; Dr. Kirti Gupta & Mark Snyder, *Smart Phone Litigation and Standard Essential Patents*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2492331.

Further the majority of SEP owners in the smartphone industry are OEMs. *See* Tim Pohlmann, *Who is leading the 5G patent race?*, IAM (Feb. 17 2021), https://www.iam-media.com/who-leading-the-5g-patent-race-patent-landscape-analysis-declared-seps-and-standards-contributions. Accordingly, the data set is intended to capture the most relevant industry players.

[21] Data source for smartphone patent cases: *Darts-ip*. Identification of SEPs was performed using declaration data from European Telecommunications Standards Institute, Institute of Electrical and Electronics Engineers and ITU Telecommunication Standardization Sector.

[22] *See* discussion accompanying *supra* note .

decreased since its peak in 2005. In other words, the current total smartphone patent litigation docket is smaller in proportion to the size of the smartphone market than it was in 2005. Furthermore, smartphone patent litigation comprises less than 0.5% of all patent cases—at the peak of smartphone patent litigation, there were only 20 smartphone patent cases among almost 4,000 total patent cases. By comparison, biotechnology and biopharmaceutical cases account for nearly 15% of the total U.S. patent docket.[23]

The Data Rebut the "Patent Thicket" Narrative

Critics also warn that increases in patent litigation signal a "patent thicket."[24] The argument goes that there are so many patents and patent lawsuits, that market participants must "hack" through a dense "thicket" of overlapping patent rights to develop and commercialize new technology.[25] The difficulty and cost of navigating through the "patent thicket" is said to stifle innovation. At the heart of this "patent thicket" metaphor is the imagery of a dense web of patent lawsuits engulfing every participant in the smartphone industry. However, the data show quite the opposite—that patent litigation is confined to a few market participants. The vast majority of market participants simply go about their business, presumably taking any licenses that are readily available from innovators.

In any industry, strategic use of litigation can be expected from later-arriving implementers of new technology. Such is certainly the case in the smartphone industry. The smartphone patent litigation spikes in 2010-2012 and 2016 can be attributed overwhelmingly to Apple (*see* Figure 5). Of the 58 total cases occurring in these time periods, Apple was involved, as either a plaintiff or a defendant, in 37 (or 63.8%) of these cases. Apple's outsized role in smartphone patent litigation is unsurprising given that Apple's business strategy has been to prefer litigation over licensing. Indeed, Boris Teksler, the former head of patent licensing at Apple, has explained that "efficient infringement, where the benefits outweigh the legal costs of defending against a suit, could almost be viewed as a 'fiduciary responsibility,' at least for cash-rich firms [such as Apple] that can afford to litigate without end."[26]

The vast majority of smartphone OEMs are simply not involved in patent litigation and do not have to "hack" through any imagined "patent thicket." Moreover, if a "patent thicket" were a real problem for the smartphone industry, we would expect to see

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[23] Price Waterhouse Cooper, 2018 Patent Litigation Study 11 (May 2018), *available at* https://www.ipwatchdog.com/wp-content/uploads/2018/09/2018-pwc-patent-litigation-study.pdf.

[24] As a threshold issue, since patents are merely the codification of innovations, "patent thickets" can just as accurately be described as "innovation thickets"—dense areas of innovation. If there is something wrong with dense areas of innovation, this would imply the critics would prefer less innovation, which seems to these authors an absurd and retrograde proposition from the outset.

[25] Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools and Standard-Setting*, *in* 1 Innovation Policy and the Economy 119–26 (Adam B. Jaffe, Josh Lerner & Scott Stern eds., 2001)

[26] *The trouble with patent-troll hunting*, The Economist, Dec. 14, 2019, at 56.

some ill-effect on market participation. But the data show high and sustained rates of market participation.[27] Thus, we find no basis to conclude that the prevalence of patent protection represents anything other than a marketplace of innovators and implementers well able to find one another and negotiate rights.

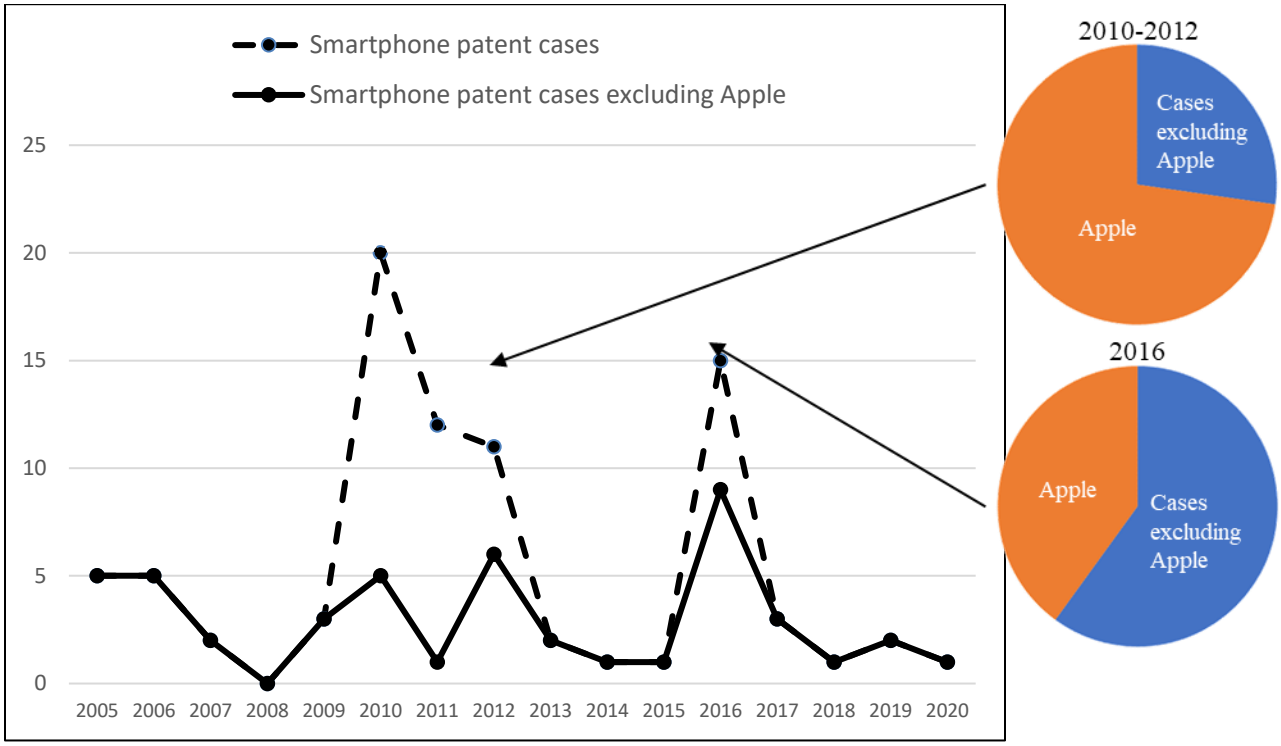

Figure 5. The smartphone patent litigation spikes in 2010-2012 and 2016 can be attributed largely to Apple. Of the 58 total cases occurring in these time periods, Apple was involved, as either a plaintiff or a defendant, in 37 (or 63.8%) of these cases.

SEPs Are Not Responsible for Smartphone Patent Litigation

Another common criticism in connection with the "smartphone patent wars" is that asserting SEPs in patent litigation raises "holdup" problems because the potential of damages and an injunction can prevent a competitor from using a necessary standard to enter the smartphone marketplace. Critics claim that SEP litigation harms competition and innovation when SEP holders use that litigation to extract high rents from SEP implementers.

However, Figure 6 shows that the majority (53%) of the smartphone patent litigation cases did not involve any SEPs. Moreover, of the 321 unique patents involved

[27] The evolution of cellular technologies has been accompanied by a substantial decrease in the smartphone market concentration, as measured by Herfindahl-Hirschman Index (HHI). Specifically, based on smartphone sales data published by IDC, it can be shown that HHI dropped from 2,800 in 2005 to almost 1,200 in 2020.

in smartphone litigation, only 115 (or 36%) were SEPs. Plainly, SEPs are not the driving force behind smartphone patent litigation.

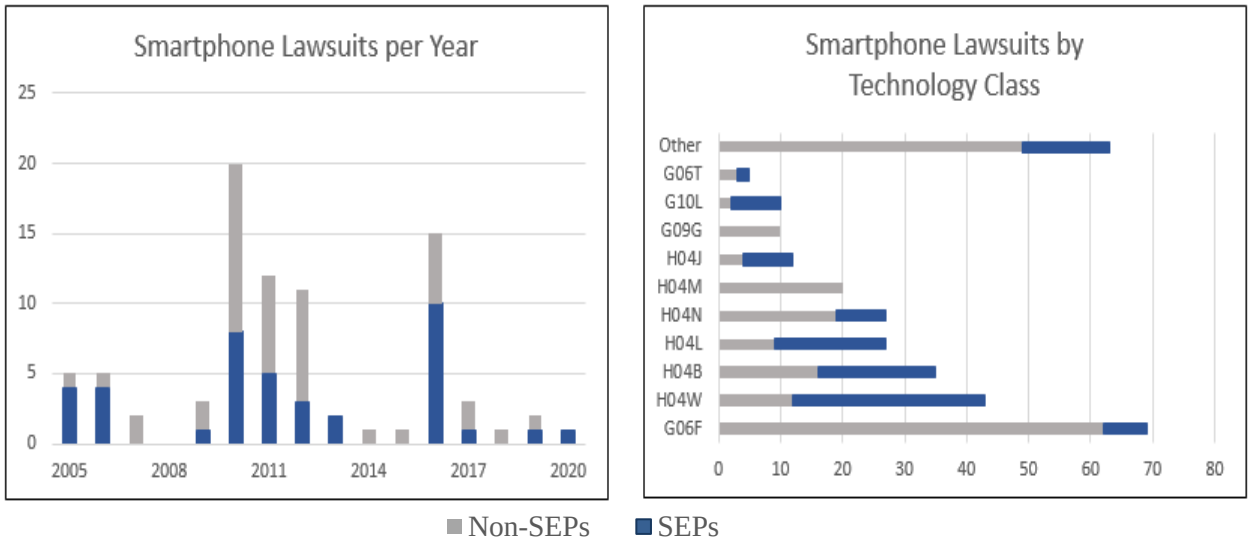

Figure 6. SEPs are not driving smartphone patent litigation, as they are not even asserted in most cases.

Smartphone SEP Litigation Is Caused by Factors Unrelated to the Health of the SEP Environment

The previous sections presented empirical data to show that smartphone patent litigation is not out of control with respect to historical trends and that SEPs play only a minor role in such litigation. This section offers qualitative explanations for why smartphone companies—patentees and patented-technology users—are choosing to litigate SEPs. These explanations demonstrate how factors unrelated to the health of the SEP environment are responsible for inflating smartphone SEP litigation.

First, as discussed *supra* in Section 2.D, disruptive technological innovations have historically led to spurts of patent litigation. The current digital revolution is no exception. Society is undergoing tremendous upheaval and companies are scrambling to innovate and compete. In the hyper-competitive smartphone marketplace, patent litigation is natural and is an indicator of technical innovation and competition rather than abusive practices and anti-competitive monopolistic tendencies.[28]

Second, in recent years, SEP users have engaged in their own abusive tactics, often referred to as patent "holdout." Patent holdout is opportunistic behavior fostered by a demonstrated reluctance on the part of courts and regulators to grant

[28] *See* Victor Tang & Biao Huang, *Patent Litigation As a Leading Market Indicator*, 1 Int'l J. Tech. Transfer & Commercialisation 3 (2002).

injunctive relief in SEP infringement actions.[29] The rarity and difficulty of obtaining injunctions—putatively aimed at curbing the theoretical risk of patent "holdup"—encourages implementers of SEP-dependent technologies to willfully infringe while stalling or outright refusing to participate in licensing negotiations. For SEP implementers, holdout is "efficient infringement" because the upside benefit (potential invalidation of the SEP) far exceeds the negligible downside risk (typically damages limited to reasonable royalties, and thus substantially equivalent to what the implementer would have paid under FRAND terms in the first place).[30] Enhanced damages are theoretically available to increase the downside risk and discourage holdout, but these scarcely play a role in the SEP implementer's calculus because the *ex ante* probability of enhanced damages is extremely low.[31]

Indeed, some of the highest profile smartphone SEP battles have arisen because the SEP user was engaged in holdout tactics. For example, in *Core Wireless v. LG Electronics*, Core Wireless (a patent licensing specialist firm that grew out of a joint venture between Microsoft and Nokia) initially tried to license its SEPs to LG.[32] LG stalled negotiations for two years before finally inviting Core Wireless representatives to South Korea under the pretense of "making a monetary offer for a license."[33] But, "[r]ather than make an offer or engage in serious, good faith negotiations, LG delivered a terse one-page

[29] *See, e.g.*, Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1332 (Fed. Cir. 2014) ("[A] patentee subject to FRAND commitments may have difficulty establishing irreparable harm [which is required for injunctive relief]."); Microsoft Corp. v. Motorola, Inc., 696 F.3d 872, 884 (9th Cir. 2012) ("Implicit in such a sweeping promise [FRAND commitment] is, at least arguably, a guarantee that the patent-holder will not take steps to keep would-be users from using the patented material, such as seeking an injunction, but will instead proffer licenses consistent with the commitment made.").

[30] The former head of patent licensing at Apple, Boris Teksler, explained that "'efficient infringement,' where the benefits outweigh the legal costs of defending against a suit, could almost be viewed as a 'fiduciary responsibility,' at least for cash-rich firms that can afford to litigate without end." *The trouble with patent-troll hunting*, The Economist (Dec. 14, 2019), https://www.economist.com/business/2019/12/14/the-trouble-with-patent-troll-hunting.

[31] Only about 6% of filed cases actually reach a final judgment. Kimberly A. Moore, *Empirical Statistics on Willful Patent Infringement*, 14 Fed. Cir. B.J. 227, 234 (2004). Approximately 29% of adjudicated cases find enhanced damages. Veena Tripathi, Halo *from the Other Side: An Empirical Study of District Court Findings of Willful Infringement and Enhanced Damages Post*-Halo, 103 Minn. L. Rev. 2617, 2640 (2019). Thus, the *ex ante* probability of enhanced damages is approximately 1.7%. This calculation is also an overestimate of the downside risk of punitive damages because courts rarely enhance damages up to the full maximum of treble damages. *See, e.g.*, Core Wireless Licensing S.a.r.l. v. LG Elecs., Inc., No. 2:14-CV-912-JRG, 2016 WL 10749825, at *1 (E.D. Tex. Nov. 2, 2016) (awarding only 20% enhanced damages).

[32] Richard A. Epstein & Kayvan B. Noroozi, *Why Incentives for "Patent Holdout" Threaten to Dismantle FRAND, and Why it Matters*, 32 Berk. Tech. L.J. 1381, 1419-20 (2017); Core Wireless Licensing S.a.r.l. v. LG Elecs., Inc., No. 2:14-CV-912-JRG, 2016 WL 10749825, at *1 (E.D. Tex. Nov. 2, 2016).

[33] Core Wireless Licensing S.a.r.l. v. LG Elecs., Inc., No. 2:14-CV-912-JRG, 2016 WL 10749825, at *1 (E.D. Tex. Nov. 2, 2016).

presentation stating that a lawsuit was 'preferable' to a license."[34] Unable to negotiate with LG, Core Wireless was forced to sue. Eventually, after years of delay and costly litigation expenses, Core Wireless won the lawsuit, and the court found LG's negotiation behavior so egregious that it awarded enhanced damages, though the enhanced damages were modest—only 20% of the compensatory damages award.[35]

Similarly, in *Certain Encapsulated Integrated Circuit Devices and Products Containing Same*, the ITC found that the patent user Carsem was not only infringing but also potentially engaged in holdout tactics.[36] The Commission noted that "[d]espite an overture from [the patentee], it was [the implementer] that evidenced no interest in pursuing a licensing arrangement with respect to the [] patent. Putting this in terms of contemporary discussions about patent rights and competition, the facts suggest a case of hold-out by the potential licensee rather than one of hold-up by the patent holder."[37] Ultimately, holdout standard implementers like LG and Carsem are themselves responsible for driving much of the SEP litigation taking place in recent years.

Third, SEP holders and SEP users have both changed tactics in response to the increased availability of declaratory judgment actions, using litigation to clarify rights, with both sides employing a strategic "sue first" maneuver to gain control of the litigation process and obtain a favorable forum.[38] The increased availability of declaratory judgment actions is attributable to the Supreme Court's 2007 decision *MedImmune v. Genentech*.[39] Prior to *MedImmune*, one could not file a declaratory judgment action without "an explicit threat or other action by the patentee [] creat[ing] a reasonable apprehension on the part of the declaratory judgment plaintiff that it w[ould] face an infringement suit."[40] But, per the Court in *MedImmune*, all that is required now is "a substantial controversy, between parties having adverse legal interests, of sufficient immediacy and reality to warrant the issuance of a declaratory judgment."[41] SEP litigants have changed practices in response to this expansion. SEP holders fearing the filing of a declaratory judgment action against them as a result of a letter seeking negotiations with an implementer have taken to filing suit first themselves to avoid being called into a hostile court. SEP holders have also brought

[34] *Id.*

[35] *Id.*

[36] Inv. No. 337-TA-794, Final Det. (Apr. 28, 2014).

[37] *Id.* at 49 n.26.

[38] Michael Risch, *Sue First, Negotiate Later*, 61 Ariz. L. Rev. 561, 569-74 (2019).

[39] *Id.*

[40] *Id.* at 563.

[41] *Id.*

declaratory judgment actions arguing that they have not breached FRAND commitments.[42] Likewise, SEP users have brought declaratory judgment actions asserting non-infringement, invalidity and the SEP holder's non-compliance with FRAND requirements.[43]

Finally, the availability of USPTO administrative patent proceedings has led to the filing of lawsuits as a strategic tool. USPTO proceedings, which are overseen by the Patent Trial and Appeal Board ("PTAB"), provide significant procedural advantages for patent challengers, so many SEP users have initiated these proceedings as part of their defense strategy.[44] Thus, SEP holders have incentives to preemptively file lawsuits in district court and advance these lawsuits to a point where a district court judge will decline to stay the case in favor of a parallel PTAB proceeding.[45] Incentives to quickly file and advance the lawsuit are especially pronounced in fast-paced jurisdictions like the Eastern District and Western District of Texas.[46] Another scenario occurs when the SEP user initiates a PTAB proceeding seeking to invalidate the SEP, and the SEP holder responds with district court litigation, hoping to move litigation away from the PTAB.[47] These strategies impact smartphone SEP litigation rates but are primarily a reflection of procedural advantages in PTAB and the law governing declaratory judgments, not evidence of a breakdown of the SEP system.

Conclusions

For several years now, critics have warned of so-called "patent wars" engulfing American innovation and specifically the smartphone industry. These critics have misinterpreted or ignored the empirical data, which paint a starkly different picture.

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[42] *See, e.g.*, Huawei Techs. Co. v. T-Mobile US, Inc., No. 216CV00052JRGRSP, 2017 WL 1129951 (E.D. Tex. Feb. 21, 2017), *report and recommendation adopted*, No. 2:16-CV-52-JRG-RSP, 2017 WL 1109875 (E.D. Tex. Mar. 24, 2017).

[43] *See, e.g.*, HTC Corp. v. Telefonaktiebolaget LM Ericsson, 12 F.4th 476 (5th Cir. 2021).

[44] IPRs are instituted 84% of the time, and among instituted IPRs, claims were invalidated or disclaimed more than 77% of the time. Brian J. Love & Shawn Ambwani, Inter Partes *Review: An Early Look at the Numbers*, 81 U. Chi. L. Rev. Online 93 (2017). By comparison, district courts find a patent invalid 43% of the time. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2510004. John R. Allison, Mark A. Lemley & David L. Schwartz, *Our Divided Patent System*, 82 U. Chi. L. Rev. 1073 (2015).

[45] District courts typically consider three factors when determining whether to stay pending IPR: (1) "whether discovery is complete and whether a trial date has been set;" (2) "whether a stay will simplify the issues in question and trial of the case;" and (3) "whether a stay would unduly prejudice or present a clear tactical disadvantage to the non-moving party." Drink Tanks Corp. v. Growlerworks, Inc., No. 3:16-cv-410-SI, 2016 WL 3844209, at *2 (D. Or. July 15, 2016).

[46] Saurabh Vishnubhakat, *Patent Inconsistency*, 97 Ind. L.J. 1 (2021) (motions to stay district court litigation pending parallel PTAB review are only granted 10% of the time in the Eastern District of Texas).

[47] This is rare: in only 3.3% of parallel PTAB/district court cases is the PTAB proceeding instituted before the district court case. Saurabh Vishnubhakat, Arti K. Rai & Jay P. Kesan, *Strategic Decision Making in Dual PTAB and District Court Proceedings*, 31 Berk. Tech. L.J. 45, 79 (2016).

The data, in context, debunk the myth that patent litigation generally and smartphone patent litigation specifically have reached all-time highs. Moreover, the fundamental premise of the criticism—that more litigation is bad—is misleading. As has been the pattern for much of American history, increases in patent litigation naturally accompany intense periods of innovation. From sewing machines and telephones to semiconductors and now smartphones, so-called "patent wars" (a phrase dating back at least to the 1850s) have hardly slowed the pace of American innovation. With great technological innovation comes great marketplace upheaval. In order to remain competitive in such dynamic marketplaces, companies employ a robust strategic toolset, which naturally includes patent litigation. In this context, critics have fueled a misguided narrative in which patent litigation is out of control—where patents are a weapon wielded in a war, leading to collateral damage in the form of stymied innovation and anti-competitive restrictions on accessing essential technology.

The data support a narrative quite different from the divisive rhetoric. There are no "patent wars" killing American innovation and competition. Any potential casualty would only result from preemptive strikes by policymakers against the longstanding balance between incentives and access at the core of the U.S. patent system. It is high time our science-based policy returns to discounting non-factual rhetoric, and instead taking heed of facts and data. The data show that the patent system in general, and the utilization of SEPs in the smartphone industry, specifically, are fulfilling their objectives as crucial drivers of innovation.