INTELLECTUAL PROPERTY

THE $83 BILLION PATENT LITIGATION FALLACY

An erroneous study misguides government policy.

BY RON D. KATZNELSON

In a seductively plausible narrative disseminated a century ago, the National Advisory Committee for Aeronautics, a U.S. government agency that then oversaw American aviation, accused the Wright Company (yes, *those* Wrights) of abusively enforcing lawfully obtained patents it did not itself practice. Beginning before the United States entered World War I, U.S. Navy and Army officials alleged without evidence that the Wright brothers' patent suppressed the development of the aviation industry, persuading Congress to authorize the condemnation of such private property (aviation patents) without fair compensation to the Wright patent holders or their shareholders.

Because the government was essentially the only buyer of aircraft, it was the infringer intent on suppressing royalty payments. This led to its coercion of property owners into pooling their patented intellectual property at depressed royalty rates, devaluing the Wrights' aviation patents substantially and rendering others practically worthless.

Today, the U.S. government is again attacking intellectual property holders—this time, not for its own infringement, but on behalf of large information technology companies that have effectively set the Obama administration's innovation policy agenda. Once again, the government is disseminating falsehoods about patent owners who license inventions to others having comparative advantages and efficiencies in manufacturing.

These patent owners (e.g., universities, research and development consortia, patent intermediaries, individual inventors, etc.) are variously called Non-Practicing Entities (NPEs) or Patent Assertion Entities (PAEs), but most pejoratively, "patent trolls." The apparent purpose of this last, mythological name is to evoke the specter of dangerous, subhuman creatures that live in the dark and exact tribute on all who pass by. It's clever spin, but it's grotesquely false. The Wright Company was not a patent troll; it held a pioneer aviation patent and sought to expand, not restrict, the domain in which the Wright brothers' inventions could improve American society and its economy. The same goes for many of today's NPEs.

In 2013, the White House Office of Science and Technology Policy (OSTP) published a report entitled, "Patent Assertion and U.S. Innovation," and more commonly called the PAE Report. It purportedly shows that when NPEs seek to protect their legally acquired intellectual property rights, they "act to significantly retard innovation in the United States." The PAE Report further asserts that this results "in economic 'dead weight loss' in the form of reduced innovation, income, and jobs for the American economy."

This follows the same false narrative spun by the Navy a century ago, complete with factual claims that lack legitimate foundation. (Indeed, I have submitted a petition for correction of the PAE Report to the OSTP under the Information Quality Act [IQA], arguing that the report fails to meet all applicable federal standards for transparency, reproducibility, and perhaps most importantly, objectivity. Unlike a century ago, U.S. government agencies like the OSTP are statutorily precluded from disseminating influential information that is demonstrably false, yet, in contravention of the IQA guidelines issued by the Office of Management and Budget, the PAE Report relies on studies that have undergone no peer review, relied on opaque or erroneous methods and surveys, lack objectivity, and contain demonstrable bias.

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A central claim of the report is that patent lawsuits by NPEs recently caused lost wealth of over $300 billion over four years. For this, the report relies on estimates by James Bessen, Jennifer Ford, and Michael Meurer, published in their *Regulation* article, "The Private and Social Costs of Patent Trolls" (Winter 2011–2012). Their paper was the issue's cover story, promoted with an illustration portraying—as the hoary myth requires—oversized humanoids with visibly malign intent, armed with clubs, holding-up innocent travelers for payment at a toll bridge. The unmistakable message: patent owners who license their intellectual property are evil.

Bessen, Ford, and Meurer's article examines the economic effects of patent lawsuits by NPEs, which they define as firms that do not produce goods but rather acquire patents in order to license them to others. Their conclusions are startling. They claim losses to defendants in NPE patent suits during a period of four years "average over $83 billion per year in 2010 dollars, which equals over a quarter of U.S. industrial R&D spending per annum." This, the article says, proves that NPE patent litigation constitutes a "very large disincentive to innovation." In other words, NPEs destroy the incentive to innovate when they protect innovation from the various high-tech highwaymen who otherwise would misappropriate it.

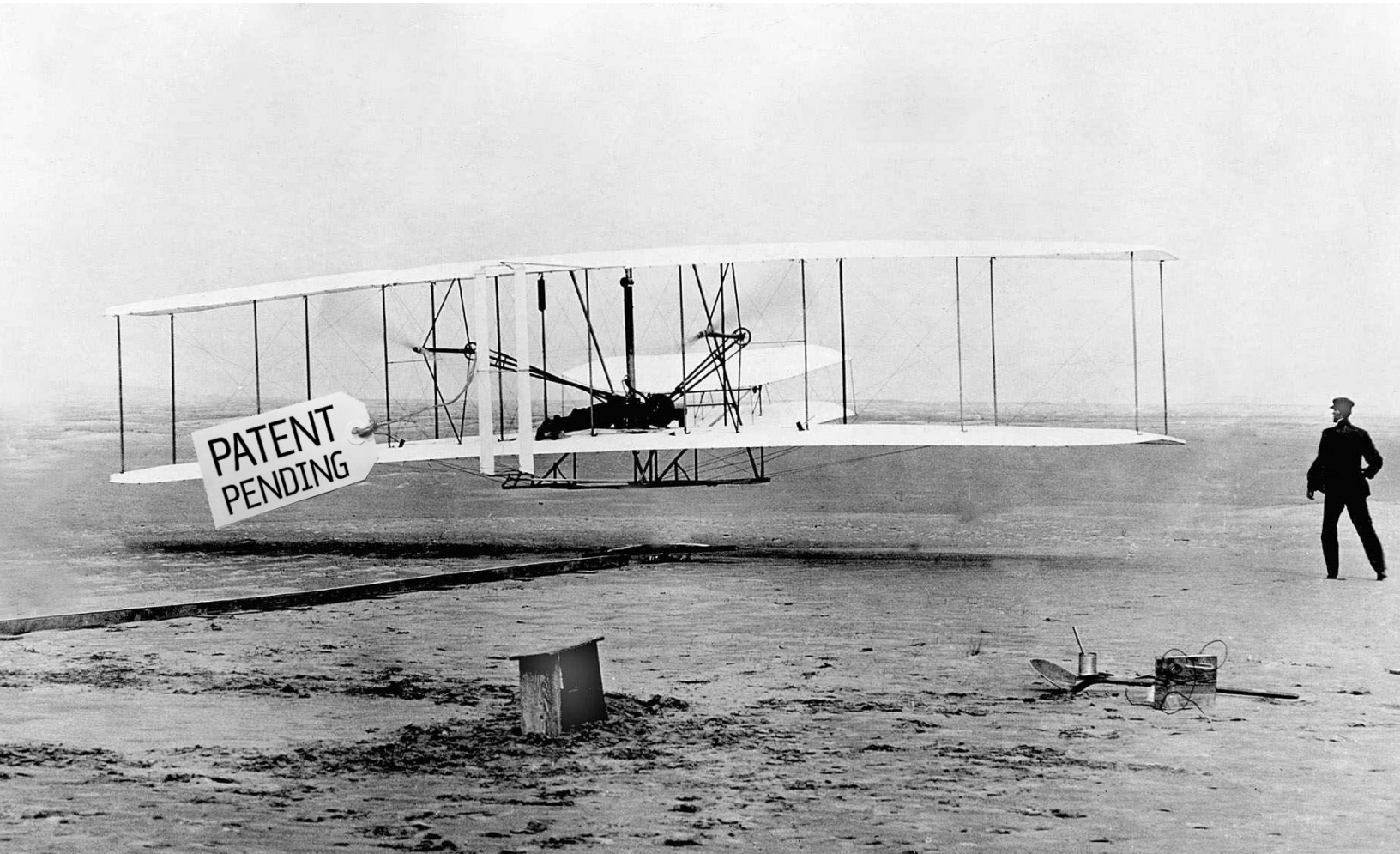
However, Bessen, Ford, and Meurer's article suffers from fundamental analytical and inferential shortcomings. As I explain below, its cost estimates and inferences should be dismissed, along with their indictment of NPEs and similar patent holders.

STOCK RETURN EVENT STUDIES

The authors' thesis is predicated on "event studies" of lawsuit filings—what happens to an alleged infringer's stock price around the filing of a patent infringement lawsuit, after taking into account general market trends and random fluctuations. During such lawsuit "events," stock value declines that are otherwise unaccounted for by estimated market trends (that is, any "abnormal returns") should reflect investors' expectations of changing future profits resulting from the lawsuit.

Event studies are commonly used in economic research. They can be useful indicators of litigation effects—provided that the analysis fully captures the complete event and controls for confounders. But as explained below, Bessen, Ford, and Meurer fail to do this; they do not capture the full event nor do they control for a key confounder.

Event studies reflect the reaction of the market to new information. Thus, abnormal returns arise only if the market is surprised. The economic estimates thus derived are confounded by the uncontrolled and unknown degree of prior information available to the market before the "event." Moreover, if the new information is biased or imparts substantial uncertainty, the market response may exceed the expected net present value of the "event." Or the initial effect may dissipate and undergo correction over a longer period of time not included in the analysis window, a time span



that is often impossible to determine. These are major limitations of the event-study method; indeed, an article by Tulane University law professor Glynn Lunney Jr. critically analyzes earlier work by Bessen and Meurer and notes this very problem. Lunney shows that the change in market capitalization associated with certain kinds of bad news, such as the filing of a lawsuit, exceeds—often by an order of magnitude—any informed estimate of the capitalized loss in the firm's reasonably expected future earnings associated with the bad news.

Bessen, Ford, and Meurer find that the estimated losses by shareholders of defendants were more than 10 times greater than the revenues of the respective NPEs. Therefore, the authors conclude, very little of defendants' losses could represent a transfer to the NPEs, but rather the losses create "a disincentive to invest in innovation ... much larger than any possible incentives provided by transfers to independent inventors via NPEs."

Like in the case of the Wright patents a century ago, the U.S. government is attacking patent holders today, and for the same purpose: to excuse entities that do not want to pay a fair price to license intellectual property.

However, if the NPE lawsuits imposed on the sued technology firms such large disincentives to invest in innovation, we should expect to observe measurable reduction in their R&D spending following the suits. Bessen, Ford, and Meurer present no such evidence to corroborate their "innovation disincentive" inference. In fact, in an earlier study, Bessen and Meurer find that firms sued for patent infringement *spend more heavily* on R&D than those not sued. While likely confounded by a selection effect—companies having large financial resources (thus spending more on R&D) are disproportionately targeted by patent infringement suits—this finding certainly appears inconsistent with their current inference.

Furthermore, the results from their stock event studies admit to a contrary interpretation. Rather than a deadweight loss to innovation, a more plausible interpretation is that the lost market value simply reflects the disappearance of projected gains from patent infringement. The defendant firm's stock value prior to the suit's filing should include substantial built-in market valuation of the firm's free-riding on others' patented technologies. In other words, pre-suit market capitalization recognizes the defendant firm's profits from an industry-wide practice of ignoring patents and widespread infringement, according to a Tusher Center analysis.

The transaction costs of protecting patent rights are substantial when combined with large asymmetries in bargaining power between market incumbent technology firms and small business inventors. Here the Coaseian transaction costs are not only the litigation costs associated with bringing suit and proving validity and infringement, but also the costs of communicating litigation risks effectively to defendants. This suggests that rational stock market actors take into account these barriers to patent enforcement and anticipate significant gains to the firm derived from infringement. These barriers to patent protection mean that substantial disincentives for innovation are already built-in—not for the infringing firms, but for inventors.

Under this alternative inference, the defendant firm's stock value declines upon the news of its being sued for patent infringement because the market realizes the firm's expected gains from infringement may no longer be available. Because the market may now anticipate the firm's elevated risk-aversion to infringement generally (not only of the patent asserted by the NPE), the stock event losses can be substantial. The beneficiaries of the firm's anticipated risk-averse behavior include not only the suing NPE, but many other patent holders, including those that have not sued but stand to realize appreciable gains in licensing payments from the defendant firm.

Bessen, Ford, and Meurer do not acknowledge, let alone ascertain, the degree to which transfers in the form of attendant increases in market value of other patent-holder beneficiaries took place during the study period. Research by Kevin Hassett and Robert Shapiro indicates that in the six years from 2005 to 2011, the estimated value of intellectual property assets increased from $5 trillion to $9 trillion. A significant portion of that $4 trillion increase—$667 billion per year—must be attributable to the appreciating value of patent rights as a result of successful efforts to protect those rights during that period, including efforts by NPEs. Such gains constitute transfers to patent-holding innovators, not a deadweight loss to innovation.

FULL EVENT COSTS

Another problem with the authors' analysis is they fail to include all components of each patent litigation "event." Their method tracks the stock value effects of patent litigation only upon filing of the lawsuit, but they ignore any subsequent related stock value corrections or gains upon disposition of the lawsuit in an announced settlement or a final verdict. The initial stock price hit is conflated by uncertainty over who is right and who is wrong, uncertainty about how the courts will resolve the matter if it goes to trial, and uncertainty about how the parties will settle the matter if they do not go to trial. Put simply, by not including analysis of the disposition of the lawsuit, Bessen, Ford, and Meurer fail to account for the market *economic* information effect of the "complete transaction" of the patent litigation.

Over 80 percent of patent lawsuits settle, according to the University of Houston Law Center's "PatStat" database. Those settlements often include an exchange of rights, transfers, patent licenses, access to technology, or other considerations that create value. Patent lawsuits are simply a means to bargaining in an illiquid market, and like any other market transaction, suits and their resolution can create significant value for both parties.

For each patent suit they examine, Bessen, Ford, and Meurer calculate a Cumulative Abnormal Return (CAR): the detected abnormal return in the alleged infringer's stock accumulated during a five-day period around the lawsuit filing event. They obtain an average CAR of −0.32 percent over their sample of 4,114 NPE suits. However, the authors' method misrepresents the true change in shareholder wealth from patent litigation by selectively choosing to measure incomplete legal transactions: they use only one component of the change in value associated with *beginning* the lawsuit, not the entire suit.

Using identical statistical method and event windows, I carefully examined three of the authors' NPE cases, creating a "full transaction" analysis that accounts for decision, settlement, or other legal disposition. Not surprisingly, the CAR values I obtained were negative on filing of the lawsuit in all three cases, ranging from −0.26 percent to −2.45 percent. However, I found the opposite sign upon case disposition—indeed, sometimes the gain in value on disposition far exceeded the loss on filing.

In a case against Microsoft, a verdict of patent invalidity and non-infringement resulted in a CAR value of nearly +3 percent. In another case, against Yahoo, a verdict finding the asserted patent valid and infringed resulted in a CAR value of +0.11 percent. When an appellate court later found that the patent had *not* been infringed, a correction CAR of +1.33 percent followed. In a third case, against Micron Technology, initial filing produced a CAR of −2.45 percent, but settlement produced a CAR of more than +9 percent. This settlement granted Micron a license to a large patent portfolio, including many more patents than those asserted against it in litigation. When considering patent litigation events in their totality, the net CAR values in these three examples were significantly more favorable to the shareholders of the alleged infringers than the initial negative CARs upon filing the lawsuits. These examples also demonstrate that some circumstances may arise in which net positive CAR is associated with being sued for patent infringement.

Bessen, Ford, and Meurer's omission of the lawsuit disposition from their analysis implicates economically fundamental factors. First, the removal of uncertainty upon settlement would result in favorable stock value corrections for defendant firms. Indeed, event studies find generally that the defendant firms' stock values undergo substantial increase when settlements are announced. Second, as in the Micron case, settlements often result in licenses, access to resources or technology, or other cooperative arrangements that may impart a valuable advantage to the firm over its competitors. Selectively observing only one component event in the patent rights bargaining process, as Bessen, Ford, and Meurer do, is meaningless as an indicator of the actual effects of patent litigation, either on the individual firm or on overall social cost.

The complete lawsuit transaction includes not only a filing event but also either a court verdict or settlement event. A verdict can have a significant effect on the alleged infringer firm's stock return—a change in the firm's shareholder wealth directly related to the lawsuit—yet the authors are silent on this. As to settlements, the authors dismiss summarily (and therefore do not account for) the possibility of stock value corrections upon settlements. The authors contend that two previous event studies of lawsuit settlements "find no such positive correction on average, suggesting that investors overall appear to anticipate settlement correctly, pricing it into the share value." However, neither of the two cited studies actually shows this result; if anything, a contrary result is presented.

One of the settlement studies, by Sanjai Bhagat, John Bizjak, and Jeffrey Coles, finds that defendant firms' stockholders can benefit from a significant wealth increase when settlements are announced. It should be noted that this study tracked only two patent cases, but their resulting CAR was +6.94 percent upon announcement of settlements. The second study, by Bruce Haslem, also had a small sample size of a few dozen patent settlement cases, but it reports both positive and negative CAR trends depending on defendant firm size, with no variance or significance levels provided for the estimates.

Another problem with Bessen, Ford, and Meurer using these studies is that both Haslem and Bhagat et al. categorize their findings by "plaintiff" and "defendant," not by "patentees" and "alleged infringers." Many patent cases arise in "declaratory judgment" context, in which the roles are reversed (a party that fears a future suit preempts and sues first, which would make the patentee the *defendant*). Thus, the average CAR values obtained across defendants in the Haslem and Bhagat et al. settlement studies are necessarily averaged over alleged infringers *and* patentees, masking any CAR trends for alleged infringers.

For the forgoing reasons, Bessen, Ford, and Meurer's reliance on Haslem and Bhagat et al. is problematic. Bessen, Ford, and Meurer need to include settlement and verdict effects analysis in each specific case and calculate a new, more useful CAR. It would not be surprising if they find net *positive* wealth increases for alleged infringers over the sample, meaning that technology coordination and patent licensing transactions (including patent assertions) may increase the economic surplus even if viewed only through alleged infringers' valuations.

MISSING MAJOR SOCIAL COST AND GAIN FACTORS

The authors also miscalculate the social cost of patent litigation because they overlook fundamental economic effects of patent enforcement and because they do not include the wealth effects on parties other than the specific defendants in the lawsuits they covered. "Costs" are net reductions in aggregate welfare. Failing

to net them is an obvious error. The authors dismiss, and thus do not properly account for, transfers to other patentees (as described above), to the defendant's product competitors, to other third parties licensed under the asserted patents, and to third-party patentees having patents in the same technology class as those litigated in the dataset sample. When patents in a given technology area are litigated, the valuation of other patents in the particular technology class often increase as a result of heightened strategic interest in the pertinent technology market. The authors' analysis of firms in the same SIC 3-digit industry class is too coarse for distilling effects on product or technology classes.

Bessen, Ford, and Meurer also ignore substantial efficiency gains from the indirect benefits of patent enforcement when firms are encouraged to "design around" the asserted patent claims. When design-arounds are commercially successful, they often result in substantial increases in social welfare. My colleague John Howells and I have documented empirical evidence showing how design-around patents spur new manufacturers' entry into the market, unleash fierce price competition, spur robust price reductions, and reduce deadweight losses of the patentee's monopoly pricing. We found that from a dynamic efficiency perspective, the greatest potential social welfare enhancement from design-arounds appears downstream over years, even in areas other than the patented technology.

Bessen, Ford, and Meurer discuss at length pecuniary losses to defendants' shareholders resulting from NPE litigation. However, they fail to include the countervailing gains of patent enforcement actions by NPEs (including protecting their licensees) that generally deter misappropriation by non-licensees, counterfeiters, or those that would otherwise impose private costs of lost opportunities from patent infringement.

Finally, the authors ignore the scale and context in which patent litigation costs must be evaluated. Such enforcement exercises actually help protect patent licensing revenues and help generate value-added in patent-intensive industries estimated at $763 billion for the year 2010 alone, according to a 2012 report by the Economics and Statistics Administration and the U.S. Patent and Trademark Office. Moreover, the NPEs' positive role as patent intermediaries is dismissed by the authors without evidence. This is tantamount to accepting the falsehood that middlemen produce no social value, which is especially problematic in this context where patent property rights are highly illiquid and opaque, requiring specific expertise and specialization possessed by NPEs.

CONCLUSION

Bessen, Ford, and Meurer's findings are unreliable. They grossly overstate the social costs of NPE patent litigation—they might even get the sign wrong. Unfortunately, their study has been used to frame the debate about patent legislation.

The U.S. government misinformed the public about the implications of the Wright patents a century ago. Citing Bessen, Ford, and Meurer, the government is attacking patent holders again today, and for the same purpose: to excuse entities that do not want to pay a fair price to license intellectual property they did not create. Substantial harm may have been done to innovation in aviation when the government, as virtually the sole customer, invented and exploited a narrative to justify expropriation for itself of a substantial value of the early aviation patents. Today's assault on patent rights is even more worrisome: it does not merely expropriate the intellectual property created by previously obscure Ohio bicycle mechanics; it misuses flawed studies in an assault on the foundation of America's innovative economy. All this for the benefit of a few very large firms whose markets are protected by network externalities (and thus have no need for the patent system), whose business models call for incorporation of technology from many sources, and that have the economic power to fund massive lobbying campaigns to crush everyone else. *R*

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