

*Innovation and the Patent System:
The Role of Patent Infringement Awards*

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The system for litigating patents has long been heralded as an important institutional contributor to, and at times decried as an impediment of, innovative activity in the United States. Two critical aspects of this system have received relatively little attention from academic researchers: (1) whether identifiable factors tend towards findings of infringement and (2) what factors drive the size of awards in cases where infringement has been found. Our research endeavors to fill this gap by performing empirical analyses on a comprehensive dataset that we have assembled, comprising over 1,300 final patent decisions in U.S. district courts between 1995 and 2008. By analyzing these data, we can better understand which factors help explain whether litigants can successfully argue that their patents have been infringed upon and the kinds of cases for which damage awards are higher, given that infringement is found. In particular, we are interested in whether: (1) findings of infringement follow determinate patterns, (2) key drivers of infringement findings can be identified, (3) identifiable factors lead to increased or decreased infringement awards, and the normative implications of such factors, and (4) patents having characteristics typically associated with greater economic value tend to result in different litigation outcomes, such as more findings of infringement or higher damage awards. To undertake an empirical analysis of the litigation and damages portions of the patent system, we have compiled a dataset comprising infringement awards from over 300 cases decided in US federal courts between 1995 and 2008. We build on a proprietary dataset from PricewaterhouseCoopers, supplementing it with information about the litigants, lawsuits and economic value of the patents-at-issue.

In the first stage of our research, we performed distribution analysis and conducted a loglinear regression of award values. We found damages awards to be highly skewed, with the top eight awards accounting for nearly half of the dataset, and highly predictable, with our regression explaining nearly 74% of the variation in award amounts. Our initial findings were selected as a winner of the 2011 Samsung-Stanford Patent Prize, and we have also presented this data at a number of patent law and economics conferences. Additionally, we have written about the implications of award predictability on patent reform, including the recent shift in Congress away from litigation reforms in the America Invents Act. University School of Law.

The empirical questions to which we now turn involve selection into our initial set of 340 cases and examination of the extent to which our explanatory variables may be correlated with infringement findings. Even if a defendant prevails in court, lawsuits by patent holders with little or no economic value may constitute a drag on innovation. And,

comprehensive data of infringement decisions is key towards understanding incentives to settle infringement claims and settlement value.

In addition, we are expanding our dataset to include information about the appeals process. We plan to incorporate the post-verdict and appellate histories of the 340 cases where damages are awarded to determine whether appeals led to different outcomes. By seeing the process through until the final award determination, we aim to shed new light on the relationship between patent litigation and innovation incentives.

Specifically, in our present stage of research we plan to address the following:

- What factors determine whether patent holders are successful in enforcing their patents through litigation? Do infringement decisions vary by industry, litigant, patent characteristics? What is the relationship between the type of infringement or non-infringement decision (e.g., invalidity, unenforceability or the outcome of claim construction) and the award value that would be expected based on the foregoing characteristics (assuming a finding of infringement)?
- Which specific patent reform proposals are supported or discredited by the findings of our empirical analysis? What additional reforms may be suggested? Specific issues that we plan to address include:
 - The difference in award outcomes when juries determine infringement awards as opposed to judges.
 - Whether the reasonable royalty theory of damages leads to higher award levels than economic value would suggest.
 - The role of patent assertion entities (PAEs) in the litigation process, as highlighted in the FTC's recent report, *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition*.
- To what extent does the post-verdict review process effectively redress anomalies that arise during the initial trial phase of patent litigation?

In sum, using our unique comprehensive dataset, we aim to remove perceived uncertainty that exists regarding the patent litigation process and contribute towards a more solid understanding of the enforcement value of the intellectual property protection offered by patents.