PREDICTING PATENT INFRINGEMENT AWARDS: EVIDENCE AND APPLICATIONS

Defense 2.0: New Strategies for Reducing Patent Risk
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Background / Motivation

- Widespread concern about the "unpredictability" of patent damage awards and its effect on everything from litigation strategy to incentives for innovative activity.

  – 2011 FTC Report highlights "lottery ticket mentality" regarding litigation outcomes in some circles.

  – May help support the business models of PAEs, which can impede innovation efforts.

- Our approach: assemble comprehensive data on damage awards and run straightforward regressions that use readily available, reasonable factors to predict award size.
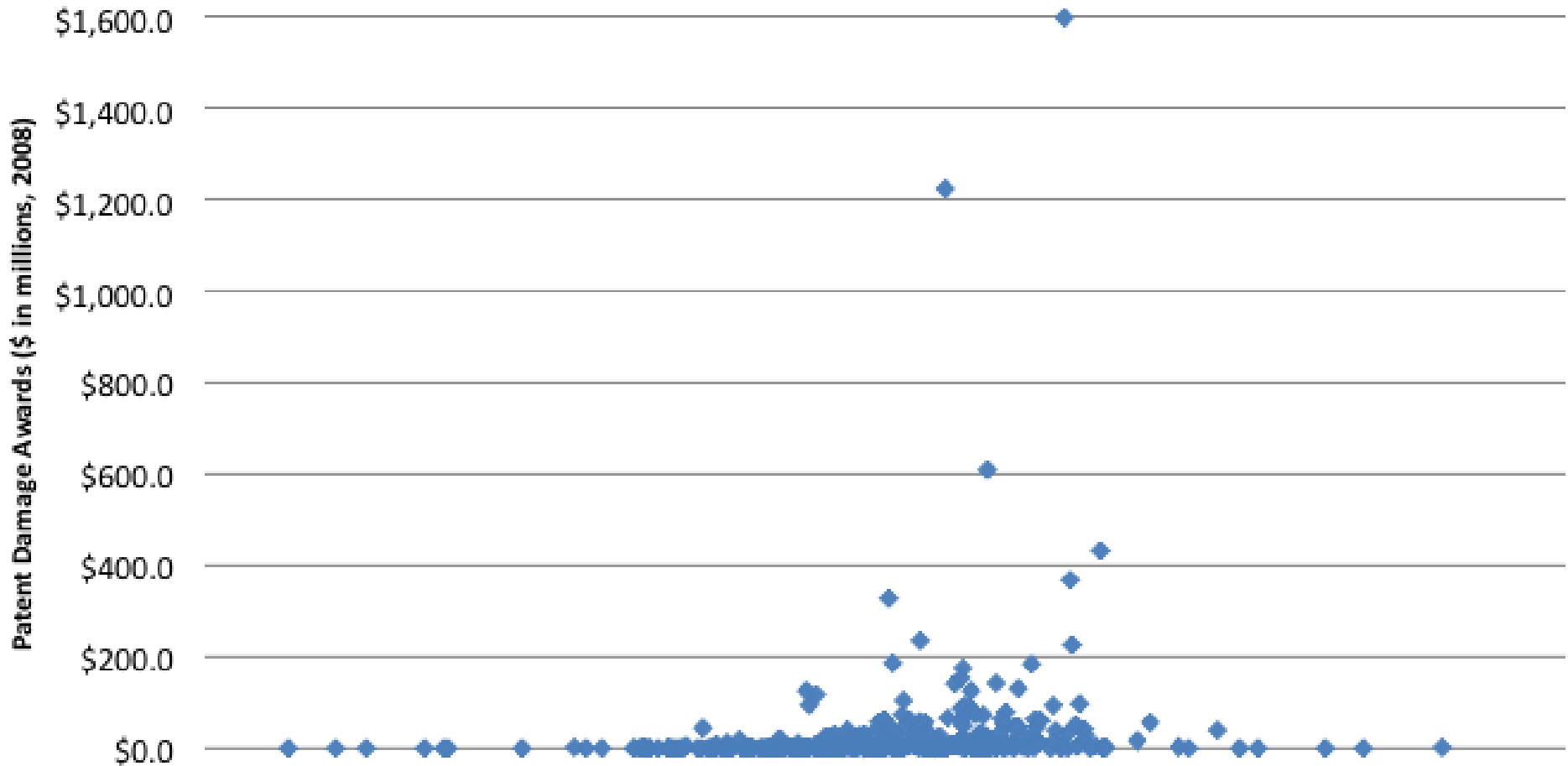
Analysis

- Dataset: comprehensive information from 340 cases decided in US federal courts between 1995 and 2008.
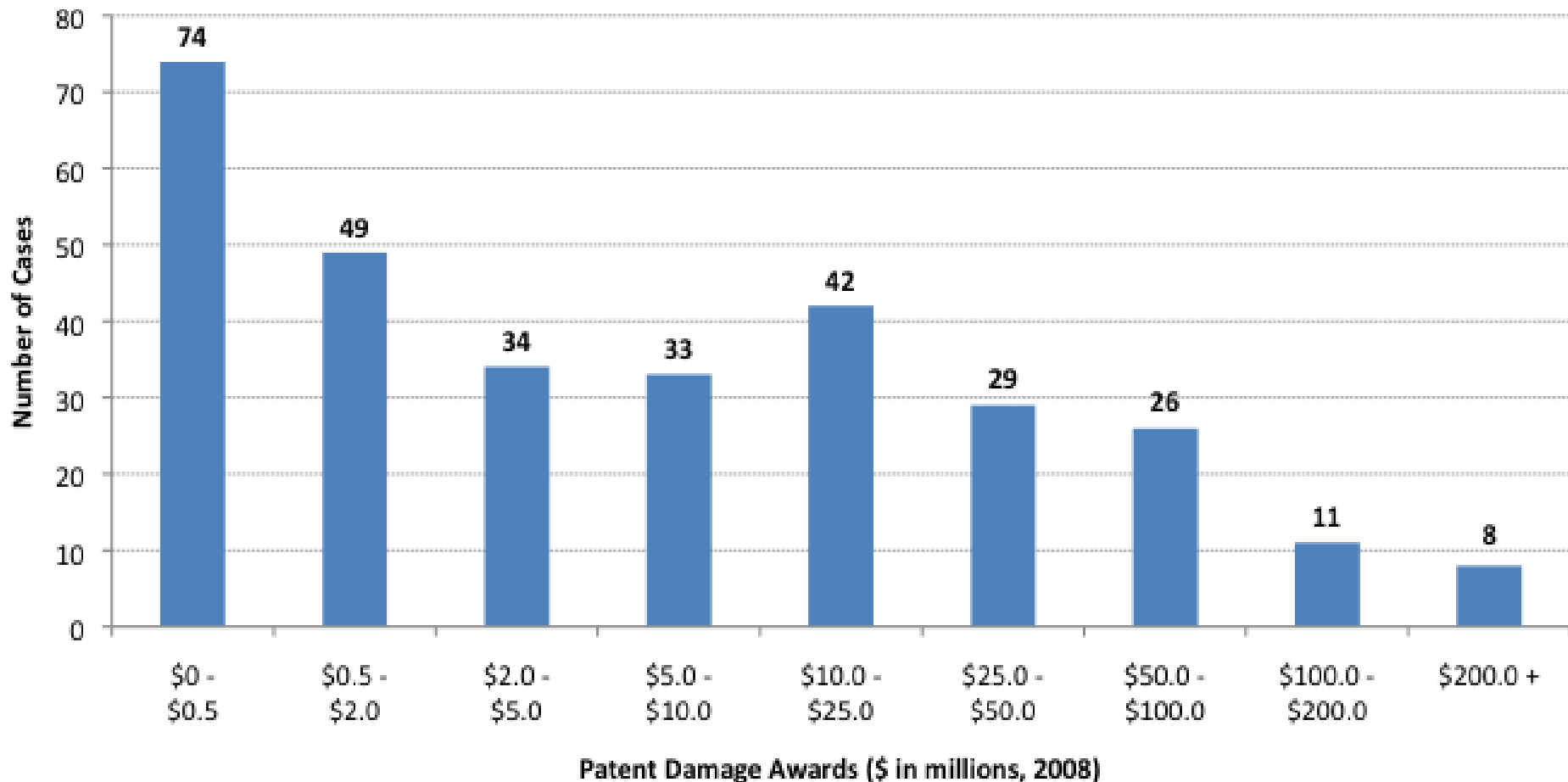
Evolving the PwC Dataset
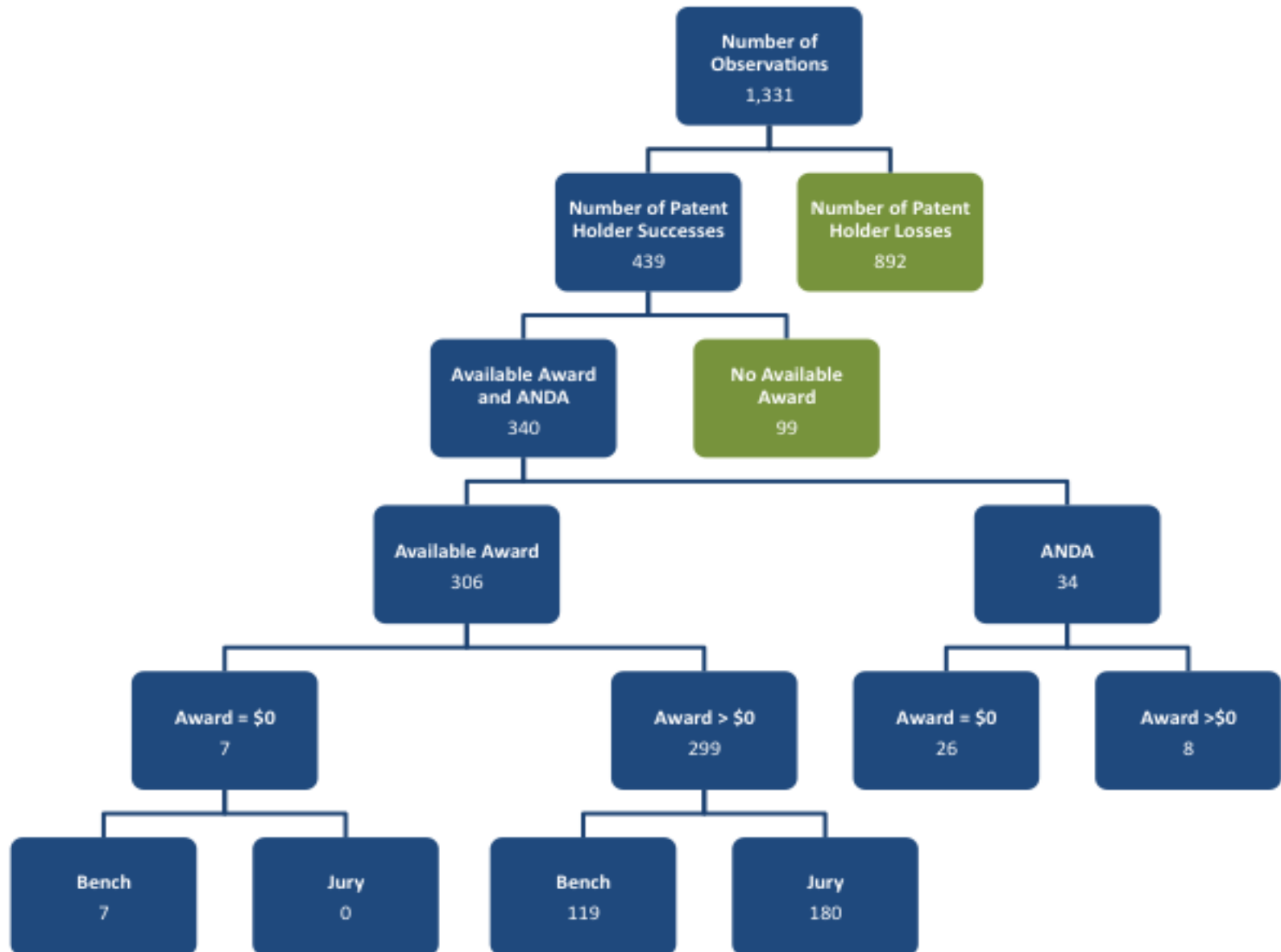
Dataset: Size distribution of damage awards in patent infringement cases, 1995-2008

Size of Actual Patent Damage Awards

Almost the Entire Iceberg: the top eight cases represent 47.6 percent of collective damages

Aggregate Distribution of Patent Damage Awards from 1995 - 2008

Number of Cases

Range	Cases
$0 - $0.5	74
$0.5 - $2.0	49
$2.0 - $5.0	34
$5.0 - $10.0	33
$10.0 - $25.0	42
$25.0 - $50.0	29
$50.0 - $100.0	26
$100.0 - $200.0	11
$200.0 +	8

Patent Damage Awards ($ in millions, 2008)

Analysis

- Dataset: comprehensive information from 340 cases decided in US federal courts between 1995 and 2008.

- Controls: assembled a detailed set of case characteristics, matched to the damage award levels, to act as potential explanatory variables.

Variable Groups	Description	Sources
Category 1: Case Information		
Identifiers	Variables including a unique ID assigned by the authors, the docket number of the case, and the full names of the first listed plaintiff and defendant in the case.	PwC database, Google, Westlaw, and PACER
Dates	Variables including the year of the original award in district court, date the complaint for case was filed, the earliest start date of trial on validity, infringement, or damages, and the number of days between the trial start date and the complaint date.	PwC database, Google, Westlaw, and PACER
Location	Variables including where the case was litigated, including state, circuit, and court.	PwC database, Google, Westlaw, and PACER
Other Case Information	Variables determining if the case contained a summary judgment for the patent holder on validity and/or infringement, if the case involved an invalidated patent-at-issue, and if the patent holder was successful in its patent claims.	PwC database, Google, Westlaw, and PACER
Damage Awards	If the patent holder was successful, variables for the total award amount, lost profits, reasonable royalties, prejudgment interest, enhanced damages, price erosion damages, and other damages. Also included are whether or not the case settled before damages were awarded, whether or not the case resulted in only an injunction, and whether or not the case was an ANDA filing.	PwC database, Google, Westlaw, and PACER
Category 2: Litigant Information		
General Assignee	Includes number of patent assignees associated with the patents-at-issue in the case, the names of the assignees, if one of the assignee(s) is the first named plaintiff or defendant in the case (can be both), if the plaintiff name listed is an assignee (patent holder), and if the patent holder markets or manufactures its technology covered by the patent.	PwC database, Google, Westlaw, PACER, and NBER patent database
NBER Assignee	Dummy variables from the 2002 NBER database which coded the Assignee(s) as "Unassigned," "US, Non-Government," Non-US, Non-Government,", "US, Individual," "Non-US, Individual," "US Government," or "Non-US, Government."	NBER patent database
Assignee Identifiers	Includes the variables determining whether or not the first named plaintiff or defendant are an individual, private entity, public entity, university, part of the U.S. government, a domestic entity, foreign entity, part of the 2009 Fortune 500 list, part of the 2009 Fortune 1000 list, a subsidiary of a parent company.	EDGAR, Manta, Hoover's Online, Westlaw, and Fortune 1000
Assignee Parent Identifiers	Variables for the parent companies of the plaintiff or defendant listed if it was a subsidiary that include whether or not the parent company is a private entity, public entity, domestic entity, foreign entity, part of the 2009 Fortune 500 list, part of the 2009 Fortune 1000 list, if the first named plaintiff or defendant is owned by a joint venture (2 parents or more).	EDGAR, Manta, Hoover's Online, Westlaw, and Fortune 1000
SIC Codes	Variables identifying the 2-, 3-, and 4- digit SIC codes for the potential infringers.	NBER patent database, Google, and Westlaw
Category 3: Patent(s)-at-Issue Information		
General Patent	Variables identifying the number of patent(s) at issue in the case and their type as either utility, reissue, design, or application number.	NBER patent database, Google, and Westlaw
Patent Classification	Includes variables for all patents-at-issue such as application year calculated for minimum and maximum (minimums and maxima differ for cases with multiple patents-at-issue and are the same for cases with only one patent-at-issue); grant date year calculated for minimum and maximum; grant date calculated for minimum and maximum; age of the oldest and youngest patent-at-issue in a case calculated for minimum and maximum; number of claims calculated for minimum, maximum, average and total; number of forward citations through 2002 from the NBER 2002 data, calculated for minimum, maximum and average; number of forward citations through 2010 if the 2002 forward citations were not available, calculated for minimum, maximum and average; the IPC4 classification listed first on the patent; and the PTO main classification for each patent listed in the case.	NBER patent database, Google, and Westlaw

Analysis

- Dataset: comprehensive information from 340 cases decided in US federal courts between 1995 and 2008.

- Controls: assembled a detailed set of case characteristics, matched to the damage award levels, to act as potential explanatory variables.

- Findings: a straightforward regression analysis establishes that our controls explain more than 74 percent of the variation in patent damage awards.

Regression results highlight predictability of damage award levels

Number of obs				338
F(82, 255)				20.440
Prob > F				0.000
R-squared				0.743
Root MSE				2.978

Dependent = *Log of patent damage awards in 2008 dollars*	Coef.	Robust Std. Error	t	P>t	[95% Conf. Interval]	
The case was decided in the court of Federal claims	3.90611	1.24386	3.14	0.002	1.45657	6.35565
The award was decided at a jury trial	3.63275	0.86788	4.19	0.000	1.92363	5.34187
Lost profit damages were awarded	3.04421	0.71642	4.25	0.000	1.63337	4.45506
Reasonable royalty damages were awarded	2.52706	0.74070	3.41	0.001	1.06840	3.98572
Other damages were awarded	1.19986	0.51712	2.32	0.021	0.18150	2.21822
Lost profit damages were awarded at a jury trial	-2.14823	0.91964	-2.34	0.020	-3.95928	-0.33717
The most recent patent grant year over all patents-at-issue in the case	-0.20974	0.09974	-2.10	0.036	-0.40615	-0.01333
Defendant in the case is a public company	0.96190	0.56811	1.69	0.092	-0.15689	2.08070
Defendant in the case is in the Fortune 501 - 1000 rankings	-2.13082	1.17011	-1.82	0.070	-4.43513	0.17350
The case involved an Abbreviated New Drug Application	-0.84477	1.37703	-6.13	0.000	-11.15947	-5.73587

Potential Applications

- Model that "explains" awards can also be used to "predict" damage award levels based on available data (case, litigant and patent-at-issue information).

- Practical applications for accurate damage award predictions include:
  - Benchmarking for settlement negotiations.
  - Inputs to litigation strategy.
  - Assessment of risk for insurance, valuation and transactional purposes.
  - Potential extensions to loss probability and expected values using data from the "non-winning" cases.

Summary

- Systematic empirical evidence suggests that the well-publicized, very large patent infringement damage awards are somewhat idiosyncratic.

- Constructed regression model with detailed control variables explains considerable portion of the variation in observed damage awards.

- Model also permits accurate prediction of damage awards – these predictions are useful for litigation strategy, risk assessment, valuation, etc.