Hearing #4 on Competition and Consumer Protection in the 21st Century

Federal Trade Commission
Constitution Center
October 24, 2018
Welcome

We Will Be Starting Shortly
Welcome

Suzanne Munck
Federal Trade Commission
Opening Remarks

Drew Hirshfeld
Commissioner for Patents
U.S. Patent and Trademark Office
Emerging Trends in Patent Quality

Session moderated by:

Elizabeth Gillen & John Dubiansky
Federal Trade Commission
Office of Policy Planning
Emerging Trends in Patent Quality

Understanding Patent Quality

Alan Marco
Georgia Institute of Technology
School of Public Policy
What gives patents value?

1. Length
2. Breadth
3. Enforceability
4. Certainty regarding #1, #2, and #3
Patent quality

A patent is high quality if it

1. Adheres to the legal standards of patentability
2. Claims a scope that matches the inventive step
3. Clearly articulates #1 and #2
Policy levers for patent quality

- Institutional resources
- Examiner and applicant incentives
- Error correction (pre- and post-grant)
- Technology
- Statutory/institutional reforms

What about the courts?
Some empirical results

- Applicants respond to higher RCE fees by narrowing claims
- Examiners do higher quality examination when being considered for promotion to primary examiner
- Continuations tend to be broader than new applications, and are more frequently the subject of litigation
Emerging Trends in Patent Quality

Hon. Scott Boalick
Patent Trial and Appeal Board
Emerging Trends in Patent Quality

Greg Reilly
Illinois Institute of Technology
Chicago-Kent College of Law
Emerging Trends in Patent Quality

Saurabh Vishnubhakat
Texas A&M University
School of Law
Emerging Trends in Patent Quality

Melissa Wasserman
University of Texas at Austin
School of Law
Emerging Trends in Patent Quality

Panel Discussion:
Hon. Scott Boalick, Drew Hirshfeld, Alan Marco, Greg Reilly, Saurabh Vishnubhakat, Melissa Wasserman

Moderators: John Dubiansky & Elizabeth Gillen
Break

10:45-11:00 am
Emerging Trends in Patent Litigation

Session moderated by:

John Dubiansky & Elizabeth Gillen
Federal Trade Commission
Office of Policy Planning
Emerging Trends in Patent Litigation

Shawn Miller, Joshua Rosefelt, & Rebecca Weires
Stanford University Law School
Topics

• Review the impact of
  • AIA joinder (and *Alice* and PTAB) on filings
  • PTAB on district court patent litigation
  • *TC Heartland* on venue and litigation filings
Impact of AIA Joinder (and Alice and PTAB) on Patent Litigation

• Did these reforms
  • Change the total number of lawsuits?
  • Disproportionately impact PAEs?
Did the amount of patent litigation change in the wake of recent reforms?

Annual Cases Filed – All, PAE and Practicing

20% random sample of cases with plaintiffs categorized in Stanford NPE Litigation Dataset

AIA  PTAB  Alice
Did the amount of patent litigation change in the wake of recent reforms?

Annual Defendant-Lawsuit Pairs – All, PAE and Practicing

20% random sample of defendant-lawsuit pairs with plaintiffs categorized in Stanford NPE Litigation Dataset
Has the mix of patent disputes changed in the wake of recent patent reforms?

Share of Defendant-Lawsuit Pairs – PAE and Practicing

Based on 20% random sample of cases with plaintiffs categorized in Stanford NPE Litigation Dataset
Impact of Joinder (and *Alice* and PTAB) on Patent Litigation

- PAE filings dramatically increased after the joinder rule change but the number of PAE disputes had been increasing since mid-2000s
- Practicing entity litigation fairly stable throughout period of reform
- PAE litigation in decline since AIA, likely due to PTAB and *Alice*
- More practicing entity disputes than PAE disputes in 2017
  - First time since 2009!
Impact of PTAB on Patent Litigation

• Did the availability of PTAB proceedings
  • Change the number of patent lawsuits?
  • Disproportionately impact PAEs?
  • Disproportionately impact ANDA disputes?
PTAB Petitions and Lawsuits Filed

PTAB data from Unified Patents and litigation data from Lex Machina
Percent of Lawsuits Filed with PTAB-Challenged Patent

PTAB data from Unified Patents and litigation data from Lex Machina
Industry Breakdown of Lawsuits with PTAB-Challenged Patents

PTAB data from Unified Patents and litigation data from Lex Machina
Percent of SuitsFiled with PTAB-Challenged Patent – ANDA vs. non-ANDA

PTAB data from Unified Patents and litigation data from Lex Machina
## Litigation Outcomes and PTAB

<table>
<thead>
<tr>
<th></th>
<th>ANDA</th>
<th>Non-ANDA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Filed 2009-2010</td>
<td>Filed 2009-2010</td>
</tr>
<tr>
<td>Average duration (days)</td>
<td>576</td>
<td>482</td>
</tr>
<tr>
<td>Settlement rate</td>
<td>52%</td>
<td>71%</td>
</tr>
<tr>
<td>% decided on SJ</td>
<td>1.8%</td>
<td>3.7%</td>
</tr>
<tr>
<td>SJ win rate</td>
<td>40%</td>
<td>13%</td>
</tr>
<tr>
<td>% decided at trial</td>
<td>6.5%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Trial win rate</td>
<td>72%</td>
<td>67%</td>
</tr>
</tbody>
</table>

PTAB data from Unified Patents and litigation data from Lex Machina
Impact of PTAB on Patent Litigation

• PTAB post-grant review proceedings:
  • May have dampened the number of PAE suits
  • Have been used against ANDA patents as frequently as against other patents
  • Appear to increase the duration of both ANDA and other cases
  • Do not appear to have radically altered case outcomes
Impact of Venue on Patent Litigation

• Did the *TC Heartland* decision
  • Radically change where lawsuits are filed?
  • Reduce the number of lawsuits?
  • Disproportionately impact PAEs?
Annual Cases Filed – All, PAE, and Practicing

20% random sample of cases with plaintiffs categorized in Stanford NPE Litigation Dataset
## Impact of TC Heartland

<table>
<thead>
<tr>
<th>Court</th>
<th>Year Before</th>
<th>Year After</th>
<th>Δ # Cases</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.D.Tex.</td>
<td>1626 (38%)</td>
<td>521 (13.8%)</td>
<td>-1105</td>
<td>-68%</td>
</tr>
<tr>
<td>D.Del.</td>
<td>521 (12%)</td>
<td>898 (24%)</td>
<td>377</td>
<td>72%</td>
</tr>
<tr>
<td>C.D.Cal.</td>
<td>265 (6.2%)</td>
<td>344 (9.1%)</td>
<td>79</td>
<td>30%</td>
</tr>
<tr>
<td>N.D.Cal.</td>
<td>128 (3.0%)</td>
<td>272 (7.2%)</td>
<td>144</td>
<td>113%</td>
</tr>
<tr>
<td>D.N.J.</td>
<td>153 (3.6%)</td>
<td>197 (5.2%)</td>
<td>44</td>
<td>30%</td>
</tr>
<tr>
<td>N.D.Ill.</td>
<td>206 (4.8%)</td>
<td>195 (5.2%)</td>
<td>-11</td>
<td>-5%</td>
</tr>
<tr>
<td>S.D.N.Y.</td>
<td>89 (2.1%)</td>
<td>113 (3.0%)</td>
<td>24</td>
<td>26%</td>
</tr>
<tr>
<td>S.D.Fla.</td>
<td>104 (2.4%)</td>
<td>71 (1.9%)</td>
<td>-33</td>
<td>-32%</td>
</tr>
<tr>
<td>D.Mass.</td>
<td>96 (2.2%)</td>
<td>72 (1.9%)</td>
<td>-24</td>
<td>-25%</td>
</tr>
<tr>
<td>W.D.Tex.</td>
<td>52 (1.2%)</td>
<td>81 (2.1%)</td>
<td>29</td>
<td>56%</td>
</tr>
<tr>
<td>S.D.Cal.</td>
<td>69 (1.6%)</td>
<td>62 (1.6%)</td>
<td>-7</td>
<td>-10%</td>
</tr>
<tr>
<td>M.D.Fla.</td>
<td>71 (1.7%)</td>
<td>59 (1.6%)</td>
<td>-12</td>
<td>-17%</td>
</tr>
<tr>
<td>N.D.Tex.</td>
<td>36 (0.8%)</td>
<td>80 (2.1%)</td>
<td>44</td>
<td>122%</td>
</tr>
<tr>
<td>N.D.Ga.</td>
<td>40 (0.9%)</td>
<td>40 (1.1%)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>4283</td>
<td>3768</td>
<td>-515</td>
<td>-12%</td>
</tr>
</tbody>
</table>
Annual Lawsuits Filed – E.D. Tex. v. All Others
## Impact of *TC Heartland* – PAE vs. Practicing

<table>
<thead>
<tr>
<th>Court</th>
<th>Group</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Practicing</td>
<td>42.0% (353)</td>
<td>50.0% (368)</td>
</tr>
<tr>
<td></td>
<td>PAE</td>
<td>52.7% (443)</td>
<td>44.7% (329)</td>
</tr>
<tr>
<td>E.D. Tex.</td>
<td>Practicing</td>
<td>5.7% (18)</td>
<td>16.0% (17)</td>
</tr>
<tr>
<td></td>
<td>PAE</td>
<td>91.8% (290)</td>
<td>76.4% (81)</td>
</tr>
<tr>
<td>D.Del.</td>
<td>Practicing</td>
<td>60.0% (45)</td>
<td>46.7% (79)</td>
</tr>
<tr>
<td></td>
<td>PAE</td>
<td>38.7% (29)</td>
<td>50.3% (85)</td>
</tr>
<tr>
<td>N.D. Cal.</td>
<td>Practicing</td>
<td>43.5% (10)</td>
<td>51.3% (20)</td>
</tr>
<tr>
<td></td>
<td>PAE</td>
<td>21.7% (5)</td>
<td>46.2% (18)</td>
</tr>
<tr>
<td>C.D. Cal.</td>
<td>Practicing</td>
<td>52.8% (28)</td>
<td>73.6% (53)</td>
</tr>
<tr>
<td></td>
<td>PAE</td>
<td>32.1% (17)</td>
<td>22.2% (16)</td>
</tr>
<tr>
<td>N.D. Ill.</td>
<td>Practicing</td>
<td>26.2% (11)</td>
<td>36.7% (11)</td>
</tr>
<tr>
<td></td>
<td>PAE</td>
<td>66.7% (28)</td>
<td>53.3% (16)</td>
</tr>
</tbody>
</table>

20% random sample of cases with plaintiffs categorized in Stanford NPE Litigation Dataset
PAE Shift to Neighboring Districts?

Based on 20% random sample of cases with plaintiffs categorized in Stanford NPE Litigation Dataset

Before TC Heartland  After TC Heartland

E.D. Texas (5)  1450  405
N.D. Texas (4)  15  55
W.D. Texas (10)  15  70
S.D. Florida (5)  60  45
M.D. Florida (1)  30  45
Impact of Venue on Patent Litigation

- **TC Heartland:**
  - Dramatically decreased filings in the Eastern District of Texas
  - Shifted PAE cases, with largest gain in Delaware
  - May not have impacted the number of lawsuits filed
Emerging Trends in Patent Litigation

Flight from Quantity... Flight to Quality?: An Analysis of Patent Applications and Complaints Following Patent Reform

Colleen Chien
Santa Clara University School of Law
With Major Thanks to

Lex Machina

AskAlice!

HARRITY & HARRITY LLP
INTELLECTUAL PROPERTY ATTORNEYS

INNOGRAPHY
IP Answers. Business Results.

Bill Sundstrom, Ben Dugan, Rocky Berndsen, Peter Glaser, Willian Gvoth, the Lex Machina Helpdesk
Study Motivation

Policymakers have enacted changes to the patent system that were intended to decrease abusive litigation and increase the quality of patents and assertions. Have they worked, based on looking at complaints and applications pre-and post-change?

[Diagram showing timeline with key events and periods labeled: Main Period of Reform, Early '14 IPR Steady State, Apr. Octane Fitness, June Alice, Jan. Teva, June Williams on, Dec. Form 18]
Methodology – Overview

Look for differences pre and post-reform among groups targeted and not targeted by reform using “Diff in Diff” approach.
Methodology - Pre and Post Periods

Pre-Intervention

2010 2011 2012 2013

Main Period of Reform

2014 2015

Post-Intervention

2016 2017 2018

- Early ‘14 IPR
- Steady State
- Apr. Octane Fitness
- June Alice
- Jan. Teva
- Dec. Form 18
- June Williams on
Methodology - Control

The reforms targeted abusive litigation by NPEs based on software patents so we compared “treated” and “untreated” as follows:

- Tech control: Pure Software v. Non Pure SW or Chemistry
Methodology - Traits

Complaints
- Presence of claim charts
- Presence of specific product details like screenshots, accused product descriptions

Patent Applications
- Total words
- Unique words in claim 1

*machine coded except for hand-coding of product details within complaints*
Has there been a flight from quantity?
R1: Cases Involving High Impact Patents (Asserted 10+ Times) are Down
R2: Cases by NPEs of all kind are down
Has there been a flight to quality?
Has there been a flight to quality?
- Complaints
R3: Complaints are Longer
R4: Claim Charts are 14x More Common Than Before
R5: Product Details Are More Common

EXHIBIT B
U.S. Patent No. 6,330,549 Claim Chart

<table>
<thead>
<tr>
<th>Claim: 1</th>
<th>PRUDENTIAL FINANCIAL WEBSITE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A method for protecting a computer program from unauthorized use independently of any methodology for distributing the computer program to prospective users, the computer program including an embedded protective code; the method comprising the steps of:</td>
</tr>
</tbody>
</table>

The Defendant utilizes a method to protect a computer program (e.g., Prudential Financial's web-based applications) from unauthorized use independently of any methodology for distributing the computer program to prospective users, the computer program including an embedded protective code (e.g., the Prudential Financial Web Application is secured by embedded code requiring a HTTPS connection using TLS 1.2).

The RSA, Diffie-Hellman, and Hashed-based message authentication code mentioned below are cryptographic functions required by TLS 1.2.

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(Source: https://pokemon.go.nianticlabs.com/en (last visited Dec. 12, 2017)).

19. Regarding claim element [1d]. As mentioned above, users of Pokémon Go navigate geographic areas during gameplay. As they do, the Pokémon Go video game application continues to receive position indicators indicating the user’s current physical location.
R6: Claim Charts are Much More Common but Not as Much in ED Tex
R7: Claim Charts are Much More Common but Not as Much by PAEs
Has there been a flight to quality?
- Patent Applications
R3: S/W Claims Are Becoming Narrower
R4: S/W Specifications Are Longer

**Average Length of Patent**

- **Initial Difference = 2.5K words**
- **2018 Difference = 3.5K Words**

**Lines:**
- **Pure Software**
- **Not Pure Software**
- **Chemistry**

**Legend:**
- **Diff in Diff = 1K words (8%)**
In Sum

Fewer Scale (10+), PAE, Non-PAE NPE Assertions
More Detail in Complaints
More Unique Words in Patent Claims and More Detail in Specs
Backup
Methodology - sample sizes and sources

We used full populations or (randomized) sample sizes that would estimate the expected proportion of the trait with 5% absolute precision and 95% confidence (N>385) unless otherwise noted.

<table>
<thead>
<tr>
<th>Population</th>
<th>Metric</th>
<th>N and Technique/Technology used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complaints</td>
<td>Claim Charts</td>
<td>All complaints over time (PACER) obtained from Lex Machina</td>
</tr>
<tr>
<td>Complaints</td>
<td>Accused Product Descriptions, Length</td>
<td>~523 (Handcoding for screen-shot and non-screen-shot product names, recitation of elements, links, screenshots), complaints obtained from Lex Machina</td>
</tr>
<tr>
<td>Patents</td>
<td>Unique Words, Word Counts</td>
<td>Analysis by Peter Glaser, Will Gvoth, Rocky Berndsen and team based on technology first described in Dec 2017 IP Watchdog Article</td>
</tr>
</tbody>
</table>
Methodology - sample identification

We identified tech groupings via validated AU mapping (see Chien and Wu, 2018, WIPO Shmoch), used plaintiff codings of Unified Patents (supplemented by “high-impact patent” HIP = more than 10 assertions from 2010-present analysis for missing data)

<table>
<thead>
<tr>
<th>Population</th>
<th>AU Definition (use for complaints and WC analyses)</th>
<th>CPC Definition (used in 101 analysis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Pure Software” Patents and Apps/Complaints</td>
<td>362X, 368X, 369X, 3661, 3664</td>
<td>H04L, H04J, G06T, excluding H04W</td>
</tr>
<tr>
<td>Chemistry Patents and Apps/Complaints</td>
<td>TC17XX</td>
<td>B01B, B01D, B01F, B01J, B01L</td>
</tr>
<tr>
<td>Non-Pure S/W Patents/Complaints</td>
<td>Random Sample minus Software</td>
<td></td>
</tr>
</tbody>
</table>
Emerging Trends in Patent Litigation

John Golden
University of Texas at Austin
School of Law
Emerging Trends in Patent Litigation

David Schwartz
Northwestern University
Pritzker School of Law
Emerging Trends in Patent Litigation

Neel Sukhatme
Georgetown University Law Center
Emerging Trends in Patent Litigation

Panel Discussion:

Shawn Miller, Colleen Chien, John Golden, David Schwartz, Neel Sukhatme

Moderators: John Dubiansky & Elizabeth Gillen
Lunch Break
12:30-1:30 pm
Industry Perspectives on Innovation and IP Policy

Session moderated by:

Suzanne Munck & John Dubiansky
Federal Trade Commission
Office of Policy Planning
Industry Perspectives on Innovation and IP Policy

The Overpatenting Problem in the Pharmaceutical Sector

Tahir Amin
Initiative for Medicines,
Access & Knowledge (I-MAK)
The Problem
Total prescription drug spending in the U.S. is set to double from 2015-2025
Real price reductions occur when the market has multiple competitors.

Average relative price per dose

The Averages:

- There are 125 patent applications filed and 71 granted patents per drug
- Prices have increased by 68% since 2012 (except one drug which decreased in price)
- 38 years of attempted patent protection blocking competition
- These top grossing drugs have already been on the market for 15 years
- Over 50% of the top twelve drugs in the U.S have more than 100 attempted patents per drug
247 total patent applications filed for Humira

89% of all applications filed after Humira was on the market

49% of all applications filed after the first patent expired in 2014
Humira’s 247 patent applications in the U.S. more than triple those in Europe, and almost quadruple those in Japan.
AIA and the Impact of the PTAB
Impact of the PTAB

333

petition institution analyzed for Inter Partes Reviews, Only Orange Book Patents and Cases from Feb 1, 2012 to Aug 14, 2018

For All Time

- 64% of petitions are instituted in full or in part
- 27% of petitions are instituted in full or in part

Last Three Months

- 27% of petitions are instituted in full or in part

Source: Docket Alarm, Inc
Orange book patents increasingly less likely to have all claims removed in written decisions
The Need for Reform
The epidemic of overpatenting

- Raise the bar for the “inventiveness” standard for patents
- Eliminate continuation applications at the USPTO
Public participation in the patent system

- Maintain and improve the existing IPR system
- Create a pre-grant opposition system similar to the one used for trademarks
Unmerited patents listed in the Orange Book and patent transparency for biologics

- Update existing legislation which allows the removal of a patent from the Orange Book if it is invalidated using the Post Grant Review (PGR) or IPR processes
- Improve the quality and transparency of the Orange Book
- Reform the “patent dance” for biologics by requiring patent transparency
Industry Perspectives on Innovation and IP Policy

Hans Sauer
Biotechnology Innovation Organization
Innovation in the biomedical industry

- Emerging biotech companies hold 71% of the global clinical development pipeline
- Most programs are early-stage (phase I + II)
- 43% of clinical programs are partnered with large companies

- The contribution of emerging biotech companies to the rare disease clinical pipeline is even greater
Innovation in the biomedical industry 2

The U.S. produces more new drugs than the rest of the world combined*
Innovation in the biomedical industry 3

- Small company participation
- Robust industrial infrastructure of large, established companies
- Availability of private capital
- Robust legal framework for licensing and tech transfer
- Generous public funding for basic biomedical research
- Drug development infrastructure (clinical centers etc.)
- Highly IP-dependent
Robust generic entry, faster market share gains
Earlier and more frequent generic challenges

- Generic companies challenge patents more often, and earlier

Data from Grabowski et al. J. Med. Econ. (2016)
Effective Market Exclusivity

- Effective market exclusivity of top-selling drugs that experienced first generic competition 2000-2012:
  - All agents: 12.5 years
  - NMEs: 13.8 years
    - First in class: 14.5 years
    - Addition to class: 12.9 years
  - Non-NMEs (new formulations): 10 years
  - Priority review: 14.5 years
  - Standard review: 12 years
  - Special designation (orphan, fast track, accel. appr.): 14.8 years

Data from Wang et al., JAMA Internal Med 175 (2015) 635
Overall NME time to generic entry has been relatively stable for two decades

A different study found that new NMEs approved 1999-2006 had a shorter effective market life than NMEs approved 1994-1998

(12.7 vs 14.1 years)

Grabowski et al. J. Health Econ. 3 (2017) 33-59
Some relevant IP developments

- Patent-eligible subject matter; double patenting
  - ("after the fact" changes in substantive law)
- Indirect and divided infringement
- Second medical uses
- PTAB
  - Parallel or re-adjudication of patents under different standards; joinder; time-barred petitioners; unclear estoppel
- Patent exhaustion
Industry Perspectives on Innovation and IP Policy

Matthew Schruers
Computer and Communications Industry Association
Industry Perspectives on Innovation and IP Policy

Barbara Fiacco
American Intellectual Property Law Association
Industry Perspectives on Innovation and IP Policy

International IP Index

Patrick Kilbride
U.S. Chamber of Commerce
Purpose of an IP Index

• IP Strength:  *If we can’t measure it, we can’t improve it.*

• **Fills significant gaps** in understanding of global IP policy

• Provides an **objective metric** covering all forms of intellectual property

• Establishes a basis for **like-to-like comparisons** among markets

• Enables a **bird’s-eye view** of the global IP landscape

View the full report at www.uschamber.com/IPindex
Categories (8)

1. Patents, Related Rights, Limitations
2. Copyrights, Related Rights, Limitations
3. Trademarks, Related Rights, Limitations
4. Trade Secrets and Related Rights
5. Commercialization of IP Assets
6. Enforcement
7. Systemic Efficiency
8. Membership and Ratification of International Treaties

Indicators (40)

Components:

- Basic protection of the right
- Scope of eligibility
- Definition of the right
- Rule of law and enforcement

View the full report at www.uschamber.com/IPindex
IP and Innovation

The Stronger the IP Environment, the Higher the Number of Researchers
Association between index scores and the number of researchers in R&D

IP and Access

Clinical Trial Activity Gravitates toward Robust IP Environments
Association between the Index, life sciences–related indicators scores, and number of clinical trials per million population

Sources: 1. World Bank; GIPC (2018)
2. clinicaltrials.gov; World Bank; GIPC (2018)

Note: Data are not available for Peru, Saudi Arabia, and Taiwan.

View the full report at www.uschamber.com/IPindex
Industry Perspectives on Innovation and IP Policy

Panel Discussion:

Tahir Amin, Patrick Kilbride,
Barbara Fiacco, Hans Sauer,
Matthew Schruers

Moderators: Suzanne Munck & John Dubiansky
Break

3:00-3:15 pm
Economic Perspectives on Innovation and IP Policy

Session moderated by:

Jay Ezrielev & Julie Carlson
Federal Trade Commission
Office of Chairman Simons &
Bureau of Economics
Economic Perspectives on Innovation and IP Policy

Five Not So Easy Pieces to Make Antitrust Work for Innovation

Richard J. Gilbert
University of California, Berkeley
Department of Economics
Five Not So Easy Pieces to Make Antitrust Work for Innovation

1. Economic Theory and Empirical Evidence
2. Overcoming Antitrust’s Obsession with Market Definition
3. Standard of Proof
4. Treatment of Efficiencies and Appropriability
5. Finding Effective Remedies
Economic Perspectives on Innovation and IP Policy

Invention & Diffusion

James Bessen
Boston University School of Law
Rising Industry Concentration

Year  | Top 4 Concentration
---    |---------------------
1980   | 34
1990   | 36
2000   | 40
2010   | 44
Rising Industry Concentration

Proprietary IT
$250 billion
US Productivity Gap

Relative Labor Productivity

US public nonfinancial firms, 1980 = same

1980  1990  2000  2010

Top 50 Firms  Other Firms
US Productivity Gap

Relative Labor Productivity

US public nonfinancial firms, 1980 = same

Diffusion gap

1980 1990 2000 2010

Top 50 Firms
Other Firms
Global Productivity Gap

Labour productivity: value added per worker (2001-2013)
Initial innovation: powerloom

Output per Hour

First Powerloom

Handloom

An FTC Event | October 23-24, 2018 | ftc.gov/ftc-hearings | #ftchearings
Sequential Innovation: Powerloom

Output per Hour

- Handloom
- First Powerloom

[Graph showing the output per hour over time, with significant increases from 1820 to 1900]
Sequential Innovation: Powerloom

Output per Hour

Sequential Innovation
- Skilled labor force
- Improvement inventions

Handloom
First Powerloom

1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910

0 10 20 30 40 50 60 70 80

An FTC Event | October 23-24, 2018 | ftc.gov/ftc-hearings | #ftchearings
Policy

- IP balance
  - Innovation incentives
  - Diffusion

- Balance lost
  - Innovation incentives strong
  - But diffusion less
  - **LESS** optimal balance since 2000
Policy NOT the only factor, but…

• Patents, especially software
  • Reduce sequential innovation in SW
    • (Galasso & Schankerman 2014)
  • PAE litigation reduces R&D
    • (Tucker 2016, Mezzanotti 2017, Cohen et al. 2018)
Policy NOT the only factor, but…

- Employee non-compete agreements
  - Reduce labor mobility
  - Reduce entrepreneurship
    - (Samila & Sorenson 2011)
Policy NOT the only factor, but…

• Inevitable disclosure doctrine
  • Reduces labor mobility
    • (Png and Samila 2013)
  • Reduces innovation
    • (Contigiani et al. 2018)
Economic Perspectives on Innovation and IP Policy

Michael Frakes
Duke University School of Law
Economic Perspectives on Innovation and IP Policy

Innovation and Non-Practicing Entities

Anne Layne-Farrar
Charles River Associates
Patent “Privateers”

• Relatively new form of Patent Assertion Entity (PAE)
  • Less pejorative name is “hybrid PAE”
  • Retain “back end” financial sharing with patent assignor
• Not covered in the 2016 FTC Study
Claim: Hybrid PAEs Impose Innovation Tax

• Theory that privateers target practicing entities’ rivals
  • Raising rivals costs
  • Acquire and assert low quality patents for nuisance value

• No empirical work testing this theory till now
  • Coauthored work, first round forthcoming in *Journal of Empirical Legal Studies*
Our Findings (Thus Far)

• Patent Quality:
  • Forward citations, # claims, “originality”, and “generality” all higher than avg. for privateer-held patents
  • Privateer higher than non-litigated patents and often higher than other PAEs
• Odds of patent being held by a privateer
  • Higher for patents with higher quality measures, broader scope
• Odds of patent being litigated
  • Higher for patents held by privateer, higher quality measures, broader scope
• Litigation timing
  • Privateer patents experience first litigation later than others
    • Investigating whether due to time till reassignment or delays in litigating
Economic Perspectives on Innovation and IP Policy

Panel Discussion:

James Bessen, Richard J. Gilbert, Michael Frakes, Anne Layne-Farrar

Moderators: Jay Ezrielev & Julie Carlson
Closing Remarks

Rebecca Kelly Slaughter
Federal Trade Commission
Thank You

Hearing #5: November 1