

Innovation and Patents: Connecting Economics and Policy

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Conference on IPR, Innovation, and Economic Performance
OECD, Paris
28 August 2003

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Context: A Pro-Patent Era

Patent rights have been extended and are being more zealously acquired, vigorously asserted, and aggressively enforced.

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Patent Rights (and other IPRs) Extended and Strengthened, 1980-2000

- New patent holders
 - Universities and nonprofit research institutions (Bayh-Dole Act, 1980)
- New patentable subject matter
 - Software (*Diamond v. Diehr*, 1981; *AT&T v. Excel Communications*, 1999)
 - Genetically modified organisms (*Diamond v. Chakrabarty*, 1980)
 - Business Methods (*State Street Bank v. Signature Financial Group*, 1998)
- Longer duration patents in some cases
 - Regulated pharmaceuticals (Hatch-Waxman Act, 1984)

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Other Policy Developments, 1980 – 2000

- Rights holders strengthened v. infringers
 - Court of Appeals for the Federal Circuit → higher validity rates from 1982
 - Process Patent Amendments, 1988
 - Major damage awards (e.g., *Polaroid v. Kodak*, 1991)
 - TRIPS Agreement, 1994
- Patent owners' freedom of action broadened
 - U.S. government (DOJ, FTC) antitrust concerns moderated

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Contributing to...

- Doubling of patent applications and grants (1992-2002)
- Higher renewal rates
- More frequent assertion of patents
- Doubling of U.S. District Court patent suits (1988-2001)

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Coinciding with...

- Rapid technological advance (Internet, biotechnology, nanotechnology)
- Revival of U.S. productivity growth (average 1980-84, 1.4%; average 1998-04, 3%)
- Restoration of U.S. competitiveness

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A Policy Model Being Emulated

- EU Directive on the Patentability of Computer-Implemented Inventions (2003)
- Japan Strategic Council on Intellectual Property
→ “a nation built on intellectual property” (July, 2002)
- EU PRISM Project (June, 2003)

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But in the U.S., Second Thoughts...

- NAS Committee on Intellectual Property Rights in the Knowledge-Based Economy (2003)
- FTC/DOJ Hearings on Competition and Intellectual Property in the Knowledge-Based Economy (2003)
- Berkeley Conference on Patent System Reform (2003)
- AIPLA Fellows
- USPTO 21st Century Plan

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Concerns and Criticisms

- Decline in patent quality
- Difficulty negotiating patent thickets/increased probability of hold-ups, especially in cumulative technologies
- Increase in defensive patenting
- Rising transaction costs (out of pocket and opportunity)
- Incursions on public domain of ideas, S&T data
- Impediments to research
- Disclosure purpose not well served

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A Framework for Evaluating and Improving the Patent System

1. Open to new technologies, while preserving the public domain of abstract ideas, information
2. “High quality” patents
3. Conducive to information dissemination
4. “Timely” decisions and “reasonable” transaction costs
5. Access to technology for further R&D and innovation
6. Trilateral harmonization  mutual recognition
7. Level playing field

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Example: Patent Quality

Patents that meet standards of

- § Novelty
- § Utility
- § Non-obviousness (or represent an “inventive step”)

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Why Patent Quality Matters

- Patents on previous or trivial inventions confer market power without consumer benefit (Levin & Levin)
- Poor patents encourage more infringement and litigation (Merges, Meurer)
- Raising or lowering standards affects character of R&D performed (Hunt, O’Donoghue, et al.)

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Is U.S. Patent Quality Low or Declining?

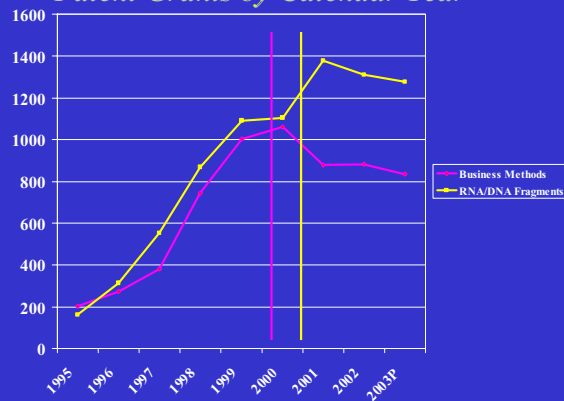
Not tested but testable empirically

- Litigation, re-examination outcomes
- USPTO quality reviews
- Trends in forward and backward patent citations
- USPTO resources v. workload
- Real patent approval rates
- Impact of (2000-2001) changes in genomic and business method standards, procedures

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Patent Grants by Calendar Year



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Would an Opposition System Improve Quality?

- Theoretical case supports (Levin & Levin)
- European experience (Harhoff, Graham, et al.)
 - More valuable patents opposed
 - Not used by large firms v. small firms
 - Significant revocation/restriction rates (1/3 ea)
 - Takes too long
 - Reduces litigation?

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Conclusion

...Economists know almost nothing about the effect on social welfare of the patent system or...other intellectual property.

§ George Priest, Yale Law School, 1986

Since the 1980s, some progress in understanding, but a long distance to go in communicating with policymakers

I cannot remember the last time any meaningful economic or empirical, quantified data was cited in a brief.

§ Judge Paul Michel, Federal Circuit Court of Appeals, 2002

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