Why most patents are invalid

Extent, reasons, and potential remedies of patent invalidity

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Uncertainty in the patent system

- To promote innovation, the patent system needs to provide certainty
- However, there is considerable uncertainty
- Uncertainty has negative consequences for…
  - Patentees
  - Third parties
  - Policy makers
Types of uncertainty

- Grant, scope
  - Brimelow: “If you spend several years waiting for a decision, you and others can play ‘rich man’s poker’, taking a bet on what your rights are going to be…”

- Validity
  - e.g., Lemley, Shapiro (2005), “Probabilistic patents”

- Infringement
  - e.g., Bessen, Meurer (2008) : many patents do not fulfill notice function

- Damages, injunctions
  - e.g. NTP vs. Research in Motion, 2006
Validity

Uncertainty regarding validity is particularly serious:

- ends only with patent expiry
- should be avoidable – examination!
- harder to assess than infringement
- likely a matter of deep purse in search for prior art
- affects every third party, not only individual products

How serious is the issue of patent (in)validity?
Invalidation rates around the world

- UK: ~50%¹
- France: ~27%⁴
- Germany: ~75%⁶
- New Zealand: ~73%³
- USA: ~60%²
- Australia: ~53%⁵

<table>
<thead>
<tr>
<th>Author</th>
<th>Titel</th>
<th>Invalidation Rate</th>
<th>Period</th>
</tr>
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<tbody>
<tr>
<td>P.J. Federico</td>
<td>Adjudicated Patents</td>
<td>60-70%</td>
<td>1925-1954</td>
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</table>

On average, roughly 50% of the patents in invalidation proceedings are ruled invalid.
.... in Germany (2000-2012)

Only 25% of patents in invalidation proceedings reaching a final decision are held fully valid.

Decisions BPatG*
I. Instance
- 40% invalid
- 36% partially invalid
- 24% valid

Decisions BGH
II. Instance
- 35% invalid
- 44% partially invalid
- 21% valid

Final decisions, BPatG or BGH
I. or II. Instance
- 35% invalid
- 40% partially invalid
- 25% valid

* Share “valid” among those BPatG decisions that are then appealed at BGH: 29%

Source: Own research
Question

What *share of all patents* would, if they went through invalidation proceedings, be *ruled partially or fully invalid*?
for German patents:

>75%
Agenda

1. Motivation
2. Selection stages
3. Approach and data
4. Results
5. Discussion
6. Conclusion
Several selection stages prior to validity ruling

1. Infringed patents
2. Patents in infringement suits
3. Patents in nullity suits
4. Suits reaching a final decision (BPatG/ BGH)
5. Patents ruled invalid (completely or partially)
Agenda

1. Motivation
2. Selection stages
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Approach

Data sources

Interviews

Survey

Decisions
Interviews

- 19 hours
- 12 interviews
- 15 interviewees
  - patent attorneys
  - lawyers
  - judges
325 Participants

- Identification of relevant law firms according to JUVE-ranking „Patentrecht/ Patentprozesse“
- 1163 potential contacts in 100 law firms
  - Patent attorneys (75%); lawyers (25%)
  - Response rate: 28%

Implementation

- Several pretests
- Announcement placed in „Rundschreiben der Patentanwaltskammer“ (KRS 5-13)
- Paper questionnaires sent out
- Online questionnaire available
- Two follow-up emails
- Conducted November 2013
Descriptive analysis

- **BPatG**: 1145 decisions (00-12)
- **BGH**: 302 corresponding decisions (00-13)

Multivariate analysis

- **BPatG**: 310 decisions (10-12)
- **BGH**: 52 corresponding decisions (10-13)
1 Motivation
2 Selection stages
3 Approach and data
4 Results
5 Discussion
6 Conclusion
Legal stability of patents in infringement/invalidation proceedings, compared to avg. patent:

Infringement suits: more robust patents
- “I wouldn’t have proceeded on the basis of a non-robust patent [...]” (patent attorney 2)

Nullity suits: less robust patents
- “Well, I assume after all that there would have been some sort of tangential result, affecting the granted patent [...] And this in turn indicates to me that the suits which are filed are not without any prospect of success. “ (patent attorney 2)
- “So, because of this, [the patents in revocation suits] will be a little more robust, statistically speaking. But it would surprise me now if they were twice as robust as standard patents.” (patent attorney 1)

But: many infringement suits trigger nullity suit
- “So I would actually state quite brutally: The revocation suit is the immediate response to the infringement suit” (patent attorney 2)
- “In chemistry, I feel that there is almost always a suit for revocation if an infringement suit is pending. It’s tantamount to malpractice not to [...]” (patent attorney 6)
### Legal stability of patents in infringement/invalidation proceedings, compared to avg. patent:

**Infringement proceedings**

- Significantly less valid: 3%
- Somewhat less valid: 5%
- Roughly same validity: 66%
- Somewhat more valid: 22%
- Significantly more valid: 4%

Mean: $\bar{\theta} = 0.20$

Test median = 0: $p = 0.000$

Survey confirms: more robust patents involved in infringement proceedings

**Invalidation proceedings**

- Significantly less valid: 2%
- Somewhat less valid: 11%
- Roughly same validity: 69%
- Somewhat more valid: 15%
- Significantly more valid: 3%

Mean: $\bar{\theta} = 0.05$

Test median = 0: $p = 0.206$

Survey: legal stability of patents in invalidation proceedings not different from that of average patent
Influence of firm size/budget on likelihood of invalidation

Size plaintiff/ defendant
- “The little guy has an even chance if he deploys equal means. And what is unfortunately observable time and again is that they do not do this. Either they are poorly represented or they’re not willing to invest the money in decent research.” (Patent attorney 2)
- “Not necessarily. Well, size doesn't really confer any premium in itself.” (judge 1)

Budget plaintiff
- “If you search long enough and with sufficiently large amounts of money, that you put into the thing, you’ll eventually find something.” (patent attorney 4)
- “Well, as regards the success of revocation suits, I do think that the investment in good lawyers pays off to some extent” (patent attorney 6)

Larger litigants are not necessarily more successful

However, they are able to invest more money into the proceedings, leading to an increased probability of success
**Influence of plaintiff’s budget on likelihood of finding relevant prior art:**

**Likelihood of finding new prior art, variation with plaintiff’s budget**

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Significantly decreases</td>
<td>-2</td>
</tr>
<tr>
<td>Considerably decreases</td>
<td>-1</td>
</tr>
<tr>
<td>Does not increase</td>
<td>0</td>
</tr>
<tr>
<td>Somewhat increases</td>
<td>1</td>
</tr>
<tr>
<td>Significantly increases</td>
<td>2</td>
</tr>
</tbody>
</table>

Mean: \( \bar{\mu} = 1.41 \)

Test median = 0

\( p = 0.000 \)

Larger plaintiff budget seen to increase probability of invalidation

Note: Varying numbers of respondents picked the response option “no answer possible.”
For cases that settle: what would have been the outcome in case of a decision?

Settled cases

- “In my opinion, this means that behind these very high figures there are, in essence, potentially successful revocation suits.” (patent attorney 6)
- “They would probably also all have been revoked, or many would have been revoked.” (judge 2)
- “These certainly are the weak patents. If one’s pretty sure of one’s position, then one sees it through.” (Patent attorney 1)

Patents in settled proceedings would likely have been ruled (partially) invalid if the suit had reached a final decision.
Survey confirms interview results that settled proceedings would more likely have led to "(partially) invalid" decision than proceedings that ended with a decision.

### Expected outcomes: settled proceedings compared to proceedings ending with a dec.?###

#### Probability of partial invalidation

- **Mean:** $\bar{\theta} = 0.57$
- **Test median=0:** $p=0.000$

#### Probability of complete invalidation

- **Mean:** $\bar{\theta} = 0.18$
- **Test median=0:** $p=0.002$

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**Settled cases**

Henkel, Zischka - Patent Validity - IPSC, UC Berkeley, 2014-08-08
Summary of results

- Patents in invalidation suits: **same legal stability** as average patent

- In the invalidation suit, the plaintiff’s budget increases the probability of invalidation

- Invalidation suits that settle would **more likely have led to invalidation** than those that reach a decision
Overall share of invalid patents?

- Share of all German patents that would be ruled (partially) invalid if they went through invalidation proceedings, with thorough search for prior art?
  - Actual invalidity rulings, final decision: 75%
  - Selection: patents entering invalidation proceedings as robust as average: +/- 0
  - Assuming thorough search for prior art (~ large plaintiff budget): +\(\Delta_1\)
  - Selection: patents reaching a decision (rather than settlement) are more robust: +\(\Delta_2\)

- Hard to quantify \(\Delta_1, \Delta_2\), but both are positive

More than 75% of active patents in Germany should not have been granted as they are, or not at all, by the standards of the patent system.
Is there a problem?

- Lemley (2001) argues for “rational ignorance at the patent office”

- However, that “the overwhelming majority of patents are never litigated or even licensed” does not mean they are innocuous

- They…
  - deter others from using the patented invention
  - create cost for invent-arounds
  - create a risk of being litigated for others
  - provide only uncertain protection for the patentee
  - cause cost for application, examination, grant, monitoring
  - obscure the patent system by their quantity

“Rational ignorance” is no satisfactory explanation
Solution?

- **Spending more on examination:**
  - Will not fix the problem.

- **Increasing fees for examination and maintenance:**
  - Would reduce number of patents, in particular low value patents.
  - However, it would...
    - ... not necessarily be specific to less stable patents
    - ... affect financially constrained applicants more than others.

- **Increasing required inventive step:**
  - Would reduce number of patents.
  - Would affect trivial patents more than others.
  - Would affect “invalid” patents more than others, since those with smaller inventive step will more easily be invalidated through prior art not found by the examiner.
  - Difficult to define; however, it is difficult to define *at any level* (also the current level).
Agenda

1. Motivation and research question
2. Background
3. Approach and data
4. Results: Interviews and survey
5. Results: Regression analysis
6. Discussion
7. Conclusion
Conclusions

- The large majority of all German patents (> 75%) should, by the standards of the patent system, not have been granted as they are, or not at all.

- “Rational ignorance at the patent office” is no satisfactory explanation.

- These patents cause problems to the economy and to innovators in particular.

- Increasing examiners’ time or raising patent fees offer no remedy.

- **Suggested solution:** significant increase of the required inventive step.

Thank you


Greenhalgh, Christine; Phillips, Jeremy; Pitkethly, Robert; Rogers, Mark; Tomalin, Joshua (2010): Intellectual Property Enforcement in Smaller UK Firms. Strategic Advisory Board for Intellectual Property Policy (SABIP).


Patents in infringement & nullity proceedings

~ 550,000 (2012)

1. Granted Patents
2. Infringed Patents
3. Infringement Suits
4. Invalidation Suits
5. Judgment: Invalidation Suits
6. Appeal
7. Judgment: Appeal

Source: DPMA; Freshfields 2011; Blatt für PMZ; own research
Proceeding to a final decision (2000-2012)

BPatG

~ 55%

~ 45%

~ 70%

I

I

PI

PI

V

V

Without judgment*

On the merits

Appealed BPatG-judgments

BGH

~ 40%

67%

20%

13%

I

PI

V

BGH-Judgment by BPatG-judgment (N, TN, V)

~ 60%

I

34%

PI

41%

V

25%

Without judgment*

Final judgment

Source: Blatt für PMZ; own research

*Including withdrawals of the claim, settlements and pending cases

I=Invalid; PI=Partially Invalid; V=Valid
Survey: Value

Value of patents in infringement/invalidation proceedings, compared to average patent:

**Infringement proceedings**

<table>
<thead>
<tr>
<th>Value</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significantly less</td>
<td>1</td>
</tr>
<tr>
<td>Valuable</td>
<td>2</td>
</tr>
<tr>
<td>Roughly same value</td>
<td>31</td>
</tr>
<tr>
<td>Somewhat more valuable</td>
<td>83</td>
</tr>
<tr>
<td>Significantly more valuable</td>
<td>177</td>
</tr>
</tbody>
</table>

Mean: $\bar{\theta} = 1.47$

Test median=0: p=0.000

**Invalidation proceedings**

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<tr>
<td>Roughly same value</td>
<td>37</td>
</tr>
<tr>
<td>Somewhat more valuable</td>
<td>82</td>
</tr>
<tr>
<td>Significantly more valuable</td>
<td>166</td>
</tr>
</tbody>
</table>

Mean: $\bar{\theta} = 1.42$

Test median=0: p=0.000

Survey confirms: More valuable patents involved in infringement and invalidation proceedings.
Survey: Breadth

Breadth of patents in infringement/invalidation proceedings, compared to average patent:

**Infringement proceedings**

- Significantly less broad: 207
- Somewhat less broad: 65
- Roughly same breadth: 11

Mean: $\bar{\Omega} = 0.29$

Test median=0: $p=0.000$

**Invalidation proceedings**

- Significantly less broad: 195
- Somewhat less broad: 71
- Roughly same breadth: 13

Mean: $\bar{\Omega} = 0.31$

Test median=0: $p=0.000$

Survey confirms: broader patents involved in infringement and invalidation proceedings.