Imperfect Property Rights

by James Bessen (BU)
Regulating Externalities

- Command & control
- Pigovian taxes / subsidies
- Property rights
  - “internalize” the externality
“Well-defined & enforceable”
“Well-defined & enforceable”

- Contract enforcement: third parties
- Regulatory compliance
- Uncertain patents
- “Anticommons”, patent thickets
- But not *both* uncertain enforcement, overlapping rights
Why?

- Need to measure performance
  - Different notions of failure
  - Anticommons, weak rights

- New rights
  - Databases, patent extensions, collateralized debt obligations...

- Policy & institutional design
Practical Questions

• Do stronger penalties improve welfare?
  – Ebay

• Are “thickets” a problem if rights are ignored?
  – Biomedical research, software

• Do patent pools always increase social welfare?
Congestion Externality Model

- Asset (pasture)
- Use, $x$ (no. of cattle grazing)
- Value, $v$, per head of cattle
- Externality, $v = v(x)$, $v'(x) < 0$, $v''(x) \leq 0$
- User marginal cost, $c$ (cost of cow)
Social welfare

- $S = (v(x) - c) x$

- Optimum condition:
  $x^* \text{ such that } v(x) = \frac{c}{1 - \epsilon}$
Regulation

- Set $x^*$
- Tax $x$
- Grant property right to asset
Arrow: Pareto optimal price

• Rent maximizing price = Pareto optimal price, $p^*$

• IF...
  – competitive market (zero profit to buyers)
  – single owner
  – exclusion
  – “well-defined & enforceable” rights
Institutional requirements

- Contract
- Property
Property & Exchange

- Private property
- Legally enforced
- Exclusionary
<table>
<thead>
<tr>
<th><strong>Institutional feature</strong></th>
<th><strong>Contract</strong></th>
<th><strong>Exclusionary property</strong></th>
<th><strong>Property example</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Affected parties</td>
<td>Two signers</td>
<td>The world</td>
<td></td>
</tr>
<tr>
<td>Definition / specification</td>
<td>Any form that can be interpreted by a court</td>
<td>Standardized forms (<em>numerus clausus</em>)</td>
<td>Standard land deed</td>
</tr>
<tr>
<td>Access to specification</td>
<td>Private</td>
<td>Public</td>
<td>Deed registry</td>
</tr>
<tr>
<td>Rights clearance</td>
<td>Seller representations</td>
<td>Clearance search</td>
<td>Title search</td>
</tr>
<tr>
<td>Interpretation</td>
<td>By court</td>
<td>By court and third parties</td>
<td>Surveyors</td>
</tr>
<tr>
<td>Use rights</td>
<td>As specified for the two parties</td>
<td>Any use not restricted by law</td>
<td>Residual rights</td>
</tr>
<tr>
<td>Exclusionary rights</td>
<td>As specified for the two parties</td>
<td>Excludes the world with limited exceptions</td>
<td></td>
</tr>
<tr>
<td>Monitoring</td>
<td>Private</td>
<td>Private and public (police)</td>
<td>“riding the fences”</td>
</tr>
<tr>
<td>Enforcement</td>
<td>Public (court)</td>
<td>Public (court)</td>
<td></td>
</tr>
<tr>
<td>Remedies / penalties</td>
<td>Damages and injunctions</td>
<td>Damages, injunctions, and criminal penalties</td>
<td></td>
</tr>
</tbody>
</table>
What if rights are
not
perfectly defined &
perfectly enforced?
Imperfect enforcement

- Probability enforcement fails, $q > 0$
Imperfect definition

=> Overlapping rights

- Poorly defined (institutional failure)
  - software patents
  - corruption

- Technological mismatch
  - Sub-divided < optimal size
    - house plots < shopping mall
<table>
<thead>
<tr>
<th>Enforcement</th>
<th>Single</th>
<th>Multiple</th>
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</thead>
<tbody>
<tr>
<td>Relatively certain</td>
<td>Arrow ideal</td>
<td>Moscow storefronts</td>
</tr>
<tr>
<td>Mixed</td>
<td>--</td>
<td>Squatters</td>
</tr>
<tr>
<td>Uncertain</td>
<td>Zimbabwe</td>
<td>Zimbabwe</td>
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</tbody>
</table>
Legally enforced exclusive property right

- establish notice?
  - N
  - Y
    - contract?
      - N
      - Y
        - pay?
          - N
          - Y
            - lawsuit
              - N
              - Y
                - settle?
                  - N
                  - Y
establish notice?

contract?

pay?

settle?

lawsuit

Single, $q < q$

$X = X^*$
Single, $q > q$

- establish notice?
  - Y
  - N
- contract?
  - N
  - Y
- pay?
  - N
  - Y
- settle?
  - N
  - Y

X > X*
Multiple, relatively certain

- establish notice?
  - Y
  - N
- contract?
  - Y
  - N
- pay?
  - Y
  - N
- settle?
  - Y
  - N
- lawsuit

\[ X < X^* \]
Multiple, mixed

- establish notice?
  - Y
  - N

- contract?
  - Y
  - N

- pay?
  - Y
  - N

- settle?
  - Y
  - N

- lawsuit

$X < X^*$
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<th>Claimants</th>
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<tr>
<td></td>
<td>Single</td>
</tr>
<tr>
<td>Relatively certain</td>
<td>Optimal</td>
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<td>--</td>
</tr>
<tr>
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<td>Overuse</td>
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Ignore rights

Disputes & litigation
Different behaviors/medicines

- Anticommons
  - little litigation
  - collective rights organizations
    - strong private incentives

- Notice failure
  - little clearance
  - litigation & disputes
  - weak incentives for collective action
## Stronger penalties

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<td>Optimal</td>
<td>Anticommons (underuse)</td>
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<tr>
<td>Mixed</td>
<td>--</td>
<td>Notice failure (underuse)</td>
</tr>
<tr>
<td>Uncertain</td>
<td>Overuse</td>
<td>Ambiguous</td>
</tr>
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Conclusion

- Different maladies => different medicines
- Rights need empirical evaluation
  - new rights
- Complex institutions