

Patent value and citations: Creative  
destruction or strategic disruption?  
Discussion

Bronwyn H. Hall  
UC Berkeley and U of Maastricht

# Intro

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- ▶ **Interesting finding and paper**
  - ▶ Why does value appear to increase and then decline with forward citations when we look at NPE licensing revenue?
  - ▶ Note that figure also shows substantial increase in variance of cites at higher values
- ▶ **Some queries about the model**
- ▶ **Some queries about the data**
- ▶ **Some suggestions**

# Model

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- ▶ **Key assumptions for productive patents:**
  - ▶ All patents on a technology trajectory cite all previous patents
    - ▶ So citations grow automatically with patenting in a technology cluster
  - ▶ Diminishing returns in two senses
    - ▶ Quality improvements
    - ▶ Congestion costs for R&D
  - ▶ => value of entry declines as a trajectory grows, and older patents receive more cites, so value and cites are correlated
- ▶ **Query:** why does radical innovation (a new cluster) destroy the value of entry in the current one?
- ▶ **Comment:** Figure 2 seems to accord with data

# Model

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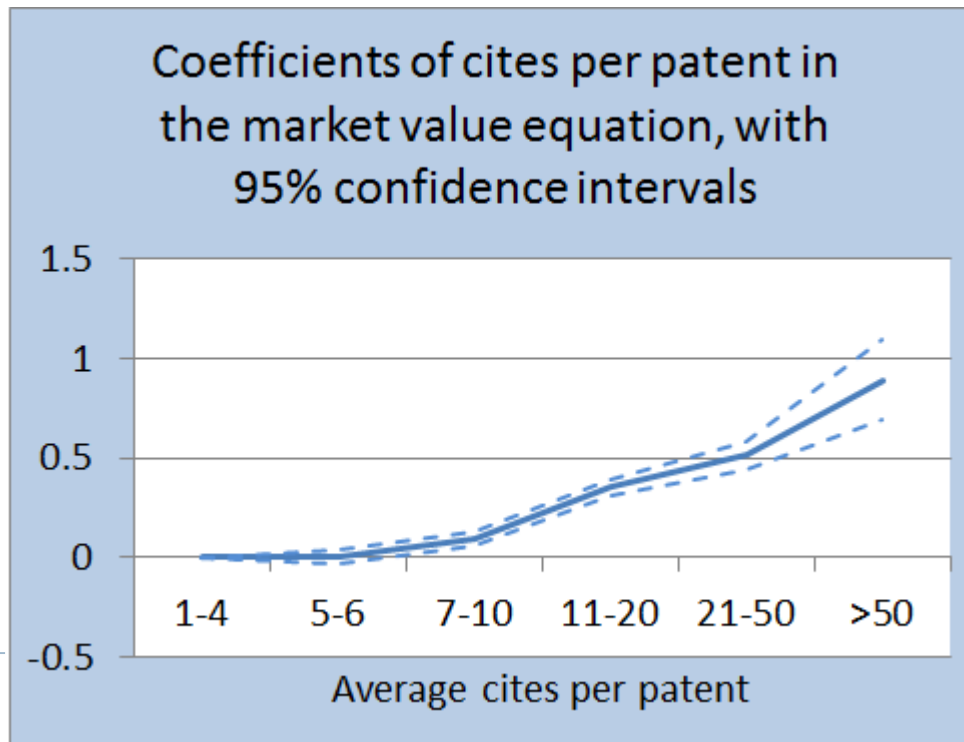
- ▶ Key assumptions for strategic patents
  - ▶ Firm with radical innovation can take out other patents that raise the cost of subsequent innovation on that trajectory
  - ▶ Free entry, so higher cost implies less entry
- ▶ Value to incumbent increases with less entry, and citations decrease
- ▶ Query: what if incumbent obtains many strategic patents that cite his productive patent? Won't that increase citations?
- ▶ Query: why would patent be transferred to NPE if foreclosure is successful?
- ▶ Comment: Figures 3 and 4 have decreasing variance as value increases, unlike data

# Puzzle: contrasting results in HJT

- ▶ Hall, Jaffe, Trajtenberg (2005) relates firm market value  $V$  to assets, R&D capital, and patent portfolio (US firms).

$$V_{it} = F[A_{it}, (K_{it} / A_{it}), (P_{it} / K_{it}), (C_{it} / P_{it})]$$

- ▶ Where  $A$  = assets,  $K$  = R&D,  $P$  = patents,  $C$  = forward cites; all are stocks.



Coefficients measure elasticity of value with respect to cites per patent.

>50 cites: 20 firms, mostly in computing & electronics, relatively small

# My main concern - representativeness

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- ▶ We do not really know much about the NPE(s) that are the source of data – what kinds of patents do they buy?
- ▶ Cotropia, Kesan, and Schwartz identify 8 types:
  - ▶ (1) university;
  - ▶ (2) individual inventor;
  - ▶ (3) large patent aggregator;
  - ▶ (4) failed operating or start-up company;
  - ▶ (5) patent holding company;
  - ▶ (6) operating company;
  - ▶ (7) IP holding company owned by operating company;
  - ▶ (8) technology development company.
- ▶ I am guessing that the one(s) here are (3), (5), or (8)
- ▶ Would a firm sell a very valuable productive patent to an NPE?
  - ▶ Probably not. So the tail of value is likely to be censored in unknown ways.
  - ▶ We would like to know more about the characteristics of the licensing deals in the upper tail.
- ▶ So I am not really persuaded by the authors' arguments.

# Self citations

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- ▶ The model highlights the importance of distinguishing between self citation and others – can this provide a way to test model assumptions?
- ▶ HJT find self-citations worth twice as much to firm as other citations
- ▶ Belenzon finds that grandson cites back to firm are valuable, whereas grandson cites by other firms reduce value

## Other comments

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- ▶ How do you know that licensing deals are not driven by litigation threats?
- ▶ Revenue allocation will depend on bargaining position (threat levels)
- ▶ The technologies in these data are a restricted set – but probably the technologies where the strategic patenting is the greatest
  - ▶ Results probably do not generalize
- ▶ Finally, it seems very odd that the NPEs believe the sample size reveals anything confidential, once we know it is tens of thousands.
- ▶ Fix the cite to Jaffe Trajtenberg Romer (he just wrote the forward)