Empirical Studies of High Tech Startups & The Patent System

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Cuing off RZ’s Remarks

• Agree that markets for patents is an area for research in which some issues are best addressed by one discipline (e.g., law) and some by others (e.g., social science or business).

• But collaboration among researchers from different disciplinary perspectives is better than each working separately, reading others’ works.

• Need for more empirical work to inform policy analysis.

• Especially valuable if these research projects also involve advisory board members with industry expertise.
2008 Berkeley Patent Study

• With funds from the Kaufmann Foundation, Berkeley Center for Law & Technology was able to hire two fellows to conduct a survey of high tech entrepreneurs to understand the role that patents and other IP play in facilitating co
  – One fellow in law (Ted Sichelman)
  – The other fellow was a social scientist (Stu Graham)
• Both types of expertise important
  – Lawyers articulated what they thought would be useful to know
  – Social scientists know how to operationalize through survey, also knew what prior studies had found
• Advisory board of academics, high tech lawyers, VCs, industry experts
2008 Berkeley Patent Survey

- Survey of high technology entrepreneurs in 2008
- Predominantly software, computer hardware, biotech, & medical device firms
- Surveys mailed to @15K firms drawn from Dun & Bradstreet (D&B) & Venture Expert (VX) databases
- 1332 unique responses
  - 12% response rate for SW/HW, 24% for biotech/MD (correcting for returns, dead firms)
  - No statistically significant differences between respondents & non-respondents in firm characteristics, patenting activity
  - joint work with Stuart Graham, Rob Merges, Ted Sichelman
Key Findings

- Patents more important to high tech entrepreneurs than some studies had previously reported
- Venture-backed firms value patents more, 40% of D&B firms, 82% of VX firms had patents
- But striking variation by industry sector
  - 75% among D&B biotech/med devices, 95% of VX biotech/med devices firms had patents
  - 25% of D&B SW firms, 67% of VX SW firms
- But patents perceived to be fairly weak incentive to invent new products or processes
  - No to slight incentive for D&B firms
  - Only slight incentive for VX firms
Most Relevant Finding to Conf.

• Focusing on those who owned/applied for patents, we were interested in how they got patents, how many patents from what source
  – Biotech/med devices/hardware:
    • Average of 18 patents owned/applied for
    • Average of 5 of these patents had been purchased by or assigned to firm
    • Average of 3 brought in by founder
  – SW firms:
    • Average of 6 patents owned/applied for
    • Close to 1 of these patent had been purchased or assigned
    • Average of 1 brought in by founder
IMPTC TO COMPETITIVE ADV:
SW on left               non-SW on right
• 2.23 1st mover
• 1.74 comple. assets
• 1.64 ©
• 1.57 TM
• 1.57 secrecy
• 1.52 diffic of RE
• 1.18 patent
• 0 = unimpt
• 1 = slightly
• 2.48 1st mover
• 2.3 patents
• 2.08 secrecy
• 1.77 comple. assets
• 1.65 diffic of RE
• 1.45 TM
• 1.27 ©
• 2 = impt
• 3 = very impt
Motives for Getting Patents

• Preventing copying by competitors most important overall (3.5 on 4 point scale)
• Obtaining licensing revenues least important (average of 2.3 on 4 point scale)
  – But 3.1 for biotech/med devices, only 1.17 for SW firms
• Improving chances of securing investment, chances for liquidity important (just over 3 on 4 point scale)
• Some importance for enhancing reputation, improving negotiating position with other firms
Investors Care about Patents

- 2/3 of D&B firms who had negotiated with VCs reported that patents were important to these VCs; also important to angels
- 3/4 of venture-backed firms said patents were important to their funders
- But even 30% of startups who were negotiating with friends & family reported that patents were perceived as important
Patent Importance to Funders

• SW firms with patents perceived them to be impmt to VCs (65%) & other investors (50%)
  – Yet, non-SW firms perceived patents as even more impmt to VCs (86%) and other co investors (78%)
  – Less impmt to angel SW investors (43%) than to angel non-SW investors (74%)
• Patents perceived as less impmt to families (22%) and commercial banks (18%) funding SW cos
  – Yet, 31% of VX SW firms reported banks thought patents were impmt
  – 2X as many non-SW firms thought patents impmt to families, 3X to banks CBs
Why Do Investors Care?

• Presumably most investors care about patents because they think patents will help their owner-firms to be successful
  – Quality signal
  – Protection vs. competitive copying
  – Barrier to entry as to particular niche of this firm

• But funders may partly think patents are important because they may be an asset from which some revenues can be generated if the company goes under
Policy Implications?

• Abolishing software patents would probably not affect incentives to invest in invention in this field
  – Yet software startups are not perceiving the patent system as a drag on innovation

• Biotech/medical devices depend far more on patents as incentives to invent and as strategy for achieving competitive advantage
  – So diminishing patents in this field may undermine incentives

• Some patents from dead startup are likely finding their ways into market for patents
  – Not clear whether this is promoting investment in innovation
  – That would be worth knowing so we could assess whether to use policy levers to encourage or discourage these markets