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When to sell an idea? How patent protection and information disclosure reduce frictions in the market for technology.

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Abstract

When to sell an idea? How patent protection and information disclosure reduce frictions in the market for technology. Davide Andrea Cannito, Copenhagen Business School, INO. Enrolment 01/01/2014, Expected Defence 01/01/2017. E-mail: dc.ino@cbs.dk (State of the art) The seminal contribution by Arora et.al. (2001) and the subsequent large body of literature stressed the benefits of an efficient market for technology (henceforth MFT): increasing division of labour among innovators, reducing R&D duplication and accelerating the commercialization of ideas. Much less attention has been dedicated to the frictions that prevent MFT from keeping up with these expectations. An exception is represented by two recent contributions emphasizing the importance of the patent system in reducing these frictions. Gans et. al. (2008) focus on the expropriation risk stemming from the public nature of knowledge. They identify a spike in licensing hazard (+70%) soon after the patent allowance event, when there are (sufficiently) well defined IPRS protecting the invention. Hegde and Luo (2015) exploit a major change in USPTO regulation, the American Inventor's Protection Act (AIPA), introducing pre-grant publication (18 months after filing), to show that a credible disclosure of information by the patent office has a positive causal effect on the probability of licensing, even in conditions of loose appropriability. (Research Gap) Exploiting the effect of the AIPA on an understudied and large part of the market for technology, i.e. the change in patent ownership (assignments), I investigate the relative roles of information disclosure and patent protection, examining the differential effect associated with distinct levels of complementary assets among assignors. (Theoretical arguments) In a frictionless market, transactions involving patents should take place immediately after the application is filed, i.e. the moment that starts the clock for the 20 years of patent protection. The market imperfections discussed by Edge et. al (2015) and Gans et. al (2008), in the licensing case, delays transactions. Even though both information disclosure and patent protection increase the likelihood of a patent being assigned, the former mechanism operates differently in the presence (or absence) of complementary assets. Consider assignor A that can handle the whole innovation process internally: even after the publication of the application, he can actively reduce the uncertainty surrounding the quality of the invention through commercialization and further development, recouping in part R&D costs. On the contrary, for assignor B with only research facilities, the post-grant period is associated with unavoidable loss of monopoly profits and few opportunities to reduce uncertainty about the intrinsic value of the invention. If pre-grant publications contributes to uncertainty dissipation, rather than to a positive expectation in terms of

grant decision, I expect type B assignor to react to the policy change by anticipating the assignment moment in the pre-grant period and cluster around the publication date more than type A assignor. Type B assignor optimal strategy is to minimize the period during which the invention is unproductive, as type A assignor depends less on the benefits of publication. (Data and Method) To test these predictions, I use the USPTO assignment database (Serrano, 2010). The USPTO collects data on the transfer of patents in the form of assignments (6 million assignments involving 10 million applications in the period 1970-2014), registering Assignor and Assignee name, the execution date among parties and the registration date at the USPTO. I identify all transactions that involve a university and private firm and for each patent I collect information from the NBER patent data file. I match this set with a comparable control group of industry-industry transactions on the basis of patent characteristics and leverage the introduction of pre-grant publication in a diff-in-diff strategy to identify the treatment effect of the policy change on the probability of pre-grant transfer for the two groups. I complement the analysis with an untreated group of University-Industry assignments registered at the EPO. (Results) Yet to come. References: Arora, A., A. Fosfuri and A. Gambardella (2001), 'Markets for Technology: The Economics of Innovation and Corporate Strategy', The MIT Press: Cambridge, MA. Gans, J. S., Hsu, D. H., & Stern, S. (2008). The Impact of Uncertain Intellectual Property Rights on the Market for Ideas: Evidence from Patent Grant Delays. *Management Science*, 54(5), 982-997. Hegde, Deepak, and Hong Luo. "Patent Publication and the Market for Ideas." Harvard Business School Working Paper, No. 14-019, September 2013. (Revised August 2015.) Serrano, C. J. (2010). The dynamics of the transfer and renewal of patents. *RAND Journal of Economics*, 41(4), 686-708

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transfer for the two groups. I complement the analysis with an untreated group of University-Industry assignments registered at the EPO. **(Results)** Yet to come.

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