Jeffrey M. Kuhn jeffrey_kuhn@haas.berkeley.edu
PhD Candidate, Haas School of Business, UC Berkeley 510.457.6858

NBER GRANT PROPOSAL

Overview

An innovator seeking financial returns on innovation has two options—commercialize directly via the product market or sell rights to commercialize via the market for ideas. The market for ideas is enabled by patent rights, which define the meets and bounds of innovation for the purpose of both infringement analysis and rights transfers. Although similar in many ways to conventional property rights, patents differ in that they vary in terms of the strength of protection they afford for the underlying idea. The difficulty in even observing, much less systematically measuring, patent strength complicates not only the buying and selling of patent rights but also the study of such transfers. Likely for these reasons, empirical evidence of the effect of patent strength on the market for ideas is nearly non-existent despite the importance of patent rights to businesses in the information economy.

Project Description

In related co-authored work, I conduct the first large-scale study of the impact of patent strength on private patent value. We overcome two key hurdles to investigate this issue. First, we develop and validate a new measure of changes to patent claim scope. Second, following Sampat and Williams (2014), we use our measure to calculate a level of stringency for each patent examiner at the USPTO. We then exploit quasi-random assignment of patent applications to patent examiners at the USPTO to identify the causal effect of receiving a stronger patent on a range of outcomes indicative of patent value.

I plan to extend this work to a new sole-authored project in which I investigate the role of patent strength in the market for ideas. An increasingly important aspect of the patent system is the buying and selling of patent rights. On one hand, patents are frequently licensed and purchased as portfolios, which would mitigate the importance of any individual patent. On the other hand, recent research has found that resolving uncertainty regarding the scope of an individual patent has a significant impact on the licensing of that patent. (Gans, Hsu, and Stern 2008).

While uncertainty plays a substantial role in patent transactions, empirical work on the effects of patent strength remains limited. Further, theory does not provide clear predictions of the effect of strength. A stronger and broader patent may be more useful to the original assignee, thus reducing the likelihood that the patent is subsequently sold. Alternately, a patent may be sufficiently broad that the original assignee lacks the capability to fully exploit it, which would increase the likelihood of a subsequent purchase. Indeed, the effect of patent strength on subsequent transfers of the patent is likely complex, varying according to dimensions such as

the type of technology, the size of the original assignee, the density of patent rights, and other such factors.

Using data I have constructed that identifies and disambiguates all patent assignments and reassignments, I plan to study how patent strength affects transfers of patent rights from the original assignee to subsequent assignees. Preliminary analysis suggests that stronger patent rights do lead to an increase in transfers. However, more detailed analysis will identify the technologies where this effect is strongest and the types of firms buying and selling patent rights. I plan to extend this analysis further by incorporating data on patent litigation outcomes. In this way, I can determine the impact of patent strength on the market for ideas not only in terms of whether patents are bought or sold, but also in terms of the uses for which transferred patents are employed. Understanding this interaction may yield crucial welfare implications for policymakers seeking to optimize the frictions inherent in the transfer of patent rights.

Application of Funds

If I receive the NBER grant, I plan to apply the funds to advance my research in several ways. First, I will use the funds to defray travel-related expenses. The current paper analyzing the effect of patent strength on market value has been presented at the NBER Productivity Seminar, MIT's Laboratory for Innovation Lunch, and EPFL's MTEI seminar. It has also been accepted for presentation at the Searle Center Conference on Innovation Economics and submitted for presentation at several other conferences. I plan to submit the follow-on work for presentation at similar events.

Second, I will apply the funds to computing expenses. Much of my work, including that involving patent strength, relies on cloud computing infrastructure provided by Google and Amazon. I use this infrastructure to support large-scale databases and massively parallel processing. These resources allow me to perform textual analysis of patents, optical character recognition of patent-related documents, and XML metadata document parsing.

Third, I will license a database describing patent litigation outcomes. Innovation scholars have long studied litigation as an important indicator of the impact of patents. However, many of the datasets academics have constructed are either private, limited in scope, or outdated. Litigation outcomes for individual patents are increasingly available to academics for free via services such as Lex Machina and RPX Patent Search. However, these services do not provide access to all outcomes for all patents, which is necessary for conducting large sample empirical research in this context. The best sources of data are therefore privately constructed datasets that are available for licensing, such as the dataset underlying the 2015 Price Waterhouse Cooper Patent Litigation Study.

JEFFREY M. KUHN

jeffreymkuhn@gmail.com
1285 64th Street, Apt. C • Emeryville, CA 94608 • 510.457.6858

EDUCATION

Ph.D. Business Administration — Expected 2017
Haas School of Business, University of California Berkeley
Visiting Student, TIES Group – Sloan School of Management, MIT (Spring 2015)
Visiting Student, MTEI Group – College of Management of Technology, EPFL (Fall 2015)

J.D. School of Law — 2008
University of California Berkeley

B.S. Computer Science & Mathematics — 2005
Purdue University

B.A. Psychology — 2005
Purdue University

LEGAL BAR MEMBERSHIP

UNITED STATES PATENT BAR — 2010 – present

CALIFORNIA STATE BAR — 2008 – present

RESEARCH INTERESTS

I study the causal effects of the patent system on innovation outcomes within the realm of firm strategy. My research examines how patent scope, winning a patent race, and other patent-related phenomena affect firm outcomes such as cumulative innovation and private patent value.

FELLOWSHIPS AND AWARDS

IP² Fellow, Hoover Institution, Stanford University — 2015 – 2016
Working Group on Intellectual Property, Innovation, and Prosperity

Google Research Award — 2014

Robert N. Noyce Memorial Fellow — 2012 – 2014

Ryoichi Sasakawa Young Leaders Fellow — 2011 – 2012

WORKING PAPERS

Kuhn, Jeffrey, Neil Thompson, and Ben Roin. (2016) "Does Patent Scope Affect Cumulative Innovation? Evidence from Claim Narrowing During USPTO Examinations".

Kuhn, Jeffrey, and Kenneth Younge. (2016) "Patent Application, Examination, and Rejection: The Data Generating Process for Patent Citations".

Thompson, Neil, and Jeffrey Kuhn. (2016) "Patent Twins: The Effects of Winning a Patent Race".

Younge, Kenneth, and Jeffrey Kuhn. (2016) "Patent-to-Patent Similarity: A Vector Space Model".

LAW JOURNAL ARTICLES

Kuhn, Jeffrey (2011) Information Overload at the U.S. Patent and Trademark Office: Reframing the Duty of Disclosure in Patent Law as a Search and Filter Problem. Y*ale Journal of Law and Technology*, Vol. 13.

Selected for republication in the *Intellectual Property Law Review* (2012) by Thomson Reuters, as one of the best intellectual property law review articles published in 2011.

Merges, Robert, and Jeffrey Kuhn (2009) "An Estoppel Doctrine for Patented Standards." *California Law Review*, Vol. 97.

Kuhn, Jeffrey (2007) "Patentable Subject Matter Matters: New Uses for an Old Doctrine." *Berkeley Technology Law Journal*, Vol. 22.

INVITED PRESENTATIONS

Does Patent Scope Affect Cumulative Innovation? Evidence from Claim Narrowing During USPTO Examinations

Searle Center Conference on Innovation Economics, Northwestern Pritzker, 2016.

NBER Productivity Seminar, 2016.

Management, Technology & Entrepreneurship Seminar, EPFL MTEI, 2015.

Laboratory for Innovation Science and Policy Lunch, MIT, 2015.

Patent Application, Examination, and Rejection: The Data Generating Process for Patent Citations

Searle Center Conference on Innovation Economics, Northwestern Pritzker, 2016.

Munich Summer Institute, Max Planck Institute, 2016.

Advances in Patent Data PDW, AOM Annual Meeting, 2016.

Patent-to-Patent Similarity: A Vector Space Model

DRUID Conference, 2016.

Visiting Speaker Series, Office of Chief Economist of USPTO, 2015.

Knowledge, Technology and Organization Research Seminar, SKEMA, 2015.

Advances in Patent Data PDW, AOM Annual Meeting, 2015.

Patent Twins: The Effects of Winning a Patent Race

DRUID Conference, 2016.

PROFESSIONAL ACTIVITIES

Teaching:	Competitive and Corporate Strategy, Executive MBA, graduate student instructor (2015), Technology & Strategy MBA Seminar, EPFL, guest lecturer (2015), Technology & Strategy MBA Seminar, Purdue University, guest lecturer (2015)
Referee Service:	*Strategic Management Society* (2016), *Yale University Press* (2015)
Editing:	Senior Article Editor, *Berkeley Technology Law Journal* (2005-2008), Student Advisor, Law and Technology Writing Workshop (2007-2008).
Workshops:	NBER Digitization Tutorial (2016), NBER Entrepreneurship Boot Camp (2014).

INDUSTRY AND PROFESSIONAL EXPERIENCE

Weaver Austin Villeneuve & Sampson LLP, Oakland, CA — 2007 – 2011
Patent Attorney

University of California, Berkeley, School of Law — 2006 – 2008
Research Assistant for Robert P. Merges, Professor of Law and Technology

OTHER

Computing: Distributed computing, algorithms, complexity theory, graph theory.

Programming: Python, R, Stata, SQL, Matlab, C, C++, Java, JavaScript.

Interests: Chess, Go, literature, SCUBA.

Married since 2011.