

## Application to NBER Digitization Tutorial 2017

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11-18-2016

### Introduction

I am currently a 4<sup>th</sup> year PhD candidate in Management at the Wharton School. I am in dissertation stage, defending my dissertation proposal on December 1<sup>st</sup> 2016 and planning to be on the job market in Fall 2017. My main advisor is David Hsu from the Wharton School. The rest of my committee is composed of Dan Levinthal and Karl Ulrich from the Wharton School, Alfonso Gambardella from Bocconi University, and Nicola Lacetera from the Rotman School of Management.

After attending the digitization tutorial last year, I would find extremely beneficial to attend again this coming Spring. Last year I got a lot of value from this experience, in terms of understanding of the field, feedback on my work, new research ideas, and professional relationships. Doing research on innovation, digitization is a domain I certainly need to, and want to, being very familiar with.

Joining this year's tutorial would be critically valuable, given the timing of my doctoral work, perhaps even more than joining last year's one. It would be an excellent occasion to get high-quality feedback on my job market paper just at the optimal time. When the tutorial takes place, I will have run my randomized controlled trial and executed the first analysis of the resulting data. Getting feedback at that time would be ideal, because it would allow me to understand strengths and weaknesses early on, so that I would have the following six months to pivot if necessary, being well prepared for the job market at the beginning of the coming Fall.

I list below research description and coursework description. If you need a reference, please contact David Hsu at [dhsu@wharton.upenn.edu](mailto:dhsu@wharton.upenn.edu).

### Research Description

Broadly speaking, I do research on technological innovation. My primary interest is in the strategies that firms – both new ventures and established enterprises – use to ideate, develop, and commercialize new technologies. I describe the four areas I have been working on during my PhD program.

Currently, my primary focus is in the role of experimentation in entrepreneurial firms. This is the object of my dissertation, as well as of a series of related projects. Inspired by a large practitioners' debate, to which academic research has not provided an answer yet, my dissertation work examines the impact of experimentation on the product market on performance in early-stage firms. In other words, I seek to identify the team-, venture-, and market-level conditions under which experimentation is most valuable. I primarily view experimentation as the strategy of going to market with an intermediate product to obtain information about the demand side. I am building a novel theoretical framework to fully understand benefits and costs of this approach, relative to its counterfactual (building a finished product before going to market, thus getting no market feedback before the conclusion of the development process) and testing its implications via a field-based randomized controlled trial. I plan to have the initial results in February 2017. This is the first study of a long-term research program, where I attempt to shed light on the consequences of experimentation for the various main kinds of organizations, including large firms and governments.

Additionally, I have been working on the relationship between labor mobility, IP law, and innovation. In this domain, I am working with David Hsu and Iwan Barankay on a project that studies the effect of inventor mobility on innovation performance. We use a trade secret law – the Inevitable Disclosure Doctrine (IDD), a state-level legal doctrine that limits employee mobility

across firms – in a difference-in-differences design to estimate the causal effect of a mobility decrease on innovation. We find that IDD has a negative effect on patenting in the long run, less so in the short run. In terms of mechanisms, the evidence suggests the effect is driven by actual decrease in innovative activity – caused by the barrier imposed on knowledge recombination and by the weakening of the incentives to signal performance to the labor market – as well as by a shift of firms’ innovation protection strategies – away from patents towards trade secrets.

Furthermore, I have been working on the relationship between competition and firm behavior, especially in terms of search and innovation. I am currently working with Evan Rawley and Rui de Figueiredo on a project that studies the effect of competition on performance in the hedge fund industry, an environment notably characterized by strong information asymmetry between firms and investors. Our analysis shows that an increase in competition leads to a decrease in fund performance. In other words, we find little evidence of the shakeout found by the literature in industries with little prevalence of asymmetric information, such as manufacturing. We then find that firms react to the erosion in profitability by searching for new markets, as well as that searching strategies have substantially different performance outcomes depending on firms’ structure and experience.

Finally, I have been working on the impact of technology investments on firm performance, emphasizing the various channels firms can use to carry out investments. I have primarily explored the choice of technological distance in technology investments on firm subsequent profitability. Using an instrumental variable strategy, I find that technological distance creates value when executed via alliances, and destroys value when executed via internal development of acquisitions.

### **Coursework Description**

My background is basically in applied economics. I got my BS in Business at LUISS Guido Carli (Italy) in 2006. I received a MS in Economics at Universita’ Bocconi (Italy) in 2009 and then a MA in Economics at the University of Pennsylvania in 2012. I am now about to complete my MA in Statistics at the Wharton School, graduating this December 2016. Finally, I am presently a 4<sup>th</sup> year PhD candidate in Management at Wharton, planning to graduate in Spring 2018. I successfully passed my field exams in Entrepreneurship and Strategy in Spring 2015 and my second-year paper in Spring 2016. I am about to defend my dissertation proposal this December 2016.

Combining my Master’s and PhD, I have done coursework in three main areas: microeconomics, strategy, and econometrics.

In microeconomics, the main courses I took are game theory (Pierpaolo Battigalli, George Mailath, Yuichi Yamamoto), contract theory (Claude d’Aspremont, Steven Matthews, Andrew Postlewaite, Daniel Gottlieb), and industrial organization (Bob Town, Ulrich Doraszelski). Partly relatedly, I also did coursework on network theory (Lori Rosenkopf) and stochastic processes (Elchanan Mossel).

In strategy, the main courses I took are strategy theory (Dan Levinthal), corporate strategy (Harbir Singh), technology strategy (Rahul Kapoor), entrepreneurship (Raffi Amit), and entrepreneurial innovation (David Hsu).

In econometrics, I took the standard graduate-level econometrics sequence (Paul Shaman) and a variety of courses on specific econometrics techniques. Two of the most relevant ones are empirical corporate finance (Todd Gormley), an applied course on identification strategies, and observational studies (Dylan Small), a course on statistical matching. In addition, being strongly interested in experimental methods, I took experimental economics (Jeremy Tobacman), a course on theory-driven experiments, and personnel economics (Iwan Barankay), a course on field experiments in organizations. More recently, I have been expanding my focus to study some more recent statistical techniques, especially through a machine learning course (Linda Zhao).