

Application for NBER Economics of Digitization Tutorial – Sandy Yu

Graduate Coursework Overview

I am currently a Postdoctoral Fellow in innovation and entrepreneurship at the University of California at Berkeley, working with Professor Lee Fleming. I completed a Ph.D. in Economics at the Stern School of Business at New York University. My graduate coursework included microeconomics, econometrics, industrial organization and strategy, with a focus on applied microeconomics in the context of entrepreneurial finance and innovation.

Dissertation: “*The Impact of Accelerators on High-Technology Ventures*” (completed May 2015)
Committee: Luís Cabral (co-chair), Adam Brandenburger (co-chair), John Asker, Robert Seamans

Entrepreneurial finance plays an important role in fueling innovations, and accelerators have become a popular source of early-stage finance. Accelerators are a hybrid between a venture capital firm, start-up school, and incubator, and they aim to help nascent companies increase the likelihood of securing follow-on funding and successful outcomes. However, it remains unclear how accelerators impact the performance of early stage ventures. From a policy perspective, city governments are investing in accelerators as a vehicle to attract and foster entrepreneurship, yet we know very little about the effectiveness of such investments.

This dissertation utilizes both qualitative and quantitative data to document the accelerator phenomenon, and starts to disentangle the mechanisms through which accelerators affect new ventures. Using a hand-collected dataset of 1,800 matched accelerator companies and non-accelerator companies from 13 accelerators across the United States, I first analyze whether accelerators impact the probability of receiving follow-on funding, exiting via acquisition, and exiting via closure. Identification comes from variation across matched pairs. The empirical findings are consistent with predictions of the theoretical model: accelerator companies raise *less* money on average and are *more likely* to go out of business. This is due to an initial self-selection effect, but also a feedback effect of the mentorship received during the accelerator program. Accelerator companies receive more frequent feedback than non-accelerator companies and are able to make fundraising and exit decisions accordingly.

In the second study, I then leverage variation across accelerators and across cohorts to identify how accelerator attributes including the reputation, amount of seed funding, program length, cohort size, number of industry mentors, number of alumni, and accelerator age impact performance outcomes. I find that even after controlling for accelerator fixed effects, accelerator age positively and significantly contributes to both acquisitions and closures. The third study seeks to understand the factors that influence a founder’s choice of entrepreneurial finance. In particular, I study a founder’s decision to apply to an accelerator rather than to raise money from a venture capitalist, angel investor, or other sources. The analysis uses a dataset of new ventures in CrunchBase combined with data on venture capital fund inflows and local entrepreneurial activities. This analysis can lend insight into how geographic distribution of companies impacts accelerator participation and provide conditions under which an accelerator investment from local government is beneficial.

The contribution of this dissertation is three-fold. First, to my knowledge, I have created the largest sample of accelerator companies across thirteen accelerators that allows for cross-accelerator and cross-

cohort analyses. Second, this is one of the first studies to investigate accelerators as a source of entrepreneurial finance, using both theoretical and empirical frameworks. Lastly, these studies use a unique context to provide insight into crucial fundraising concerns of entrepreneurs. To date, this research has been submitted for publication and is currently at revise and resubmit at *Management Science*.

Research in Progress

Other research examines performance through feedback mechanisms and the regional impact of crowdfunding. A working paper, “*How Does Feedback Affect Entrepreneurial Performance*,” co-authored with Alicia Robb (Kauffman), examines how qualitative and quantitative aspects of feedback impact entrepreneurial outcomes. Specifically, we leverage random assignment of judges to identify how feedback sentiment—more negative or positive feedback—affects both within- and post-competition performance. We use a combination of proprietary business plan competition data, hand-collected dataset of firms tracked over time, and text analysis to investigate which types of feedback are most effective. We find that firms improve over the course of the competition following negative feedback. Moreover, after receiving negative feedback, high quality firms have higher survival rates while low quality firms are likely to shut down. Another paper, “*Can the wisdom – and funding – of the crowd enhance regional innovation and entrepreneurship?*” with Lee Fleming (UC Berkeley) investigates how crowdfunding influences regional innovation, entrepreneurship, and inequality. Specifically, using an instrumental variables approach, we analyze how crowdfunding influences the rate and type of new venture formation and subsequent impact on industry composition within and across regions. This builds upon “*Does crowdfunding increase regional entrepreneurship? An application of the CrowdBerkeley database*” which details interdisciplinary efforts to build a comprehensive, longitudinal database for crowdfunding and policy research.

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