NBER Productivity, Innovation and Entrepreneurship Program Research Proposal

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Each year, 2% of workers in the U.S. who had been employed in firms leave those jobs to work for themselves. Many of these transitions end up being temporary; nearly half of workers who enter self-employment return to paid work within five years.[1] Job changes are inevitably costly, but movements between jobs can also have benefits. Different jobs require different skills and workers may only discover their comparative advantage by experimenting with several kinds of work. My ongoing research agenda with Chris Stanton seeks to better understand these movements in and out of entrepreneurship through the lens of a dynamic model of worker learning. We have one working paper on this topic and two more projects in development.

In our existing paper (Dillon and Stanton, 2016), we show that the patterns of transitions in and out of self-employment are consistent with a model where workers must enter self-employment in order to learn about their potential earnings as entrepreneurs. What is not clear from our earlier work is whether experimentation helps workers to learn about their fixed managerial abilities, the quality of their business idea, or a mix of the two. The relative importance of managerial ability versus the quality of an idea is important for policymakers interested in promoting small business development and for investors searching for profitable opportunities. If success depends mainly on fixed individual skills, then effective policies to promote entrepreneurship should lower the cost of experimenting with self-employment to encourage more people to test their entrepreneurial abilities. If success depends mainly on good ideas, then policy makers, and investors, should instead try to maximize the number of ideas that get explored. In our next project we will work to distinguish these two learning channels.

In Dillon and Stanton (2016), we develop a lifecycle model of labor supply where workers can choose to work as a paid employee or as a self-employed entrepreneur. Workers choose what kind of work to do based on their expected earnings and on their tastes for self-employment, which we allow to vary across individuals. Their earnings in each sector are determined by their accumulated experience in each sector, their fixed abilities, and time-varying earnings shocks. Workers have different, potentially correlated, earnings abilities in paid work and self-employment. We assume that workers know their ability in paid work by the time they enter the model at age 25, but are uncertain about their entrepreneurial ability. Workers know the population correlation between the two abilities, which they can use to form an initial belief of their likely earnings in entrepreneurship. Self-employed workers observe their realized earnings in that sector, which allows them to refine their beliefs about their abilities.

We estimate the parameters of this model using a maximum likelihood approach and data from the Panel Study of Income Dynamics (PSID). These estimates allow us to characterize the distributions of abilities and preferences for self-employment in the population of workers and to forecast what each worker would have earned had he chosen to work in each sector, based on their history of past earnings. We find that, on average, workers in their first year of self-employment earn slightly less than what we predict they would have earned had they remained in paid work. Entrepreneurs who earn substantially less than their counterfactual paid earnings are more likely to return to paid

[1] Both figures are from analysis of the Panel Study of Income Dynamics 1975-2013 waves.

work, while workers who persist is self-employment earn substantially more than their counterfactual paid wages on average.

We are now expanding this model so that earnings in self-employment depend both on entrepreneurial ability, which is fixed for each worker, and the value of their business idea, which can change each time a worker starts a new business. Workers who have not yet become self-employed are uncertain about both their entrepreneurial ability and the value of their business idea. Former entrepreneurs have more knowledge of their abilities, but remain uncertain about the value of any new business ideas they develop.

To separately identify learning about abilities and ideas, we need a large panel dataset that follows workers in and out of self-employment and for many years after their first spell of self-employment. These two learning channels have different predictions for the frequency of serial entrepreneurship and for the correlation of earnings across entrepreneurial spells for the same worker. The PSID is too small to capture a sufficient sample of repeat entrepreneurs. Instead, we plan to estimate this model using a far larger Danish matched employer-employee administrative dataset, to which we have already gained access.

Vereshchagina and Hopenhayn (2009) and Manso (2014) lay out theoretical models in which workers must experiment in self-employment to learn about the quality of their business idea. Kerr, Nanda, and Rhodes-Kropf also frame entrepreneurship as an experiment. Our first paper builds on this this work by estimating a structural model of labor sector choices, which allows us to isolate the value of experimentation in entrepreneurship, and by estimating the correlation between earnings ability in entrepreneurship and paid work. Our next project will allow us to distinguish between fixed abilities, which are likely correlated across paid work and self-employment, and innovative ideas, which are not.

Our third proposed project will focus on differences in movements in and out of entrepreneurship between the U.S. and Denmark. Our first paper finds that transitions away from entrepreneurship are driven heavily by individuals' comparative earnings in self-employment and paid work. In turn, these relative earnings depend on public policies, such as tax structures and public benefits. Public institutions will also affect the cost experimenting with self-employment, by making job transitions and business start-ups more or less difficult. We will use our theoretical framework to explore how these two countries' very different institutional structures affect the frequency of experimentation in entrepreneurship.

References

Dillon, Eleanor and Christopher Stanton (2016) "Self-employment Dynamics and the Returns to Entrepreneurship," working paper.

Kerr, William R., Ramana Nanda, and Matthew Rhodes-Kropf. (2014) "Entrepreneurship as Experimentation." *Journal of Economic Perspectives* 28(3), pp. 25–48.

Manso, Gustavo (2016) "Experimentation and the Returns to Entrepreneurship," *Review of Financial Studies*, forthcoming.

Vereshchagina, Galina and Hugo Hopenhayn (2009) "Risk taking by Entrepreneurs," *American Economic Review*, pp. 1808-1830.

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Current Position

2012 - present	Assistant Professor of Economics, Arizona State University

Past Positions

2008-2012	Research assistant for Prof. Matthew Shapiro, University of Michigan, Department of Economics
2006-2008	Research assistant for Prof. Kathryn Dominguez, University of Michigan, Department of Economics
2004-2006	Assistant Economist, Federal Reserve Bank of New York

Education

2012	University of Michigan, Ph.D. in Economics *Matthew Shapiro and Jeffrey Smith (committee co-chairs)*
2008	University of Michigan, M.A. in Economics
2004	Columbia University, B.A. in Economics, *magna cum laude*

Fields of Interest

Labor Economics, Macroeconomics, Economics of Education

Teaching

PhD Labor Economics, Arizona State University
Undergraduate Labor Economics, Arizona State University
Undergraduate Economics of Education, Arizona State University
Intermediate Macroeconomics (Teaching Assistant), University of Michigan
Graduate Microeconomic Theory (Teaching Assistant), University of Michigan
Jane Austen and Economics (Guest Lecturer), University of Michigan

Publications

"The Determinants of Match between Student Ability and College Quality" with Jeffrey Smith, forthcoming at the *Journal of Labor Economics*
"Why a Dollar Depreciation May Not Close the U.S. Trade Deficit" with Linda Goldberg, *Federal Reserve Bank of New York Current Issues in Economics and Finance* June 2007

Working Papers

"Risk and Return Tradeoffs in Lifetime Earnings," revisions requested at the *Journal of Labor Economics*
"The College Earnings Premium and Changes in College Enrollment"

"The Consequences of Mismatch Between Students and Colleges" IZA Working Paper with Jeffrey Smith
"Self-Employment Dynamics and the Returns to Entrepreneurship" with Chris Stanton

Research in Progress
"The Roles of Ability and College Quality in the Evolution of the College Premium" with Greg Veramendi
"The Effect of Guidance Counselors on College Choice: Evidence from New Administrative Data" with Nathaniel Hilger

Seminar and Conference Presentations

2016 (including scheduled)	AEA Annual Meetings, Utah Winter Business Economics Meeting, Economics of Education Conference at Pennsylvania State, Spring 2016 Labor and Finance Group Meeting
2015	Cornell Education Workshop, SOLE-EALE World Meetings, IZA/SOLE Transatlantic Meeting of Labor Economists, Econometric Society World Congress
2014	IZA Workshop on Entrepreneurship Research, CEAR Income Dynamics Workshop
2013	European Association of Labour Economists, Conference on College Matching at Seton Hall, Joint BI Oslo – LMDG Aarhus MEE data workshop, Aarhus University, Federal Reserve Bank of Boston
2012	Arizona State University, Consumer Financial Protection Bureau, NBER Summer Institute
2011	Federal Reserve Bank of Philadelphia
2010	Association for Public Policy Analysis and Management
2009	Population Association of America
2008	Midwest Economics Association

Grants, Fellowships, and Honors

2011	Rackham Pre-doctoral Fellowship, University of Michigan
2010	Dissertation Internship, Federal Reserve Board of Governors
2010	Rackham Graduate Research Fellowship, University of Michigan
2008	Summer Research Grant, University of Michigan
2006	Regent's Fellowship, University of Michigan

Referee
American Economic Review, American Economic Journal: Economic Policy, Economics of Education Review, Journal of Human Capital, Journal of Human Resources, Journal of Public Economics, IZA Journal of Labor Economics, Labour Economics, Quarterly Journal of Economics, Scandinavian Journal of Economics, Scottish Journal of Political Economy, American Sociological Review

Citizenship: USA
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