APPLICATION TO

]NBER ENTREPRENUERSHIP RESEARCH BOOT CAMP 2016

Chuan Chen
Olin Business School,
Washington University in Saint Louis

Recommendation Letter Writer:
Barton H. Hamilton
Robert Brookings Smith Distinguished Professor of Entrepreneurship

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Application to NBER Entrepreneurship Workshop

Chuan Chen
Olin Business School, Washington University in Saint Louis
March, 2016

Dear Sir/Madam,

Thanks for holding the NBER Entrepreneurship Boot Camp 2016.

I have been interested on entrepreneurship field for long, even before I joined the Ph.D. program. I noticed an ascending number of news and reports announcing new policies to promote entrepreneurship in past decade. This is not only happening in the United States, but all over the world. Many people consider active culture of entrepreneurship plays very important role in a vivid economy. Some countries even treat entrepreneurship as one of the keys in their future growth. Thanks to its importance, we have seen a big growth of economics research in this field. However, I feel that there are still so many interesting and important questions are not answered yet. During the past years as Ph.D. student, I devoted most of my research time into this area under advisory of Professor Barton Hamilton. Currently, I have one working paper and several projects in the pipeline to be developed on entrepreneurship. I believe this boot camp will be a great opportunity to boost my research development by providing me chances to learn from the best researchers worldwide and to share my ideas among peers.

The working paper I have now aims to study how household and demographic factors affects women's self-employment decisions.

In the United States, while total non-agricultural employment increased by 33% between 1975 and 1990, the number of non-agricultural self-employed workers increased by 74% according to Current Population Survey data. A more striking aspect of this period was the increased representation of female self-employment. Especially, the number of self-employed women more than doubled, rising from 1.7 million in 1975 to 4 million in 1990. Female-self employment becomes a phenomenon important enough to merit further empirical study. However, majority of existing economics literatures on self-employment use male as representative. On the other hand, researchers (e.g. Devine (1994)[1]) pointed out that the driving reasons for self-employment decisions are different between male and female.

Following work by Adda et. al. (2015)[2], I developed a life-cycle dynamic model for career choices with a focus on self-employment decision. I found that higher education increase the likelihood of female self-employment by both increasing expected income and having higher utility of being-her-own-boss (and/or time flexibility). I also found that self-employed females are older on average but age itself has negative impact when controlling for other state variables. One reason for this is that older individuals normally earn higher income, which increases self-employment probability. Perhaps inconsistent with believes of many, my results indicated that marriage effect is small on female self-employment decision, despite the fact that around three-fourth of self-employed women were married. More specifically, although married women are more likely to be not-employed and less likely to be full-time employed, marriage does not change the pattern of part-time employment or self-employment much. Consistent with Boden (1999)[3], I found that the presence of young-kid (defined as 6 years old or younger) in household is an important factor driving female career decisions. However, its impact need to be looked at separately for two different age ranges - it makes women from 25 years old to middle-aged more likely to choose to be self-employed but such effect is not obvious for women younger than 25.

[1] Devine, 1994, "Characteristics of self-employed women in the United States." Monthly Labor Review Vol. 117, No. 3: 20-34.

[2] Jerome Adda, Christian Dustmann, Katrien Stevens, 2015, "The Career Costs of Children" Journal of Political Economy, forthcoming

[3] Boden, 1999, "Flexible Working Hours, Family Responsibilities, and Female Self-Employment." American Journal of Economics and Sociology Vol. 58, Issue 1: 71–83.

The model partially captured the increase in female self-employment from end of 1970s to mid 1990s. I found increase of income as the most important driving force behind such phenomenon. In fact, as consistent decrease of young-kid presence in household was observed, while the average education, marital status and proportions of different races in the data-set stay roughly the same, the model indicated that self-employment rate would drop over this period if income increase over years was removed. I argue such self-employment income increase can be partially explained by the increase of average working experiences, which in turn may be caused by the increase of average age.

The structural model developed and estimated by this project allows me to further explore interesting topics which would be hard utilizing only reduced form. I plan to dig into details for some of them in the next step. One particular example is what I call marriage market sorting effect. Such effect is defined as the phenomenon that it is common to observe that high educated male marries with high educated female. This may have a big influence on female self-employment decision. On one hand, high educated male tends to make more income, which allows his wife to stay at home without working, including being self-employed; on the other hand, as already been pointed out previously, education increases the likelihood of female self-employment.

Other than the above project, I am also working on the following ideas:

- While many still consider startups are important sources for new job creation, we have seen fewer vacancies generated in labor market from those new startups for the past decade in the United States. Following this, It is natural to raise questions such as "When and why startups hire?" and "What kind of startups hire more employees?" By studying the determinants of entrepreneurs hiring their first employee, Fairlie's recent paper[4] is among the few which ever looked at this topic. We plans to model the hiring choices of entrepreneurs and study effects of various potential policies on job creations in new businesses.
- Heterogeneity and size of founding teams are often believed to have significant impact to startups. However, perhaps due to lack of proper data, there is quite limited knowledge in this field. Utilizing the Kauffman Firm Survey (KFS) data, I aim to study the dynamics (entry and exit) of founding team structures and its impact.

Many thanks again for your time. Enclosed below is my detailed CV and courses taken in Olin. Please let me know if have any concerns or further enquiries.

Yours Sincerely,
Chuan Chen

[4]Robert Fairlie, 2016, "Taking the Leap: The Determinants of Entrepreneurs Hiring their First Employee", working paper

Chuan Chen

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Education

- Bachelor of Engineering, School of Compter Engineering, Nanyang Technological University, Singapore, 2007
- Master of Business Administration, Olin Business School, Washington University in St. Louis, MO, 2011
- Ph.D. of Business Administration, Olin Business School, Washington University in St. Louis, MO, on-going.

Research Interests

Labor Economics, Entrepreneurship, Industry Organization, Energy

Working Papers

- "The Dynamics and Determinants of Female Self-employment Decision"

Professional Experiences

- Kyoto Energy (Energy and Carbon Asset Consulting Firm), Singapore
  Project Manager, Global Consulting 2010-2011
- AES Corporation, Singapore
  Business Development Manager, Alternative Energy 2007-2009

Teaching

- Teaching Assistant (MBA) Core Economics, 2014-2016

Honors and Awards

- Knight Scholar (Top 10 Student), Olin Business School MBA Program
- Dean's Scholarship (Full Tuition), Olin Business School MBA Program

Skills

Statistical methods and programs (STATA, R, MATLAB, Python, Visual Basic, C, C++, Java)

FL2013

Department	Course	Sec	Units	Opt	Mid	Final	Dean	Dropped	WaitListed	Title
				----Grade----						
L11 Econ	503	01	3.0	C		A				Microeconomics I
L11 Econ	503	A	0.0							Microeconomics I
L11 Econ	511	01	3.0	C		B+				Quantitative Methods in Economics I
L11 Econ	511	A	0.0							Quantitative Methods in Economics I
L11 Econ	512	01	3.0	C		A-				Quantitative Methods in Economics II
L24 Math	4111	01	3.0	A		Z				Introduction to Analysis

Enrolled Units: 12.0 **Semester GPA:** 3.67 **Cumulative Units:** 9.0 **Cumulative GPA:** 3.67

SP2014

Department	Course	Sec	Units	Opt	Mid	Final	Dean	Dropped	WaitListed	Title
				----Grade----						
B54 MEC	648	01	3.0	C		A				INDEPENDENT STUDY
L11 Econ	504	01	3.0	C		A-				Microeconomics II
L11 Econ	504	A	0.0							Microeconomics II
L11 Econ	5161	01	3.0	C		A-				Applied Econometrics
L24 Math	460	01	3.0	A		L				Multivariate Statistical Analysis

Enrolled Units: 12.0 **Semester GPA:** 3.80 **Cumulative Units:** 18.0 **Cumulative GPA:** 3.73

FL2014

Department	Course	Sec	Units	Opt	Mid	Final	Dean	Dropped	WaitListed	Title
				----Grade----						
L11 Econ	501	01	3.0	C		A-				Macroeconomics I
L11 Econ	5146	01	3.0	C		A+				An Introduction to the Theory and Application of Stochastic Calculus and Diffusion Processes
L11 Econ	583	01	3.0	C		A				Topics in Labor Economics I

Enrolled Units: 9.0 **Semester GPA:** 3.90 **Cumulative Units:** 27.0 **Cumulative GPA:** 3.79

SP2015

Department	Course	Sec	Units	Opt	Mid	Final	Dean	Dropped	WaitListed	Title
				----Grade----						
B53 MGT	620	01	3.0	C		A+				Empirical Methods in Business
B54 MEC	661	01	3.0	C		A-				ANALYSIS OF TIME SERIES DATA
B55 MKT	675	01	1.5	A		L				Empirical Methods in Structural Modeling
L11 Econ	5145	01	3.0	C		A+				Advanced Theoretical Econometrics
L11 Econ	5175	01	3.0	A		L				Structural Microeconometrics

Enrolled Units: 13.5 **Semester GPA:** 3.90 **Cumulative Units:** 36.0 **Cumulative GPA:** 3.82

SU2015

Department	Course	Sec	Units	Opt	Mid	Final	Dean	Dropped	WaitListed	Title
				----Grade----						

Enrolled Units: 0.0 **Semester GPA:** 0.00 **Cumulative Units:** 36.0 **Cumulative GPA:** 3.82

MSN 0005 QUALIFYING EXAM PASSED: **Transcript:** Yes **Expires** 12/31/2999

FL2015

Department	Course	Sec	Units	Opt	Mid	Final	Dean	Dropped	WaitListed	Title
				----Grade----						
B53 MGT	660	01	1.0	C		A				Seminar on Presentation Skills
B53 MGT	889	07	0.0	P		P				Doctoral Continuing Student Status
L11 Econ	543	01	3.0	A		L				Public Economics
L11 Econ	5995	01	3.0	C		A				Applied Economics Workshop

Enrolled Units: 7.0 **Semester GPA:** 4.00 **Cumulative Units:** 40.0 **Cumulative GPA:** 3.84

SP2016

Department	Course	Sec	Units	Opt	Mid	Final	Dean	Dropped	WaitListed	Title
				----Grade----						
B53 MGT	620	01	3.0	C						Empirical Methods in Business
B53 MGT	889	07	0.0	P						Doctoral Continuing Student Status

Washington University in St. Louis
Barton Hamilton
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March 30, 2016

It is a pleasure to recommend **Chuan Chen** for the NBER Entrepreneurship Boot Camp. I am Chuan's thesis advisor and have been interacting with him regularly since he started the PhD program here at Olin 3 years ago (Chuan's interest in research led him to enter our PhD program after completing his MBA in 2013). Let me state at the outset that Chuan has a great deal of potential as a researcher. He is on par with my student Ryan Cooper, who just accepted a position as an Assistant Professor in the Robert H. Smith School of Business at the University of Maryland. Chuan has developed a strong econometric toolkit to address issues in entrepreneurship, and I expect him to be one of the top PhD candidates in the area when he completes his dissertation.

The initial paper in Chuan's dissertation focuses on female entrepreneurs, who are an understudied group in the self-employment literature. His work begins with the observation that most female entrepreneurs are married, and that the marriage market has seen an increase in assortative mating over the last 30 years. He then builds a dynamic structural model of the woman's self-employment decision investigate the impact of the marriage market on female self-employment. Empirical models of male self-employment typically ignore the role of the household and the labor market decisions of the spouse. In contrast, Chuan endogenizes the marriage decision and allows for assortative mating so that more educated woman may be more likely to marry more educated men. This allows him to examine the extent to which a married woman's decision to become an entrepreneur is affected by the ability and labor market prospects of the spouse. Chuan has estimated the dynamic structural model using date from the Panel Study of Income Dynamics. His initial results show that the observed increase in assortative mating has generated significantly higher levels of female self-employment, since entrepreneurship is increasing in spouse's income. While he still has a fair amount of work to do on the paper, Chuan's results are intriguing and the project will contribute to a neglected area in the study of self-employment.

Starting during his time as my MBA student, Chuan has had a strong interest in the role of organizational structure in entrepreneurial success. Another of his dissertation essays will use the Kauffman Firm Survey data to examine how the structure of the founding team, and subsequent turnover, affects startup revenues and survival. I think this project has a great deal of potential and will significantly contribute to our understanding of what makes for a successful startup.

Chuan has an exciting research agenda and will substantially benefit from exposure to leading scholars in the Boot Camp, as well as fellow PhD students working in the area. I very strongly recommend him for the Boot Camp.

Sincerely,



Barton Hamilton
Robert Brookings Smith Distinguished Professor of Entrepreneurship

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