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To
NBER Entrepreneurship Working Group

March 24, 2020

Hi! I hope everything is going well with you during this special time.

I am a third-year Ph.D. student from the Economics Department in the University of Pennsylvania. I wish to attend the 2020 NBER Entrepreneurship Research Boot Camp.

I have been interested in entrepreneurship and innovation, and am currently doing research on it. I unfortunately did not get much exposure to this topic in my Ph.D. courses, but the boot camp provides a fantastic opportunity for me to catch up with the frontier and learn from the insights of the leading experts. That said, I do have spent my own efforts in investigating this broad topic though. I would love to contribute to the discussion during the boot camp, too, and hopefully generate new research ideas. More detailed descriptions of my current research will be provided in the essay attached below.

I look forward to hearing from you, and please do not hesitate contacting me if you have any questions. My advisor, Hanming Fang (`hanming.fang@econ.upenn.edu`), has kindly agreed to write a letter of recommendation for me.

Thank you for your time and consideration. Take care and wish to see you in Cambridge in July!

Xincheng Qiu

Attachment: Curriculum Vitae, Essay

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Education

Ph.D. Candidate in Economics, University of Pennsylvania.

M.A. Economics (*with highest distinction*), Peking University, 2017.

B.A. Economics and B.S. Mathematics (*with highest distinction*), Peking University, 2015.

Research

Work in Progress

Too Big to Innovate: Endogenous Barriers to Creative Destruction

"Golden Ages": A Tale of Two Labor Markets, with Hanming Fang

Student Loans, Skill Mismatch and Declining Entrepreneurship, with Eric Huang

Honors

Lawrence Robbins Prize in Economics (*for the best first-year student*), University of Pennsylvania, 2018.

Joel Popkin Graduate Student Teaching Prize in Economics, University of Pennsylvania, 2019.

Professional Experience

Teaching Assistance

Spring 2019, Economics of Education, Teaching Assistant for Prof. Francesco Agostinelli

Fall 2018, Microeconomic Theory (Graduate), Recitation Instructor for Prof. Steven Matthews and Prof. Andrew Postlewaite

Completed Ph.D. Courses

Microeconomic Theory (I & II), Macroeconomic Theory (I & II), Econometrics (I, II & III), Economic Growth, Economics of Labor, Labor, Health & Family, Search Theory & Applications, Quantitative Macroeconomic Theory, Empirical Methods For Counterfactual Analysis, Empirical Industrial Organization, Public Economics, Topics in Applied Micro.

I am interested in the broad topic of entrepreneurship and innovation. This topic has been covered by one of my Ph.D. courses, "Economic Growth", in which Professor Jeremy Greenwood talks about contemporaneous work studying entrepreneurship from the angle of financial development, and especially ventures. Though I enjoy this half-credit course, I am also eager to know more about the frontier of the research in entrepreneurship and innovation that has not been covered due to the time constraint. The intensive NBER Entrepreneurship Research Boot Camp provides a fantastic opportunity for me to learn more from the insights of a mixture of leading experts studying various questions regarding entrepreneurship, which I value quite a lot. I believe attending the boot camp will greatly broaden my knowledge, and I would love to contribute to the discussion during the boot camp and hopefully generate new research ideas.

I am currently doing some research related to entrepreneurship and innovation, but more from a labor perspective (which is my primary field of expertise). Below I will briefly mention two pieces of work I am working on.

In my current work in progress, "Too Big to Innovate: Endogenous Barriers to Creative Destruction", I document that the age-TFP profiles for Chinese manufacturing firms are downward sloping. This is in striking contrast to Hsieh and Klenow (2014), who document upward-sloping age-TFP profiles in the U.S. as well as in developing countries such as India and Mexico. The upward-sloping age-TFP profile is intuitive – firms invent advanced technologies, develop better management practice, and re-organize as firms become older. The downward-sloping age-gradient in TFP in China is a puzzle.

As is consistent with patterns in the U.S., Mexico, and India, older firms have more employees in China. This implies Chinese firms are growing big without being more productive, suggesting that the massive TFP growth in China during the first decade of the 21st century was mainly driven by new entries and entrepreneurship. Why don't those old and big firms improve their productivity? My tentative answer is that there is a trade-off between employment and innovation. Innovations usually render some workers' skills obsolete ("creative destruction"). As a result, workers with obsolete skills (e.g. performing outdated machines, redundant positions in an inefficient organization) will be laid off. The large employment in old firms, and especially state-owned firms, will become the barrier to creative destruction. It is the employment concern that is specific to China.

Another work in progress I would like to mention here is "Student Loans, Skill Mismatch and Declining Entrepreneurship" with my fellow colleague Eric Huang. In there we provide evidence in support of the effects of student loans on labor market mismatch and entrepreneurial choice. First, we apply principal component analysis as a dimension reduction technique to construct a measure for a three-dimensional skill vector of workers, as well as a skill requirement vector of firms, following Lise and Postel-Vinay (forthcoming). We find student loan borrowers spend less time searching for a better match compared to otherwise similar nonborrowers, and as a result, are more likely to be mismatched, measured as the distance between workers' skill vector and firms' requirement vector. This leads to lower wages for borrowers, and the gap is persistent even

after ten years. Second, we find that borrowers are less likely to become entrepreneurs, because the precautionary saving motive makes individuals with lower asset positions more reluctant to engage in risky activities. Furthermore, these two direct effects interact with each other, creating a negative feedback cycle. Less firm entry implies fewer outside opportunities for workers, so more workers are stuck in the bad match. The misalignment between workers' skills and firms' requirements decreases the value of firm entry, and thus further discourages entrepreneurship.

I treat the chance to attend the NBER Entrepreneurship Research Boot Camp as an invaluable opportunity to learn from both professor speakers and other attendees. There is also potential to develop future collaborations with attendees with similar research interests. I would contribute to the workshop by reading the papers in the syllabus prior to the workshop as well as actively joining the discussion during the workshop. My friend, Jinlin Li, a visiting scholar in Harvard who attended the 2019 Boot Camp, shared many of his treasured lessons from the boot camp with me. I am looking forward to passing the knowledge acquired at the boot camp to fellow students in my program, too.

References

Hsieh, Chang-Tai, and Peter J Klenow. 2014. "The Life Cycle of Plants in India and Mexico." *The Quarterly Journal of Economics*, 129(3): 1035–1084.

Lise, Jeremy, and Fabien Postel-Vinay. forthcoming. "Multidimensional Skills, Sorting, and Human Capital Accumulation." *American Economic Review*.

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Hanming Fang
Class of 1965 Term Professor of Economics

March 26, 2020

Dear Colleagues:

I am writing this letter to strongly support Xincheng Qiu's application for the 2020 NBER Entrepreneurship Research Boot Camp. Xincheng is currently a third year PhD student at Penn's Economics Department. I am working with him on a research project, which I will describe below. He is also working on several research projects of his own, focusing on the impact of automation on labor market equilibrium. He also discusses his research interests with me regularly. I know him very well.

At this stage, he is unquestionably one of the best, if not the best, student in his class. At Penn, there is a prestigious prize called Robbins Prize that is awarded to the first year PhD student who is judged to have had the best performance based on prelim exams. Xincheng was the winner from his class.

Xincheng is transitioning to research in his second year of the PhD program remarkably well. He does not seem to go through the struggles many second year PhD students typically experience in their transitioning from course taking to research. He and I started talking about a potential research project right after he joined Penn's PhD program, which is tentatively titled "*Golden Ages: A Tale of Two Labor Markets*". It is based on the well-known observations that in any cross-sectional labor market data, the average wage-age profile tended to be humped shaped. What is surprising, however, is that the profiles in different countries tend to peak at different ages. For example, in the US, the peak age, which we refer to as "the golden age", tends to be around 46-47, and it had been very stable in the past three decades. In contrast, we noted that in China the golden age was much younger; moreover, China's golden age has been moving younger in the last twenty years, going from around 40 in 1990s to now about 32. These remarkable differences led us to the project. The paper is about using repeated cross-sectional wage-age profiles to estimate the technology progress from returns to experience. We find, consistent with the literature, that the returns to experience are much higher in developed economies (say, the US) than in developing countries (say, China); and we add something new to the literature, which is that China has had much faster cohort-to-cohort productivity growth. We are now examining the sources of the faster cohort-to-cohort productivity growth in China. For example, is it a result of college expansion? How much of it is due to the reduction in labor market frictions?

Xincheng is also working on a preliminary project that aims to have a better understanding of the returns to experience. What is the micro-foundation for the returns to experience? He is postulating a new mechanism, which is supported by evidence, that more experienced workers are more likely to be working in occupations with more cognitive components. He is now exploring how this mechanism, together with the pending wave of automation, is likely to impact wage inequality, returns to experiences, etc.

I am immensely impressed by Xincheng's performance so far at Penn's PhD program. He is incredibly adept in working with large data sets; and that is the reason that I invited him to work with me on the Golden Age project described above. He is also very good at modeling. He is very smart and hard working, and is always looking to improve himself. He has a calm, collegial personality that will make him a very effective team player. Even though he is only in his third year, he has already many promising research projects, including some that are near completion. I really have high expectations of him in a few years when he goes on the job market.

I am thus giving my strongest recommendation to Xincheng for the Bootcamp. His motivation to attend the bootcamp is very strong: his research on automation and labor market can really benefit from being systematically exposed to the frontier research in the innovations field. (Last summer he attended the Open Source Economics Laboratory Boot Camp at the University of Chicago, which significantly improved his knowledge of advanced computation and dynamic structural modeling.) I truly believe that Xincheng will be a great investment for the Bootcamp. I sincerely that you will give his application the most favorable consideration!

Please do not hesitate to contact me at 215-898-7767 or at hanming.fang@econ.upenn.edu if you have questions about Xincheng Qiu or his application.

Sincerely,



Hanming Fang