Duke UNIVERSITY

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January 16, 2022

Dear Admission Committee,

It is my pleasure to submit my application for the Entrepreneurship Research Boot Camp at NBER. I am a third-year PhD student in the joint program of Economics and Public Policy at Duke University. My research focus is on economics of entrepreneurship, with a particular interest in policy levers and institutions.

Two of my current projects examine how labor market regulations like immigration visa policies and non-compete clauses shape inventive activities at both the worker and the firm level. These two studies have been admitted to various conferences, including the Annual Meetings of the Midwestern and Eastern Economics Associations. Most recently, I am working on an early-stage project about high-tech startups' relocation choices and their impact on regional inequality in terms of entrepreneurship and labor market outcomes. This study aims to find out how startup migrations affect innovation inequality, and how inequality leads great inventions to go missing in turn. Given my interests and abilities, I will be an ideal fit for this program. I look forward to honing my research skills by connecting with a variety of experts in the field of entrepreneurship studies, as well as contributing to the conversations with my specializations.

I am enclosing my curriculum vitae, list of PhD courses and application essay. Letters of recommendation will arrive from Daniel Yi Xu and Matthew S Johnson, who are my primary advisors from the Economics Department and the Public Policy Department, respectively. Please don't hesitate to contact me if you have any questions or if there is any additional information or documents I can provide.

I look forward to hearing from you soon. Thank you for your time and consideration.

Sincerely,



Alison Pei

Alison X. Pei

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Durham, NC 27708

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: @Alison_Pei

Education

Ph.D. in Economics & Public Policy, Duke University	Expected 2024
M.S. in Applied Economics and Management, Cornell University	2019
B.A. in Economics, Nankai University	2017

Research and Teaching Interests

Primary Fields: Industrial Organization, Labor Economics
Secondary Field: Entrepreneurship

References

Matthew S. Johnson (co-chair)
Sanford School of Public Policy
Duke University
matthew.johnson@duke.edu ✉

Daniel Yi Xu (co-chair)
Department of Economics
Duke University
yi.xu@duke.edu ✉

Working Papers

"Monopsony in the High-Skilled Foreign Labor Market - Evidence from H-1B Labor Market" with Seohee Kim.

This paper assesses the extent of monopsony in the H-1B labor market through the lens of employment concentration and its effect on H-1B workers' wages. Using micro-level H-1B petition data from the U.S. Citizenship and Immigrant Services (USCIS), we calculate the H-1B employment concentration using Herfindahl-Hirschman Index (HHI) under various labor market definitions from 2010 to 2019. We find 86% of the H-1B labor markets are highly concentrated according to the Department of Justice guideline. We then examine the causal effect of high employment concentration on H-1B workers' wages by exploiting the random variations generated by a lottery system implemented for over-the-cap H1-B applications. We find that larger firms disproportionately get more new workers from the exogenous increase in the market-level lottery win rate. These unbalanced distributions of new H-1B workers increase HHI, which in turn, reduces the H-1B workers' wages in the corresponding labor market. These local average treatment effects are the largest for workers at the top 10 H-1B employers in tech industries.

Work in Progress

" The Impact of High-Growth Startups' Exit on Regional Inequality,"

"The Enforceability of Noncompete Agreements and Innovation: Evidence from State Law Changes," with Matthew Johnson, Kurt Lavetti and Michael Lipsitz.

"OSHA Inspections, Productivity, and Management,"With Nicholas Bloom, David Levine and Matthew Johnson.

Research Experience

Research Assistant to Matthew S. Johnson — 2021 – Present
Special Sworn Status, U.S. Census Bureau.

Research Assistant to Kaushik Basu — 2018 – 2019

Research Assistant to Nancy Chau — 2017 – 2018

Teaching Experience

Duke University

PUBPOL 801: Microeconomics in Public Policy (MPP) — Fall 2020
Teaching Assistant

Cornell University

AEM 1200 Introduction to Business Management (UG) — Summer 2019
Section Lecturer & Teaching Assistant

ECON 1110 Introductory Microeconomics (UG) — Spring 2019
Section Lecturer & Teaching Assistant

Awards, Fellowships and Grants

Competitive Summer Research Fellowship for Students in Third Year and Beyond — 2022

Sanford School of Public Policy Graduate Student Travel Grant Award — 2021

Duke University Graduate Fellowship — 2019–Present

Cornell University Teaching Assistant Fellowship — 2019

Erasmus Exchange Program Fellowship, China Scholarship Council — 2017

First Prize, Comprehensive Scholarship of Nankai University — 2016 – 2017

Presentations

2022 Eastern Economics Association Annual Conference	2022
2022 Midwestern Economics Association Annual Conference	2022
Graduate Student Seminar in Industrial Organization - Department of Economics, Duke University	2022
CSWEP Mentoring Workshop - 2021 Southern Economics Association Annual Conference	2021
Graduate Student Seminar in Labor Economics - Department of Economics, Duke University	2020 - 2022
Graduate Research Workshop - Sanford School of Public Policy, Duke University	2020 - 2022
Development Policy Research Unit (DPRU) Workshop - University of Cape Town	2019

Professional Service

School and Departmental Service

Diversity and Inclusion Committee, Duke University	2020 – 2021
Women in Economics, Duke University	2020 – Present

Professional Association Memberships

Southern Economics Association
Eastern Economics Association
Association for Public Policy Analysis and Management (APPAM)

Last updated: January 19, 2022

List of PhD Course

Program: Joint PhD program in Economics & Public Policy at Duke University

Course Completed:

- Core Courses:
  - ECON 700 MATHEMATICS FOR ECONOMISTS
  - ECON 701 MICROECONOMIC ANALYSIS I
  - ECON 702 MACROECONOMIC ANALYSIS I
  - ECON 703 ECONOMETRICS I
  - ECON 705 MICROECONOMIC ANALYSIS II
  - ECON 706 MACROECONOMIC ANALYSIS II
  - ECON 707 ECONOMETRICS II
  - PUBPOL 901 POLITICAL ECONOMY OF PUBLIC POLICY
  - PUBOPL 902 ETHICS OF PUBLIC POLICY

- Field Courses:
  - ECON 821 NON-MARKET VALUATION
  - ECON 825 INDUSTRIAL ORGANIZATION
  - ECON 826 PARTIAL IDENTIFICATION: INDUSTRIAL ORGANIZATION
  - ECON 881-01 DYNAMIC DISCRETE CHOICE
  - ECON 881-35 MODELS OF MATCHING AND SORTING
  - ECON 883-01 CAUSAL INFERENCE/TREATMENT EFFECTS
  - PSY 716 BEHAVIROAL DECISION THEORY

- Programming Courses:
  - ECON 890-01 PYTHON
  - ECON 890-03 R

- Seminar Courses:
  - ECON 901 APPLIED MICROECONOMICS WORKSHOP

- PUBPOL 907 PHD STUDENT GRADUATE SEMINAR
- PUBPOL 908-909 DISSERTATION PROPOSAL SEMINAR

Courses in Progress:

- BA 990 ECONOMICS OF INNOVATION
- ECON 890 STRUCTURAL METHODS IN LABOR ECONOMICS

My research agenda centers on how to foster entrepreneurship through healthy labor market competition and market-oriented policy regulations. My dissertation consists of three related projects. Two projects seek to provide new evidence on the extent to which regulations like immigrant visa policies and non-compete agreements impact innovation and entrepreneurship. The third project explores the link between high-tech startup migrations and regional inequality, with a focus on the short- and long-term consequences of out-migrations on the local innovation eco-system and labor market composition. Together, these projects will provide empirical evidence to inform entrepreneurship policies that take both equity and efficiency into account.

The first project is joint work with a fellow PhD student Seohee Kim, which assesses the extent of monopsony in the H-1B labor market and its impact on H-1B workers' wages, entrepreneurship as well H-1B firms' innovation outcomes. The growing literature in monopsony has provided accumulating evidence of substantial employer market power over workers (Staiger et al., 2010; Berger et al., 2019; Azar et al., 2019). However, the extent of monopsony in migrant labor markets has received far less attention (Manning, 2021). Using FOIA requested micro-level H-1B petition data from the U.S. Citizenship and Immigrant Services (USCIS), we first provide adequate measurements of employment concentration by cautiously defining H-1B labor markets. Secondly, we provide the first evidence on the causal impact of high employment concentration on H-1B workers' wages and H-1B employers' innovation outcomes. The causal link is established by exploiting a lottery system that generate random H-1B labor supplies for each labor market. We find that larger firms disproportionately get more new workers from the exogenous increase in the market-level lottery win rate. These unbalanced distributions of new H-1B workers increase the HHI, which in turn, reduces the H-1B workers' wages and firms' patent applications in the corresponding labor market. The reduced wages push the workers to spin off and form their own startups. These local average treatment effects are the largest for workers at the top 10 H-1B employers in Tech industries.

The second project is a collaboration with Matthew Johnson, Kurt Lavetti and Michael Lipsitz, in which we seek to evaluate how the enforceability of Noncompete Agreements (NCA) impacts firms' and workers' innovation input and output, as well as the impact on entrepreneurship. In 2019, up to 46.5% of workers in firms had signed a noncompete agreement. It is not clear, however, if NCA enforceability protects and boosts firms' innovation outcomes. On the positive side, strict NCA enforceability encourages innovation and entrepreneurship, as firms are more willing to enhance training in their workers to develop transferable knowledge (Lavetti et al. 2020). On the other hand, stricter NCA enforceability might merely serve to enable firms to

extract more surplus out of workers by reducing their bargaining power (Starr, 2020). Therefore, strict NCA enforceability could dampen entrepreneurship and productivity for some firms by making it harder to recruit innovative workers as well as by reducing overall labor market dynamism. By leveraging a novel dataset created by Johnson, Lavetti, and Lipsitz (2021) that contains the totality of NCA enforceability for every state between 1991- 2018, we will examine the impact of non-compete agreements on a variety of outcomes related to entrepreneurship, including startup dynamics and patenting, etc. This study will provide a more complete answer to whether states and firms should adopt or how they can implement the non-compete policies.

My third project is a solo one titled “Should I Stay or Should I Go? – Startups' Migration Choices and Consequences”, which investigates the relocation decisions of startups and their impact on regional inequalities. According to existing studies, being geographically closer to clusters implies a higher likelihood of startup success (Guzman, 2019; Feldman et al., 2021). However, the consequences of startup relocations on their birthplaces are much less studied, which might contribute to a growing gulf between regions seen in income, housing prices, entrepreneurship, and demographic profiles. Drawing on the concept of social embeddedness and the knowledge diffusion model, we focus on healthcare startups as they are tightly embedded in the communities they were born. We will first document the scale and pattern of healthcare startups' relocations using census data including the Longitudinal Business Database (LBD) and Longitudinal Employer-Household Dynamics (LEHD). We then analyze the impact of the startup out-migration on the local community's entrepreneurship and labor market outcome in the short term and long term. We want to ask how these migrations affect inequality in entrepreneurship, and in turn, how does this inequality impact the frictions in innovation diffusion. This study will contribute to empirical evidence of agglomeration of entrepreneurship in healthcare, as well as informing policies to foster local entrepreneurship eco-systems.

I believe the Entrepreneurship Research Boot Camp will give me a fantastic opportunity to learn about the most cutting-edge theoretical and empirical studies. It is also incredibly exciting that through the program, I will be able to meet other keen researchers in the same field, under the tutelage of the most highly qualified experts in entrepreneurship research. The timing of this Boot Camp is well-matched to help refine my dissertation research and will improve the quality of the work I conduct. The timing is also well-matched for me to contribute to the intellectual discourse at the meeting and the work of fellow participants. These discussions will aid me not only in my current research but also help me form potential future collaborations and networks, which will help me become a more well-rounded researcher in the future.

Duke | SANFORD SCHOOL OF PUBLIC POLICY

January 2022

Matthew S. Johnson
Assistant Professor
Sanford School of Public Policy
Duke University
matthew.johnson@duke.edu

To Whom It May Concern,

I am pleased to enthusiastically endorse **Alison Pei's** application for the **NBER Entrepreneurship Research Boot camp** in Summer 2022**.** I am Alison's faculty adviser at the Sanford School of Public Policy at Duke, and I can say with high confidence that Alison is poised to be an exceptional doctoral student. Her research interests make her a perfect fit for this boot camp, and her I highly recommend that you accept her application.

Alison is one of the inaugural students in the joint PhD program in Economics and Public Policy at Duke. Before I discuss her specific projects, I want to articulate my broad sense that Alison displays the dedication, creativity, entrepreneurial spirit, and passion for research that I believe are the qualities that make graduate students truly successful. In terms of dedication, she has learned quickly that coming up with independent research questions can be a daunting and frustrating process. While I've seen other graduates students become dismayed at this step, Alison has relished the challenge. She has already begun learning the painful process of when to abandon research ideas, and when to press on with them. Each week that we met for the first several months, she would report progress on a few ideas she had been working on, discuss one or two new ideas she is excited about, and we would then discuss which ideas to keep pursuing and which are probably worth putting on hold. This is such an important research skill, and Alison is learning it earlier than most. Over time, Alison has slowly converged to fewer, solid, ideas. Her passion for research is infectious, as she is eager to read new papers that I mention to her in these meetings, and she often points me to new state-of-the-art papers that she has found on her own. She is entrepreneurial, as she has independently found new datasets and conducted initial analysis for her independent work and for papers we are working on together. A final quality of Alison's that will serve her well in her academic career is that she has taken her field courses in both labor and IO. This combination not only gives her a versatile and expansive toolkit from which she can draw, but I also expect it will give her the tools to be on the cutting edge of labor economics in the years to come; as labor economists increasingly reckon with the growing evidence of imperfect competition in labor markets, the tools of IO will undoubtedly be at the frontier.

Onto her specific projects, Alison is focused on the exciting intersection of innovation, entrepreneurship, and employer market power. She already has (at least) three papers in the pipeline—as a third year—that I expect will be nice contributions to these topics. In the first of these, she plans to analyze how the location decisions of start-up companies affects local economies' overall pace of innovation. In particular, when startups migrate to a different city (either due to being acquired or for another reason), she plans to investigate what happens to the patenting and innovation activity of incumbent firms, in the context of biomedical startups. While this research idea is still in its infancy, she has already obtained interesting preliminary results, and I believe there is a strong chance this can become a first-rate job market paper. Her work thus far has demonstrated her research tenacity: she is applying to access multiple restricted-use data sources that would pave the way for exciting research possibilities. The topic of this paper also seems acutely aligned with the NBER Entrepreneurship working group.

In a second paper, Alison and her co-author (another PhD student in Economics at Duke) investigate how employer market power affects the earnings of high-skilled immigrants in the U.S. One of the most important advances in labor economics over the past decade has been an increasing realization that employers do not compete with each other for workers as fiercely as standard economic models suggest. One explicit reason for this employer "market power" is that many labor markets are highly concentrated—*i.e.* there just aren't that many employers competing with each other. However, much of this work has

been descriptive; finding a *causal connection* between employer concentration and workers' wages has largely proven difficult. Alison and her co-author are considering a novel source of variation in employer concentration that will potentially enable a causal analysis. They focus on the H1-B system, in which skilled immigrant workers apply to work for U.S. companies. Because there is often more applications than slots, in many years H1-B visas are granted *randomly* via a lottery system. The lottery is conducted at the national level. Because of random variation, the share of applications in a given labor market that get accepted will vary across cities and across industries. Alison and her co-author use this lottery-induced randomness to obtain exogenous variation in the concentration of employers of H1-B workers across local labor markets. Because the H1-B data includes information on the wage paid to the worker applying, they are able to estimate the effect of concentration on wages, instrumenting concentration with the acceptance rate in a local labor market. There is still much to do, and certainly their biggest challenge will be making a convincing case for the exclusion restriction in their IV strategy. But they have already made great strides on that front, and with time I am confident that she will be able to publish this paper in a good economics journal.

A third paper that Alison is working on in this space is with me (and other co-authors), in which we are examining how the enforceability of noncompete agreements affects patenting and measures of innovative activity. While not about entrepreneurship explicitly, one of the key mechanisms through which we expect noncompete enforceability affects innovation is via its effect on entrepreneurship. I mention this project mainly because Alison has impressed me immensely in her work on this project. From day one, she was comfortable conducting all the statistical analysis, was entrepreneurial in conducting new analysis with different datasets that I had not considered, and thoroughly read through relevant research. Often, I think faculty add PhD students as co-authors on papers out of a feeling of obligation, i.e. if the student is doing all the coding. Alison's role is so much more than that. She is an active, thoughtful, and productive part of every stage of the process of this paper.

In short, I highly recommend Alison Pei for this NBER Entrepreneurship Boot camp. I urge you to accept her application.

Please feel free to reach out to me if I can provide any more information.

Sincerely,



Dr. Matthew S. Johnson