Yuan Hu

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Application for the NBER Entrepreneurship Research Boot Camp

Dear Sir or Madam,

My name is Yuan Hu and I am writing to register my interest in applying for the NBER Entrepreneurship Research Boot Camp. I am a PhD student in Economics at Imperial College Business School under the supervision of Prof. Jonathan Haskel and Dr. Esther Boler.

My primary research interest is political economy. In the first chapter of my dissertation, I find that that firms decrease investment rates under a unified government (defined as the same party controlling both executive and legislative branch) relative to under a divided government. These findings suggest that an important element of democratic systems, political balance, may increase GDP by enhancing private investment. My ongoing project applies the regression discontinuity design method to study the causal effect on economic growth of partisanship in political leadership. My second research interest is entrepreneurship and innovation. Using World Bank Enterprise Survey data, I study how urban density affects entrepreneurial innovation with Saul Estrin, Daniel Shapiro and Peng Zhang. We find that in developing economies, agglomeration benefits associated with urban density are ultimately overwhelmed by agglomeration costs associated with negative externalities, so that firm innovative activity at some point declines as urban density increases.

My future plan is to link my two research interests. I am interested in both what kind of institution could encourage entrepreneurship and promote innovation, and how democratic institutions could affect economic growth from the perspective of entrepreneurship and innovation activities. Therefore, I am keen to attend this Entrepreneurship Research Boot Camp. It aligns with my research interests and thus can be helpful to my research. Especially, the lecture instructors are experts on entrepreneurship and innovation but from different perspectives. I believe, I could learn a lot about frontier research on entrepreneurship and innovation, which could inspire me to develop my research work. On the other hand, I think I am well qualified for this program, completing over one year of Ph.D. coursework in economics. I also hope that I could bring some fresh angle to this Boot Camp – from the perspective of political economy.

Enclosed is my curriculum vitae, and a two-page essay stating my current and future research, as well as the reason for wanting to attend the Boot Camp. For any questions, feel free to contact me at the number and email address listed above. Thank you for considering my application. I look forward to hearing from you.

Yours sincerely,
Yuan Hu

References

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Education

2018–to date	**Imperial College Business School**
	Ph.D. Economics
2015–2017	**London School of Economics**
	M.Sc. Economics (2-year program)
2011–2015	**Peking University**
	B.A. Korean Language and Culture, The School of Foreign Languages
	B.A. Economics, The National School of Development

Completetd PhD courses

2019–2020	**London School of Economics** (Audit)
	Macroeconomics, Political Economy, Labour Economics for Research Students
2018–2019	**Imperial College Business School**
	Microeconomics, Econometrics 1, Econometrics 2, Corporate Finance, Empirical Corporate Finance, Data Analysis Tools, Entrepreneurship, Innovation Management

Research Interests

Political Economy, Entrepreneurship and Innovation, Development Economics, Environmental Economics

Working Papers

"Innovation, Cities and Emerging Markets: Agglomeration Effects and Congestion", with Saul Estrin, Daniel Shapiro and Peng Zhang

Abstract: Evidence from developed economies suggests the relationship between innovation and urban density is not only positive, but superlinear. We explore whether this finding extends to emerging and developing economies. We propose that in developing economies, agglomeration benefits associated with urban density are ultimately overwhelmed by agglomeration costs associated with negative externalities, so that innovative activity at some point declines as urban density increases. We test these ideas on a large cross-country database, using nightlights to measure urban density and firm-level decisions to measure innovation, and find strong evidence to support the argument. Our results are consistent across various measures of firm-level innovation and across countries, but it is more pronounced in large cities. Our findings contribute to the debate over the universality of scaling laws, suggesting that context matters, and to current discussions on urban public policies in emerging markets, pointing to the importance of appropriate investments in urban infrastructure.

Work in Progress

Democracy, Checks and Balances and Corporate Investment
Causal Effects of Governor Partisanship on State Economy

Presentations

2021	PhD Research Day in Strategy, Entrepreneurship and Innovation

Teaching Assistant

2021–to date	**Imperial College Business School**
	Analytics for Applied Economics and Business (MSc Level)

Research Assistant

2017–to date	**London School of Economics**
	Professor Saul Estrin

Honours and Scholarships

	Imperial College Business School
2018–to date	Graduate Teaching Assistant Scholarship
	Peking University
2014	Hana Financial Group Scholarship
2013	National Scholarship of Ministry of Education

Languages

Chinese (native), English (fluent), Korean (fluent), German (basic)

IT Skills

Stata, R, Matlab, Python, LaTeX, Microsoft Office

My primary research interest is political economy. Specifically, I am interested in how political institutions affect real economy.

The first chapter of my dissertation investigates the link between democratic institutions and corporate investment. The effect of democracy on economic growth has long been a controversial question in political economy and development economics. Past empirical literature finding mixed and inconclusive evidence, mostly employs dichotomous measures of democracy and compares democratic and non-democratic countries. However, democracy is such a blunt concept. Few works take a close look at the essence of democracy.

This paper attempts to fill this void by investigating the link between checks and balances – one important constitutional principle of modern democracies – and corporate investment. It exploits the changes in whether partisan controls of the executive and legislative branches are aligned (unified government) or not (divided government), resulted from the U.S. presidential and/or congressional elections. Specifically, this paper uses data on the partisan structure of the federal government and quarterly data on the firm-level investment between 1977 and 2020. I then apply the classical investment-Q framework, and compare, econometrically, firm investment under the two types of governments.

The results show that firms decrease investment rates by an average of 13.1% under a unified government relative to under a divided government. I also find that the negative impact of unified governments is stronger for firms with greater dependence on government contracts, in less competitive markets, and with a higher degree of investment irreversibility. These results are consistent with the hypothesis that unified governments are more related with political uncertainty because they are more powerful and capable to pass legislation and thus to introduce changes and instability. I additionally examine a potential alternative explanation, i.e., firms facing a unified government may simultaneously receive bad news associated with political events. Yet the results show that firms faced with a unified government reduce their investment, regardless of whether the political news are good or bad to them. Overall, I document a strong negative relationship between unified governments and firm-level capital investment and show that divided governments have some economic benefits over unified governments. These findings suggest that an important element of democratic systems, political balance, may increase GDP by enhancing private investment.

The second chapter of my dissertation, which is an ongoing project, studies the economic effects of partisanship in political leadership. Past literature finds faster national economic growth under Democratic Presidents. However, that is statistic correlation but not causality. Within the system of federalism in the U.S., the states are independent entities and thus governors can impose strong power on the state economy. I apply the regression discontinuity design (RDD) on the state-level data, to establish a causal relationship between the partisanship of governors and state economic growth. The results show that Republican governors cause faster economic growth, which reverses the partisan trend at national level. My next step would be exploring why Republican governors lead to higher growth rate and reconciling the opposite partisan trends at national and state level.

My second research interest is entrepreneurship and innovation. Specifically, I am interested in what could encourage entrepreneurship and promote innovation.

The paper targeted at Nature, titled "Innovation, Cities and Emerging Markets: Agglomeration Effects and Congestion" with Saul Estrin, Daniel Shapiro and Peng Zhang, studies how urban density affects entrepreneurial innovation. Evidence from developed economies suggests the relationship between innovation and urban density is not only positive, but superlinear. We explore whether this finding extends to emerging and developing economies. We propose that in developing economies, agglomeration benefits associated with urban density are ultimately overwhelmed by agglomeration costs associated with negative externalities, so that firm innovative activity at some point declines as urban density increases. We test these ideas on a large cross-country database, using nightlights to measure urban density and firm-level decisions to measure innovation, and find strong evidence to support the argument. Our results are consistent across various

measures of firm-level innovation and across countries, but it is more pronounced in large cities. Our findings contribute to the debate over the universality of scaling laws, suggesting that context matters, and to current discussions on urban public policies in emerging markets, pointing to the importance of appropriate investments in urban infrastructure.

In the future, I would like to connect my two research interests.

Based on my first chapter, I further find that a unified government is associated with more R&D investment compared to its divided counterpart. This might imply that lack of political balance could promote economic growth through encouraging intangible capital investment. Combined with the tangible capital investment results above, this suggests that even the same essence of democracy – political balance – could have opposing effects on economic growth, let alone the so-called democracy, a multifaceted concept. My future plan is to study why a unified government could promote R&D investment and this could bring more insights on both what kind of institution could encourage entrepreneurship and promote innovation and how democratic institutions enhance economic growth in a nuanced way. I would like to submit this paper to American Economic Review (AER) after finishing the R&D part. As for my ongoing second chapter, my next step would be to explore why Republican governors lead to higher growth rate. Specifically, I would like to investigate the firm innovation activities under Democratic and Republican governors. Furthermore, I will also attempt to reconcile the opposite partisan trends at national and state level.

I also have some additional preliminary idea, beyond the relatively well-developed work mentioned above. My idea is about green entrepreneurship and informal institutions. Environmental problems are getting more and more urgent, and World Bank Enterprise Survey (WBES) has included a module on the green economy since 2018. Most countries covered in this survey are emerging economies. In an emerging economy, informal institutions might play a more important role as formal institutions are weak. I am wondering whether informal institutions might have some effects on environmental issues, e.g., green entrepreneurship, and how it could happen. This might bring insights on how global community could work together to handle the critical environmental challenge.

There are two main reasons why I would love to attend the Entrepreneurship Research Boot Camp. First, this aligns with my research interests and thus can be helpful to my research. Especially, the lecture instructors are experts on entrepreneurship and innovation but from different perspectives. I believe, I could learn a lot about frontier research on entrepreneurship and innovation, which could inspire me to develop my research work. Second, I think I am well qualified for this program. I've received solid economics training for almost ten years, starting from undergraduate lectures at Peking University, master courses at LSE, to PhD-level training at Imperial. To hone my research skills, I also audited macroeconomics, political economy and labor economics (PhD-level courses) at LSE. Additionally, I hope that I could bring some fresh angle to this Boot Camp – from the perspective of political economy.

BANK OF ENGLAND

Professor Jonathan Haskel
External MPC Member

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Assistant
Martene.Giles@bankofengland.co.uk

Thursday, 20 January 2022

Brett Maranjian, NBER, by email.
maranjian@nber.org
Dear Brett,

Yuan Hu

I write in support of **Yuan for the NBER Entrepreneur Research Boot Camp 2022**

I'm a Professor of Economics at Imperial College Business School, at Imperial College in London , currently on leave at the Bank of England. I have supervised Yuan for the last 3 years.

The sections of her PhD, that I have supervised, use USA state data to study whether investment rates change in a US state when there is a unified government (that is, the same party controlling both executive and legislature) rather than a divided government. It finds they fall with a unified government. Yuan uses company level data merged with state-level information and has worked hard constructing the data and adding in more variables, such as company influence activities. Most recently, she is trying to use variation across states that have very close results to see if she can better identify these effects.

Yuan is hard-working and interested in an important issue. She started her work near the start of lockdown and has kept going, as have many students of course, a long way from home (China) under successive lockdowns.

She has applied for both the innovation and entrepreneurship bootcamp. In other work she has done, that I have not seen, she has worked on entrepreneurship but she would, she tells me, prefer the innovation were she to have the free choice. I mention this since I don't want to crowd other students out.

I hope that this helps. Do contact me at the address above if needed.

Yours sincerely

Jonathan Haskel