Takuya Hiraiwa
3300 16th Street, NW, #112, Washington, DC, 20010

January 30, 2023

Dear National Bureau of Economic Research,

I am a Ph.D. student in Strategic Management and Entrepreneurship department at the Robert H. Smith School of Business at the University of Maryland. My research interests include management practices, entrepreneurship, firm growth, innovation, and social network analysis.

I am hereby applying the 2023 NBER Summer Entrepreneurship Research Boot Camp. My contact information and the name of the recommendation letter writer are as follows:

Contact Information:
Takuya Hiraiwa
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University of Maryland
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Recommender:
Serguey Braguinsky

I also want to note that I received a rollover from the submission to the 2022 NBER Summer Entrepreneurship Research Boot Camp last year and was encouraged to indicate it in this year's application.

Sincerely,
Takuya Hiraiwa

Takuya Hiraiwa

Affiliation

Ph.D. student
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University of Maryland
7621 Mowatt Lane, College Park, MD, 20742

Contact Information

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Education

Ph.D. student in Strategic Management & Entrepreneurship, University of Maryland	2021-current
Ph.D. student in Business Administration, Hitotsubashi University	2020-2021
M.A. in Commerce and Management, Hitotsubashi University	2018-2020
B.A. in Commerce and Management, Hitotsubashi University	2014-2018

Research Interests

Industrial Organization (Production Networks, Management Practices, Entrepreneurship), Social Networks, Engineering Human Capital, Innovation

Awards

Hitotsubashi University Award for Student Excellence, (GPA ranked 1st in the same grade)	2015
Hitotsubashi University Award for Student Excellence, (GPA ranked 1st in the same grade)	2016
Hitotsubashi University Award for Student Excellence, (GPA ranked 1st in the same grade)	2017
Hitotsubashi University Award for Student Excellence, (Valedictorian of the Department of Commerce)	2018
Naito Akira Memorial Prize (First Prize for Bachelor Thesis)	2018
Naito Akira Memorial Prize (First Prize for Master Thesis)	2020

Current and Completed Ph.D. Courses

Advanced Econometrics I	Hitotsubashi University
Advanced Business Economics	Hitotsubashi University
Advanced Innovation Economics	Hitotsubashi University
Advanced Corporate Finance	Hitotsubashi University
Advanced Macroeconomics	Hitotsubashi University
Advanced Computer Simulation	Hitotsubashi University
Econometrics I	University of Maryland
Econometrics II	University of Maryland
Empirical Studies in Industrial Organization	University of Maryland
Special Topics in Strategic Management and Entrepreneurship:	
Organizational Theory	University of Maryland
Strategy and Entrepreneurship Research Methods Foundation	University of Maryland
Social Foundations	University of Maryland
Best Methods	University of Maryland
Entrepreneurial Ecosystems	University of Maryland
Organizational Economics	University of Maryland
Historical Methods in Strategy Research	University of Maryland
Formal Models of Entrepreneurship	University of Maryland
Overview of Strategy and Entrepreneurship	University of Maryland
Innovation and Entrepreneurship	University of Maryland
Special Topics in Supply Chain Management:	
Industrial Organization Economics: Applications to Strategy	University of Maryland

Essay for the NBER Entrepreneurship Research Boot Camp

My current research focuses on two issues. First, I (jointly with my former advisor, Atsushi Ohyama) am investigating how management practices and uncertainty are related to firm performance and productivity. The project focuses specifically on customer-supplier networks in relation to business uncertainty and management practices, utilizing a unique combined data on inter-firm transaction relationship from Japanese firms and micro-level business expectations, forecasting errors, and management practices from the Japanese Management and Organizational Practices Survey (JP MOPS). We analyze how business expectations are formed in production networks and how they affect firms' performances, both theoretically and empirically. Second, I have begun a new strand of research after joining the University of Maryland PhD program. This research focuses on examining knowledge spillovers inside firms during Japan's early industrialization, using unique data on the universe of all formally educated scientists and engineers, matched with their jobs and patent data to identify inventors among them. While extant literature focuses on knowledge spillovers *from* high-achieving inventors, I am trying to elucidate the role of the talent of those on the *receiving* side (the "absorptive capacity" of spillovers' recipients). I plan to link this to a broader examination of the role of higher STEM education and job matching in building "absorptive capacity" to promote innovative activities and growth in a developing economy like Japan at the time.

In the future research, using the detailed data on interpersonal linkages among STEM-educated individuals in my second research, including but not limited to birthplace, university alumni and workplace networks, I would like to examine more generally how interpersonal networks populated by talented individuals can drive or dampen entrepreneurship. Interpersonal networks can be beneficial in entrepreneurial activities, since they can facilitate information and knowledge transfer as well as expose potential entrepreneurs to role models, and they can also enable entrepreneurs to have access to reliable human resources. However, I also conjecture that this may not always be the case because of some disadvantages in entrepreneurs relying too much on existing interpersonal connections. Think about entrepreneurs in a developing country, such as Indian entrepreneurs described in Bloom et al. (2013). In these countries, entrepreneurs at the beginning of industrialization rely heavily on kinship or birthplace networks to expand their firms. This often leads them to shun outsiders and recruit managers exclusively among family members, as they cannot trust outsiders. As a result, there seems to be limits to growth if entrepreneurs just rely on existing interpersonal networks. Bloom et al. (2013) argue that for Indian textile firms, "managerial time was constrained by the number of male family members. Non-family members were not trusted by firm owners

with any decision-making power, and as a result, firms did not expand beyond the size that could be managed by close (almost always male) family members."

In contrast, Japan's early industrialization followed a different path. Just like any less developed country, entrepreneurial firms at the start of industrialization also started from kinship or birthplace networks. In many cases entrepreneurs employed degreed engineers and inventors that emanated from the original family network, and these companies were connected by the shared ownership and top management which came from the same family network. What was different in Japan, however, was that such networks around entrepreneurs expanded over time, moving beyond family and local ties toward including more and more talented individuals. That is, while all those companies may have initially been connected by the shared ownership and top management which came from a family network, they kept adding layers of new people who were not originally connected to the family, and then those people, promoted to key positions, brought even more talented people into the network. This allowed the network to expand to a lot of different industries and grow seemingly without bound. Indeed, many of the Japanese conglomerates ("zaibatsu") represented the outcomes of such networks scaling and growing far beyond those who were included in them originally. As suggested by my example, it seems that the important source of entrepreneurial firms' growth is not only pre-determined entrepreneurial networks, but also the dynamic expansion of such networks beyond well-established interpersonal linkages. The questions are how and why such new network linkages are formed or not in different contexts, and how such dynamic formation of networks leads to the growth of entrepreneurial firms. Our detailed data allow us to trace the process of network formations and to link it to the emergence of great firms and industrial evolution. I would like to examine these issues on endogenous entrepreneurial network formation in detail in the future.

A big reason why I want to attend this boot camp is that I can learn the research topics in the economics of entrepreneurship from the prominent leading professors who have significant contributions in these research areas. I expect that this will give me opportunities to gain significant insights to promote my future research. Second, I also expect that the interactions among attendees who have the same research interests in entrepreneurship will provide us with further opportunities to share ideas and insights and to improve and support each other throughout this boot camp and beyond it. Lastly, I submitted my application last year and received a rollover from last year. I really hope I can have the opportunity to learn at the boot camp this time.

References

Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., and Roberts, J. (2013). Does management matter? Evidence from India. *Quarterly Journal of Economics*, *128*(1), 1-51.

UNIVERSITY OF MARYLAND
ROBERT H. SMITH SCHOOL OF BUSINESS

To: NBER Entrepreneurship Research Boot Camp 2023 Review Panel

January 25, 2023

Letter of Recommendation for Takuya Hiraiwa

Dear Nick, Yael, Josh, David, Antoinette, and Scott

I am writing this letter in support of Takuya Hiraiwa's application to the NBER Entrepreneurship Research Boot Camp 2023. I am his advisor at the Strategy, Management, and Entrepreneurship PhD program at Smith School at the University of Maryland which he joined in the fall of 2021, after doing a few years of doctoral studies at Hitotsubashi University, with my former student, Atsushi Ohyama as his advisor there.

He previously applied for this Boot Camp last year (and I wrote the letter for him at that time) and received a rollover encouraging him to re-submit his application for this summer, with the indication that his application would be given "high priority." I hope that he can be accepted to attend this year.

To partially repeat what I wrote in my letter last year, Takuya is an amazing student, and he has cemented his position as a star student in our program in the past 12 months. As you can see from his vita, he was already the top student at Hitotsubashi for all four years of his undergraduate studies, and he also won the first prizes for both his bachelor and master theses. I first met him in the summer of 2019 during my visit to Hitotsubashi while working with Atsushi Ohyama on what became our recent joint AER paper. Atsushi introduced Takuya to me at that time and asked me if I could help him advise Takuya about continuing his graduate education in the United States. So even though I have been his formal adviser since Fall 2021, I have actually known Takuya for three and a half years by now.

Since joining the PhD program at the University of Maryland Takuya has been an A/A+ student in all courses he took (including courses he took at the Department of Economics). He was also recruited, already in his first year, as a coauthor on two papers spearheaded by my colleague, Evan Starr. The first paper, dealing with methodological issues of identification strategy and currently under review in the Strategic Management Journal, can be found here: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4228655. Although I am not involved in that project, I heard from my colleagues that Takuya's contribution to that paper was significant. Takuya is also a coauthor on another paper with Evan Starr and Michael Lipsitz where they use a revealed preference approach to examine how firms (don't) value non-compete agreements. This paper is going to be released soon and is expected to make quite a splash given the recent moves by FTC regarding non-competes policy.

While the two projects (joint papers) above were initiated by others and Takuya joined them by leveraging his superb econometric/methodological skills, he has also been actively working on developing his own independent research agenda. I do not need to repeat here what he wrote in his application letter, but one thing that is new since last year (aside from completing the two coauthored papers mentioned above) is the notion of absorptive capacity on the receiving side of knowledge spillovers which he discovered while working with the data on the Japanese scientists and engineers during early stages of Japan's industrialization. Indeed, Japan's industrialization stands out even today as an example of a successful catch-up to more advanced nations. While advanced technologies are there to be adopted by today's developing countries, one thing that seems to be preventing many of them from catching up is precisely the lack of such "absorptive capacity." Japan realized that very early in its transition to modernity and built a

system of higher science and technical education from scratch. This system then produced educated scientists and engineers who helped Japan make a transition from light to heavy and chemical industries. Takuya's original idea was to take this "macro" observation to micro-level firm and individual data and to demonstrate that higher academic achievement at a university was positively associated with increased likelihood of becoming an (more productive) inventor among those who were exposed to accomplished inventors newly joining their workplaces. That is, knowledge spillovers appear to be influenced not just by the "star inventors" who generate those spillovers, but also by the absorption capacity of those who are exposed to spillovers *from* star inventors. While there are several identification challenges that need to be overcome in this study to be able to claim causality, Takuya is aware of those and given his skills, I am sure he will be successful in overcoming those challenges. He then plans to develop this study further, as he writes in his application essay.

As I already mentioned in my letter last year, Takuya not only has extraordinary ability but is also very coachable (these two things don't always come together but they do in his case). I would put him on par or with Atsushi Ohyama (who has always been my benchmark in measuring my other students) in terms of raw ability, work ethic, and ability to generate original ideas, but he is technically stronger than Atsushi was at the same stage of his career. Even only in his second year, he is much more advanced than his status in the program might suggest, and I am confident that he would be able to take full advantage of as well as to contribute to the Boot Camp by his intellect, maturity, and add to the diversity of backgrounds and ideas generation.

To sum up, I recommend him VERY STRONGLY for the Entrepreneurship Research Boot Camp this year. Please do not hesitate to contact me if you need any further information.

Yours truly,
Serguey



Serguey Braguinsky
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