Sukwoong Choi
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sukwoongchoi@kaist.ac.kr

March 30, 2018

To whom it may concern:

It is a great pleasure to have the opportunity to write to you. Under my advisor, **Prof. Wonjoon Kim**, I am an advanced doctoral student at the Innovation and Entrepreneurship area at the College of Business, KAIST (Korea Advanced Institute of Science and Technology). I am writing to express my interest in the participation of NBER Entrepreneurship research boot camp 2018. Currently, I am a visiting student at **University of California, Berkeley** for this year 2018. That's because I had received a fund from the National Research Foundation of Korea that supports my research in the US for one year. My research mainly draws upon the phenomenon-driven research questions at the intersection of entrepreneurship, technology strategy, and innovation that offer both policy and managerial implications.

I am certain that the sessions at this NBER Entrepreneurship boot camp will be a great opportunity for me to learn vital literature in entrepreneurship, and extend my views and abilities to conduct more in-depth research on the issues of my interest. In particular, I would like to share my new research project, i.e., "The Government Subsidization: Evaluating the Innovation of TIPS program" with the leading scholars and receive constructive comments from them during this boot camp. The cutting-edge research in this area and the research experiences of leading scholars will be also helpful to not only the direction of my research but also my research attitude. Thus, it will provide a wonderful chance for me to deepen my research as well as to broaden its scope if I can join this boot camp. If you have any inquiries about me, please do not hesitate to contact me. Thank you for your time and consideration of my application.

Sincerely yours,

Sukwoong Choi

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Education

University of California, Berkeley *2018.01-2018.12*
Visiting Student Researcher (Sponsored by Korean NRF)

KAIST (Korea Advanced Institute of Science and Technology) *2012 - present*
Ph.D. candidate, College of Business

KAIST (Korea Advanced Institute of Science and Technology) *2012*
B.S. Mathematical Science

Research Interests

(1) Innovation, Entrepreneurship
(2) Applying Quantitative Methods in Social Science, Computational Social Science

Working Papers

[1] "What happened to entrepreneurship research for the past 31 years (1985-2015)? A Topic Modeling Analysis", with Keeheon Lee, and Wonjoon Kim. *Working paper*

[2] "The Government Subsidization: Evaluating the Innovation of TIPS program", with Yong Suk Lee, and Wonjoon Kim. *Working paper*

[3] "Substitutability and complementarity of digital goods: The effect of mobile technology penetration on online music industry", with Kyeongseok Heo, and Wonjoon kim. *Under Review.*

[4] "Are social entrepreneurs more risk-averse?" with Namil Kim, Wonjoon Kim. *Under Review.*

Work in progress **[Status in brackets]**

[1] "Global trade network and innovation: A cross-country examination", with Wonjoon Kim, and Seunghun Han. [Preparation for manuscript]

[2] "The impact of social liberal institutions on entrepreneurship" [Data collection in progress]

[3] "The Effect of Government Intervention in Market Prices: the Case of Korean Retail Gasoline Markets", with Jaeyeon Kim, Jihee Kim, and Wonjoon Kim. [Data analysis]

Publications

[1] "An Empirical Study on Successful Crowdfunding" (with Lee, Kim and Kim) (2017) *Asia-Pacific Journal of Business Venturing and Entrepreneurship* (Written in Korean / **Winner of the Best Paper Award**)

Academic Conferences

[1] "What happened to entrepreneurship research for the past 31 years (1985-2015)? A Topic Modeling Analysis", with Keeheon Lee, and Wonjoon Kim. Academy of Management (AOM) Annual Meeting, Atlanta, Georgia, August 4-8, 2017.

[2] "What drives international alliance formation? The effect of domestic competition networks", with Namil Kim, and Wonjoon Kim. Academy of Management (AOM) Annual Meeting, Atlanta, Georgia, August 4-8, 2017.

[3] "What drives international alliance formation? The effect of domestic competition networks", with Namil Kim, and Wonjoon Kim. Strategic Management Society (SMS) Annual Conference, Houston, Texas, Oct. 28-31, 2017.

Academic Programs

[1] **Big Data and Business Analytics.** 2017 MIS Summer Program at Harbin Institute of Technology, Harbin, China, July 4-11, 2017.

[2] **TIM (Technology and Innovation Management) Doctoral Student Consortium.** Academy of Management (AOM) Annual Meeting, Atlanta, Georgia, August 4-5, 2017.

Other

Programming: Python, R, Stata, Java

Research Project Experiences

Technology Innovation and Industry Future Strategy for Sustainable and Balanced Economic Growth,

Korea National Research Foundation of Korea *2016-Present*
Research Assistant

Research on the Global Innovation and Production Network and the Sustainable Industrial Ecosystem of Korea,

Korea National Research Foundation of Korea *2014 - 2015*
Research Assistant

References

Wonjoon Kim (Advisor), College of Business, KAIST, wonjoon.kim@kaist.edu

Yong Suk Lee, Shorenstein Asia-Pacific Research Center, Stanford, yongslee@stanford.edu

Namil Kim, College of Business, KAIST, namil.kim@kaist.ac.kr

Keeheon Lee, Yonsei University, keeheon@yonsei.ac.kr

Seunghun Han, College of Business, KAIST, hansm8@kaist.ac.kr

A list of all completed PhD courses

Credits applied for	123.0	Credits completed	123.0	G.P.A.	3.88

▷ 2012 Year Spring

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	General Required	11.020	CC020		General Required	Ethics and Safety I	0.0	1	N	S	윤리 및 안전 I
2	General Required	11.511	CC511		General Required	Probability and Statistics	3.0	0	N	A+	확률및통계학
3	Department of Management Science	42.500	MSB500		Major Required	Advanced Statistics for Management	3.0	0	N	A0	고급경영통계
4	Department of Management Science	42.538	MSB538		Elective(Graduate)	Organization Management	3.0	0	N	B+	조직관리론

▷ 2012 Fall

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	General Required	11.010	CC010		General Required	Special Lecture on Leadership	0.0	0	N	S	리더십강좌<리더십 강좌>
2	General Required	11.500	CC500	C	General Required	Scientific Writing	3.0	0	N	S	Scientific Writing
3	Department of Management Science	42.535	MSB535		Elective(Graduate)	Corporate Finance Theory	3.0	0	N	A-	기업재무관리
4	Department of Management Science	42.601	MSB601		Elective(Graduate)	Research Methodologies I	3.0	0	N	A-	연구방법론 I

▷ 2013 Spring

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	Department of Management Science	42.701	MSB701		Elective(Graduate)	Advanced Econometrics	3.0	0	N	A0	고급계량경제학
2	Department of Management Science	42.702	MSB702		Elective(Graduate)	Research Methodologies II	3.0	0	N	B+	연구방법론 II
3	Department of Management Science	42.838	MSB838		Elective(Graduate)	Advanced Organization and Management Theories	3.0	0	N	A+	조직경영이론논제
4	Graduate School of Innovation & Technology Management	81.800	ITM800		Elective(Graduate)	Special Topics(3) in Management of Technology<CTO Seminar>	3.0	0	N	A0	기술경영특강(3)<CTO Seminar>

▷ 2013 Fall

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	Department of Humanities & Social Sciences	10.583	HSS583	B	Elective(Graduate)	Graduate English Presentations	3.0	0	N	A-	Graduate English Presentations
2	Department of Business and Technology Management	42.830	MSB830		Elective(Graduate)	Advanced Performances Management	3.0	0	N	A+	성과관리논제
3	Graduate Program for Innovation & Technology Management	81.667	ITM667		Elective(Graduate)	M&A and Corporate Restructuring	3.0	0	N	A0	M&A와 기업구조조정

▷ 2014 Spring

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	Department of Business and Technology Management	42.980	MSB980	G	Thesis Research (MA/phD)	Ph.D Dissertation Research	12.0	0	N	S	논문연구(박사)

▷ 2014 Fall

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	Department of Business and Technology Management	42.980	MSB980	B	Thesis Research (MA/phD)	Ph.D Dissertation Research	12.0	0	N	S	논문연구(박사)

▷ 2015 Spring

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	Department of Business and Technology Management	42.980	MSB980	B	Thesis Research (MA/phD)	Ph.D Dissertation Research	12.0	0	N	S	논문연구(박사)

▷ 2015 Fall

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	Department of Business and Technology Management	42.980	MSB980	B	Thesis Research (MA/phD)	Ph.D Dissertation Research	12.0	0	N	S	논문연구(박사)

▷ 2016 Fall

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	School of Business and Technology Management	42.980	MSB980	B	Thesis Research (MA/phD)	Ph.D Dissertation Research	12.0	0	N	S	논문연구(박사)

▷ 2017 Spring

No.	Department	Course Code	Course No	Sect.	Course Type	Course Title	Credits	AU	Repeat a Course	Grade	Course title in Korean
1	School of Business and Technology Management	42.980	MSB980	B	Thesis Research (MA/phD)	Ph.D Dissertation Research	12.0	0	N	S	논문연구(박사)

The essay about why I want to attend this boot camp

I have three reasons why I want to attend this boot camp. First, the research of the expected presenters is very closely related to my current and future research. One of my current research projects is to examine the effects of the government R&D grants on the future financing or the rate and direction of young high-tech firms' innovation. Since 2013, the Korean government has operated the tech incubator program for startups (i.e., TIPS) which subsidize about 500,000 USD to the early stage high-tech startups. This program is designed as the matching R&D funds with TIPS partners and Korean Government to promote innovative startups by not only complementing the weakness of tech and market expertise of Government but also decreasing the risk of VCs. TIPS partners are typical venture capitals selected by Korean Governments (for details see Figure 1).

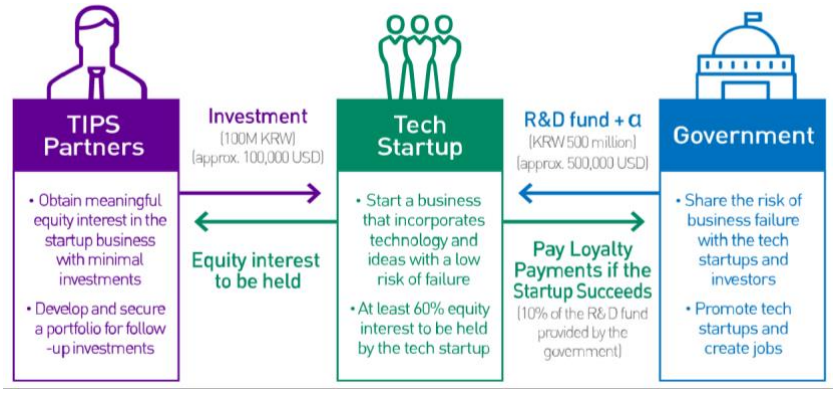


Figure 1. The structure of Tech Incubator Program for Startups (TIPS)

Prior studies have revealed that private angel program or government-sponsored venture capital can make the improved future investment, revenue, and patenting (Brander, Du, and Hellmann, 2015; Kerr, Lerner, and Schoar, 2011), and R&D subsidy programs tend to crowd out private investment (Lerner, 2009). However, there are few empirical studies of the incubating program having such a hybrid model (Lerner, 2012). I use a novel data about TIPS programs including the ranked applications. Based on Howell (2017), utilizing the rank information of the TIPS programs' proposals, I exploit the ranks in a sharp regression discontinuity design. My preliminary results show that startups supported by TIPS program have improved patenting but no differences about the extent of future investment (see Figure 2). Although the statistical power of these results seems to be weak, I am adding the brand-new data about entrepreneurial outcomes (e.g., the number of patents, IPC code of patents, the history of future investments).

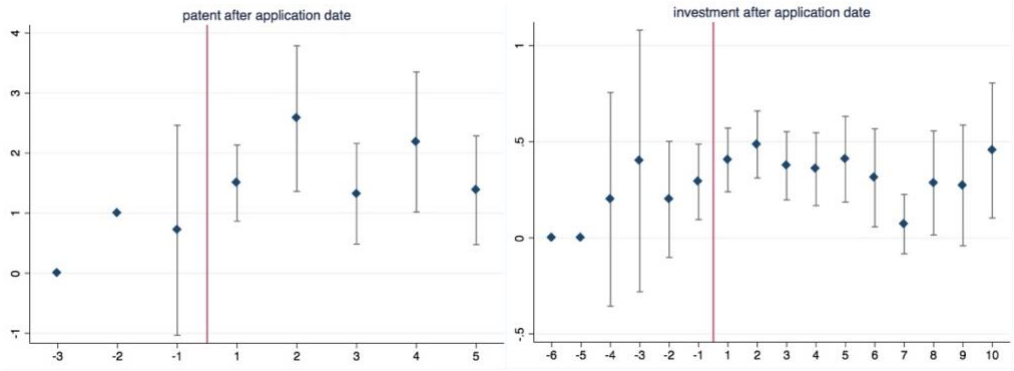


Figure 2. Preliminary Results

In addition, I am preparing to do survey the startups submitted TIPS proposals to examine the other outcomes such as organization change and management practices. In particular, Bloom, Eifert, Mahajan, McKenzie, and Roberts (2013) revealed the importance of management practices but their study focused on the relatively large firms. Thus, we do not know whether management practices are also beneficial to startups or not. With the Ministry of SMEs and Startups in South Korea, I am making the survey items to reveal other outcomes generated by government supports. My future project will be the examination about the effects of TIPS program on the non-tangible outcomes such as management practices and organization change.

Second, this boot camp will be a great opportunity for me to study literature about entrepreneurship. During my PhD courses, I have no opportunities to take the courses about entrepreneurship because my school does not provide these courses (for detail see my CV). Thus, I focused on taking the courses about firm strategies, corporate finance, and mathematical and computational research methodologies. Through this boot camp, I would like to learn the important literature and model identification strategies. In particular, I want to discuss about the topics deeply relating to my research such as venture incubating programs (Kerr et al, 2011), management practices (Bloom et al., 2013) and the rate and direction of technological change or innovation (Arrow, 1962; Lerner and Stern, 2012).

Lastly, I would like to share my research with top scholars and other PhD students. Prior studies about government grant to startups have mostly focused on the SBIR program (e.g., Lerner 1999; Howell, 2017). Even though the expenditure in R&D of South Korea is the highest in the world in proportion to its GDP and Korean government also regularly subsidize this budget to entrepreneurial firms, there are few studies having memorable findings. In this boot camp, I would like to contribute to share my findings using the other context or programs beyond US with other participants. These are my three reasons which I join this boot camp, and I hope that I have this great opportunity.

References

Arrow, Kenneth. 1962. "Economic Welfare and the Allocation of Resources for Invention." National Bureau of Economic Research: The Rate and Direction of Inventive Activity: Economic and Social Factors I: S. 609-626.

Bloom, Nicholas, B Eifert, A. Mahajan, D. McKenzie, and J. Roberts. 2013. "Does Management Matter? Evidence from India." The Quarterly Journal of Economics 128 (1): 1–51.

Howell, Sabrina T. 2017. "Financing Innovation: Evidence from R&D Grants." *American Economic Review* 107 (4): 1136–64.

Kerr, William R., Josh Lerner, and Antoinette Schoar. 2014. "The Consequences of Entrepreneurial Finance: Evidence from Angel Financings." Review of Financial Studies 27 (1): 20–55.

Lerner, Josh. 1999. "The Government as Venture Capitalist: The Long-Run Impact of the SBIR Program." The Journal of Business 72 (3): 285–318.

Lerner, Josh. 2009. Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed—and What to Do About It. Princeton: Princeton University Press.

Lerner, Josh. 2012.The architecture of innovation: The economics of creative organizations. Harvard Business Press.

Lerner, Josh and Scott Stern, eds. 2012. The Rate and Direction of Inventive Activity Revisited, Chicago, IL: University of Chicago Press.

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LETTER OF RECOMMENDATION

March 30, 2018

To Whom It May Concern:

I am very pleased to write this letter of recommendation for the 2018 NBER Entrepreneurship Research Bootcamp on behalf of Sukwoong Choi. First of all, I strongly recommend Mr. Sukwoong Choi for the Workshop. He is an exceptional student with outstanding academic achievements and promising future as a notable scholar. I believe he is one of the students who will benefit the most from the program. He is currently conducting entrepreneurship research at Haas School of Business at U.C. Berkeley as a visiting student while he is currently pursuing his Ph.D. in our school (School of Business and Technology Management). I have worked closely with him for the past 4 years serving as his primary academic advisor for the doctoral program.

As a doctoral student, he is an excellent researcher in strategic management and entrepreneurship studies. He has always brought up very unique and important research ideas regarding entrepreneurship and firm strategy. His ways of approaching research idea is unorthodox and he keeps on suggesting different points of views. He has superb quantitative skills including very strong computational knowledge and skills (machine learning, natural language processing, etc.). He has already several working papers based on some unique data regarding the government funding on start-ups in Korea. The data enables him to identify the effect of government matching for private investments on start-ups. He is currently constructing RDD (Regression Discontinuity Design) setting for this research issue and I believe this research will be highly impactful in entrepreneurship literature. One of his working papers will be summited to OS (Organization Science) soon and the other will be submitted to SMJ (Strategic Management Journal). He will benefit the most from the consortium.

I think the 2018 NBER Entrepreneurship Research Bootcamp will be an excellent opportunity for him to broaden his research capacity and to do further research on strategic management and entrepreneurship. Therefore, I strongly recommend Mr. Choi with my highest possible recommendation as an outstanding applicant to the consortium. Please do not hesitate to contact me if you have any question concerning Sukwoong. Thank you.

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Sincerely,



Wonjoon Kim, Ph.D.

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School of Business and Technology Management
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I think the 2018 NBER Entrepreneurship Research Bootcamp will be an excellent opportunity for him to broaden his research capacity and to do further research on strategic management and entrepreneurship. Therefore, I strongly recommend Mr. Choi with my highest possible recommendation as an outstanding applicant to the consortium. Please do not hesitate to contact me if you have any question concerning Sukwoong. Thank you.

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Sincerely,



Wonjoon Kim, Ph.D.

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