Massachusetts Institute of Technology

MIT Department of Economics

77 Mass Ave, Building E17-201w, Cambridge, MA 02142

March 28, 2014

Dear Committee Members,

I am writing to apply for the opportunity to attend the 7th Entrepreneurship Research Boot Camp at NBER. I am currently a third-year PhD candidate at MIT Economics, majoring in public finance and industrial organization. My primary research interests are in health economics and the economics of innovations. In particular, I have been very interested in understanding the dynamic nature of adverse selection in pharmaceutical R&D, in trying to identify spillover and crowding-out effects within biomedical research, and in understanding what affects technology diffusion in the health care sector.

My ideas on the abovementioned topics are all at an early stage currently, and I think of the ERBC as a great opportunity for me to learn more about cuttting-edge research in related areas, to further develop my ideas and to discuss them with both great professors and fellow students with shared research interests.

I am enclosing my Curriculum Vitae, list of PhD courses and statement of research interests. You will receive my letter of recommendation from Professor Heidi Williams. If you have any questions or require any additional information on my application, you are welcome to contact me at 617-800-9608, or yufeiwu@mit.edu.

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

Sincerely,

Yufei Wu

Yufei Wu
PhD Candidate
MIT Economics
Building E17-201w

77 Massachusetts Avenue
Cambridge, Massachusetts
02142

Phone 617–800-9608
Email yufeiwu@mit.edu

Yufei Wu

Contact Information

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	77 Mass Ave, Building E17-201w, Cambridge, MA 02142
Phone	(617)800-9608
Email	yufeiwu@mit.edu

Education

2011 -	PhD Candidate in Economics, Massachusetts Institute of Technology (GPA 5.0/5.0)
2010, Jan-Jul	Visiting Student, University of California, Berkeley (GPA 4.0/4.0)
2007 - 2011	B.S., Economics, School of Economics and Management, Tsinghua University GPA 93.6/100 (Rank 1/123); Second Major in Mathematics

Honors

2011 - 2013	MIT Graduate Fellowship
2010	Tsinghua University-Morgan Stanley Scholarship for Academic Research Talents
2009	Championship, China's First National Collegiate Annual Conference of Economics
2008 - 2010	Tsinghua Scholarship for Academic Excellence
2007	Tsinghua Scholarship for Outstanding Freshman (for top performance in College Entrance Examination; Rank 1/ 299,264, Anhui Province)

Working Paper

Supply Response to Consumer Inertia: Strategic Pricing in Medicare Part D
(Current Draft: March 2014)

Work in Progress

When to License a Drug: Dynamic Adverse Selection in the Pharmaceutical R&D Market
(Current Draft: November 2013)

Referee Experience

2013 -	*Journal of Public Economics*

Positions

2013 -	Research Assistant to Heidi Williams
2012 -	Research Assistant to Amy Finkelstein
2011, summer	Research Assistant to Jonathan Gruber
2010-2011	Research Assistant to Richard Zeckhauser
2010, Mar-Jul	Research Apprentice to Ulrike Malmendier

Presentations

2013	MIT Public Finance Lunch

List of Classes Taken at MIT, Yufei Wu

Microeconomic Sequence

- 14.121 Microeconomic Theory I, A+
- 14.122 Microeconomic Theory II, A
- 14.123 Microeconomic Theory III, A
- 14.124 Microeconomic Theory IV, A

Macroeconomic Sequence

- 14.451 Dynamic Optimization Methods, A
- 14.452 Economic Growth, A+
- 14.453 Economic Fluctuations, A+
- 14.454 Economic Crises, A+

Econometric Sequence

- 14.381 Statistical Method in Economics, Waived
- 14.382 Econometrics, A+
- 14.385 Nonlinear Econometric Analysis, A
- 14.387 Topics Applied Econometrics, Listener

Field Classes in PF and IO (major fields)

- 14.471 Public Economics I, A
- 14.472 Public Economics II, A+
- 14.473 Public Policy in Health Economics, A
- 14.271 Industrial Organization I, A-
- 14.273 Advanced Topics in Industrial Organizations, A

Field Classes, other

- 15.357 Economics of Innovation and Entrepreneurship, Currently taking
- 14.661 Labor Economics I, A
- 14.662 Labor Economics II, A+
- 14.281 Contract Economics, A-
- 14.771 Dev Economics: Micro Issues, A

Personal Statement

Yufei Wu

I am a third-year PhD candidate at MIT Economics, majoring in public finance and industrial organization. Having spent most of the past year exploring different research areas, I find myself most attracted to the interaction of health economics and innovations economics, an emerging field with many exciting and challenging topics to investigate. In particular, I have been very interested in understanding the dynamic nature of adverse selection in pharmaceutical R&D, in trying to identify spillover and crowding-out effects within biomedical research, and in understanding what affects technology diffusion in the health care sector.

Upon discovering that I want to work on innovations in health-related sectors about half a year ago, I also realized that I was less prepared with the economics of innovations than with health economics. Through public finance courses and seminars at MIT, and through working as a research assistant to Professor Amy Finkelstein, I was well exposed to the field of health economics, and started writing my third-year paper on strategic insurance pricing in Medicare Part D, a large and important market for prescription drug insurance in the US. In contrast, I had not managed to push forward my ideas on innovations, not because I was less excited about them, but because I feared that my lack of knowledge about the literature and institutions could be a big disadvantage.

To get more exposure to the field, I started working for Professor Heidi Williams as a research assistant on her project examining the effect of globalization on pharmaceutical innovations. Furthermore, I am currently taking a graduate class, *the Economics of Innovations and Entrepreneurship*, taught by Professor Pierre Azoulay and Professor Scott Stern. Through the research experience and the course, I have been learning more about the pharmaceutical industry

and also the literature on innovations in general, both of which bring me to a better position of getting started with research on innovations.

For example, I have been interested in the dynamic nature of adverse selection in pharmaceutical R&D and how we might use the timing of drug licensing to design a test for adverse selection in this market. Initially I was motivated by the theory of dynamic adverse selection and wanted to bring it to the setting of pharmaceutical R&D, where drug innovations go through multiple stages with uncertainty in terms of success. Through my work for Heidi and the course work, I learnt a lot about the pharmaceutical industry, the literature and available data. I also managed to talk to some people who worked in the pharmaceutical industry to learn more about the institutions. With the new knowledge, I become more skeptical of my original idea, but on the positive side, I also see more possibilities and directions to think about this problem.

Now that I feel more prepared to push forward my ideas on innovations, I am excited to learn about the Entrepreneurship Research Boot Camp. It is an exciting opportunity to me and others planning to do research in innovations, who can benefit a lot from learning from and interacting with others with similar research interests. If I can attend the boot camp, I will do my best to learn more about cutting-edge research in the economics of innovations, to further develop my preliminary ideas, and to discuss them with the professors and fellow students with shared research interests.

Grade Report

Your grade report contains private information for internal use only, including + and - grade modifiers, dropped subjects, listener subjects, and non-passing freshman grades. It is for you, your advisor(s), and your departmental academic administrators. If you need to provide a copy of your grades to anyone else, you can request a transcript from the Student Services Center, 11-120.

Summer Term 2011

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.195	Reading Seminar: Economics	30	H	P	

Units Earned: 30 **Term GPA:** **Academic:**

Fall Term 2011-2012

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.121	Microeconomic Theory I	6	H	A+	
14.122	Microeconomic Theory II	6	H	A	
14.381	Statistical Method in Econ	12	H	LIS	
14.451	Dynamic Optimization Methods	6	H	A	
14.452	Economic Growth	6	H	A+	
14.472	Public Economics II	12	H	A+	
14.771	Dev Economics: Micro Issues	12	H	A	

Units Earned: 48 **Term GPA:** 5.0 **Academic:**

Spring Term 2011-2012

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.123	Microeconomic Theory III	6	H	A	
14.124	Microeconomic Theory IV	6	H	A	
14.382	Econometrics	12	H	A+	
14.453	Econmic Fluctuations	6	H	A+	
14.454	Economic Crises	6	H	A+	
14.471	Public Economics I	12	H	A	

Units Earned: 48 **Term GPA:** 5.0 **Academic:**

Summer Term 2012

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.195	Reading Seminar: Economics	30	H	P	

Units Earned: 30 **Term GPA:** **Academic:**

Fall Term 2012-2013

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.271	Industrial Organization I	12	H	A-	
14.281	Contract Economics	12	H	A-	
14.385	Nonlinear Econometric Analysis	12	H	A	
14.661	Labor Economics I	12	H	A	

Units Earned: 48 **Term GPA:** 5.0 **Academic:**

January Term 2012-2013

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.389	Econometrics Paper	3	H	B+	

Units Earned: 3 **Term GPA:** 4.0 **Academic:**

Spring Term 2012-2013

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.126	Game Theory	12	H	LIS	
14.273	Adv Topics in Industrial Org	12	H	A	
14.387	Topics Applied Econometrics	6	H	LIS	
14.473	Public Pol in Health Economics	12	H	A	
14.662	Labor Economics II	12	H	A+	

Units Earned: 36 **Term GPA:** 5.0 **Academic:**

Summer Term 2013

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.THG	Thesis	30	H	J	Thesis

Units Earned: 30 **Term GPA:** **Academic:**

Fall Term 2013-2014

Year: G R **Course(s):** 14 D DOC

Subject Number	Subject Title	Units	Level	Grade	Audit Info
14.282	Organizational Economics	12	H	LIS	
14.391	Workshop: Economic Research	12	H	P	
14.461	Advanced Macroeconomics I	12	H	LIS	
14.581	International Economics I	12	H	LIS	
14.THG	Thesis	36	H	J	Thesis
HAA.7236	Economics 2149:Computational	12	H	DR	

Units Earned: 48 **Term GPA:** **Academic:**

Cumulative Graduate GPA: 5.0 **Minor:**

Degree Audit

Graduate Work Completed (apart from thesis): H units: 255, H+G units: 255

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Office of the Dean for
Undergraduate Education

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Assistant Professor

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http://econ-www.mit.edu/faculty/heidiw

Dear Sir or Madam:

I am writing on behalf of **Yufei Wu**, a third-year PhD student in economics at MIT who is applying to attend the NBER's Entrepreneurship Research Boot Camp in the summer of 2014. Yufei is an applied microeconomist who did her fields in industrial organization and public finance, and who is particularly interested in health care and innovation markets. I am very pleased to have the opportunity to highly recommend Yufei as an extremely bright student that I think would strongly benefit from the opportunity to attend the Boot Camp.

Yufei was an undergraduate student at Tsinghua University – one of the top universities in China – where she graduated first in her class with a dual major in economics and mathematics. While a student at Tsinghua, she was chosen to participate in a very prestigious exchange program at the UC-Berkeley Department of Economics, where she earned a 4.0 in graduate-level coursework in economics. Based on that strong record, she received an MIT graduate fellowship and has earned a perfect 5.0 GPA in the MIT economics PhD program – including earning a number of A+ grades across a wide range of courses, from microeconomic theory to macro courses to econometrics and applied labor and public economics field courses. One of the A+ grades was in the graduate labor course that I co-teach with David Autor, and her work in that course was truly outstanding. I think this record makes clear that she is both quite bright and extremely hard working.

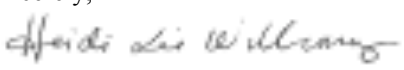
In addition to having had Yufei in class, while at MIT Yufei has worked as a research assistant for me on several projects. Most in-depth has been work on a joint project with Liran Einav (Stanford) and Amy Finkelstein (MIT). This project proposes a simple framework for illustrating the welfare gains from a health insurance policy that allows patients to pay the incremental price for more expensive medical treatments, and contrasts this policy with common alternative policies that require essentially no incremental payments for more expensive treatments (as in the US) or require patients to pay the full costs of more expensive treatments (as in the UK). We undertake an empirical illustration of this analysis in the context of treatment choices among breast cancer patients, where variation in distance from a radiation facility is used as a price shifter that allows us to estimate the relative demand for two treatments (lumpectomy and mastectomy). The project has both a reduced form component and a structural component, so I have had the opportunity to work with Yufei and see her skills on a relatively wide range of tasks – from basic data construction, to developing this variation into reduced form estimates, to implementing a more structural framework which allows for the calculation of welfare under different counterfactual policies. She has truly excelled in all of these areas, which I think bodes quite well for her research potential.

Her current independent research – undertaken in part for her third-year paper – is building on recent work that has established that consumers exhibit large "switching costs" in insurance markets. She proposed what I think is an excellent idea, which is to take this demand-side fact and incorporate it into an analysis of strategic firm pricing, which she is implementing in the context of Medicare Part D (prescription drug insurance for the elderly). She has established some compelling reduced form facts that suggest that firms in this market do exploit consumer inertia in how they set prices, and is now working on a structural model to investigate optimal firm strategies and quantify the effects of potential policies and regulations in this area. She has energetically and thoughtfully tackled digging into the Medicare claims data for this project (not an easy task), and has been making excellent progress.

While that project is focused on health care markets, Yufei has expressed strong interest in innovation and entrepreneurship topics (most of her new project ideas that she has discussed with me come out of those areas), and she is currently enrolled in Pierre Azoulay and Scott Stern's 15.357 "Economics of Innovation and Entrepreneurship" course at MIT Sloan. That said, her exposure to these topics has otherwise been somewhat limited, and I think it would *greatly* benefit her to have an opportunity to attend the Entrepreneurship Research Boot Camp. I hope that you will give her the opportunity to attend – especially given that she is still very early in her graduate career, I suspect that this opportunity could greatly shape her research agenda. She is also quite personable/friendly, and a pleasure to work with.

Please do not hesitate to contact me if I can be of further assistance.

Sincerely,



Heidi Williams