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October 16, 2019

Prof. Ben Handel
Prof. Katherine Ho,
Prof. Jonathan Kolstad
Health Economics Research Boot Camp
NBER

Dear Professors,

I am writing to apply to the NBER Health Economics Research Boot Camp for Graduate Students to be held at the NBER during Dec 3-5, 2019. In this folder, you will find the following documents:

1. My curriculum vitae, which includes the list of courses that I took in the first two years of my PhD program.
2. An essay explaining my research and how it aligns with the objectives of the boot camp.

My recommendation letter writer is Professor Michael Grubb. Thank you for your time.

Sincerely,

Kritika Goel

Kritika Goel

Phone: (+1)6178007021 | Email: goelk@bc.edu

Education

Ph.D. Economics 2017-current
Boston College
GPA = 3.937

Master of Arts, Economics 2015
Delhi School of Economics, University of Delhi

Bachelor of Arts, Economics 2013
Lady Shri Ram College for Women, University of Delhi

Publications

Public Health Facilities in North India: An exploratory study in four states (with Reetika Khera, Indian Institute of Technology, Delhi) 2015
Economic and Political Weekly, Vol. 50, Issue No. 21

Research Assistantships

Rohini Somanathan, Delhi School of Economics Aug 2015-Apr 2017
S. Anukriti, Boston College Aug 2017- Aug 2018
Julie Holland Mortimer, Boston College May-August, 2019

Teaching

Graduate Teaching Assistant Sept 2018 - Current
Microeconomic Theory I and II
Taught by: Professors Marvin Kraus, Hideo Konishi, Uzi Segal, Utku Unver

Undergraduate Teaching Assistant Sept 2019 - Current
Statistics Lab

Ph.D. Courses

Semester 1
• Microeconomic Theory I, Macroeconomic Theory I, Statistics
Mathematics for Economists

Semester 2
• Microeconomic Theory II, Macroeconomic Theory II, Econometric Methods

Semester 3
• Industrial Organization I, Labor Economics I (at Boston University),
Cross Section and Panel Econometrics, International Trade

Semester 4
• Industrial Organization II, Labor Economics II,
Empirical Methods in Applied Microeconomics, Topics in Econometrics

Research Interests

Empirical Industrial Organization

Computer Skills

STATA (proficient), MATLAB (intermediate), LaTeX(proficient), Python (novice), R (novice), Microsoft Office

Languages

English, Hindi

Citizenship

India, currently on F-1 Visa

Health Economics - NBER Boot Camp Research Statement

Kritika Goel

October 15, 2019

I am a third year student of PhD Economics at Boston College. My research interests are in Empirical Industrial Organization and I am interested in topics related to health economics. I believe that the boot camp at NBER will be invaluable in expanding my knowledge about existing research and avenues for future research in health economics.

I am currently working on 2 projects in the medical device industry. The first is about the reputation effects of medical device recalls. Advanced medical device (such as implantable devices) markets are oligopolistic, with a few large firms producing a majority of these devices. Doctors usually choose the devices they prefer, and firms negotiate prices for devices directly with hospitals. This industry is also characterized by frequent product recalls, i.e., when a device malfunctions, it is recalled by the manufacturer. These product recalls are classified into three groups by the FDA, depending on their severity, and manufacturers are required to keep the FDA informed about the status of these recalls (the date the recall took place, the date it terminated, the reason for the recall, the final action taken by the manufacturer, etc).

In this setting, I am working on examining the following questions:

1. Do recalls affect the vertical relationship between hospitals and medical device companies?
2. Do recalls affect future innovation by affected firms?

To answer these questions, I am exploring the following mechanism: Suppose there are 2 device companies, A and B, that produce cardiac devices (say, stents and pacemakers), and orthopedic devices. Now suppose the stents of company A are recalled. In the short run, a hospital would not have access to the stents of company A. However, suppose we see a decline in negotiated prices of company A's pacemakers, or switching from pacemakers produced by company A to those produced by company B, we might be able to identify the reputation effects of this recall in stents on the bargaining power of firms. Moreover, I would expect these reputation effects to be lower in orthopedic devices, assuming that the informational spillovers are low between cardiac and orthopedic specialists. I am working

on incorporating the effects of these reputation shocks in a type of model used in Grennan (2013) [1] to compute bargaining weights between device manufacturers and hospitals.

Furthermore, I am interested in studying whether firms redirect their R&D efforts following a recall. I am planning to use as a proxy for R&D, 510(k) applications of firms. Whenever a firm comes up with an innovation to improve an existing device or introduces a new device, it is required to file a 510(k) application with the FDA. I would be interested to study whether a recall affects the future probabilities of filing a 510(k) in the same product category and other product categories.

I am also working on an idea with my colleague at Boston College, Cristian Figueroa on whether physician networks influence the bargaining relationships between device companies and hospitals. Physicians are important drivers in the decisions to purchase medical devices, and medical device companies often pay physicians large sums of money. In this setting, were are exploring whether doctors that are better connected receive greater benefits from these companies, and how this affects the bargaining power of doctors with hospitals.

I had the opportunity to take some excellent IO courses in my second year at Boston College (taught by Professors Julie Mortimer, Michael Grubb, and Charles Murry). However, we do not have a separate Health Economics course at BC. Since I am early on in my research, my understanding of the industry and literature in health economics will greatly benefit from attending the boot camp. Additionally, it will be incredible to interact and learn from experts in the field.

[1] Grennan, Matthew. "Price discrimination and bargaining: Empirical evidence from medical devices." American Economic Review 103.1 (2013): 145-77.

BOSTON COLLEGE

Department of Economics

10/16/2019

To Whom it May Concern:

I warmly recommend **Kritika Goel** for the NBER Health Economics Research Boot Camp for Graduate Students. Kritika is a 3rd year student in our Economics PhD program at Boston College. I got to know Kritika last spring when she took IO II, which I co-teach. Kritika earned an A and was a pleasure to have in class.

Kritika's primary field is Empirical Industrial Organization, and she has recently become interested in applying empirical IO tools to better understand health markets. Kritika has a strong background in Empirical IO, having taken IO I, IO II, and IO Empirical Methods at BC. However, while both Julie Mortimer and I cover health IO papers in our respective courses, we lack a full Health Economics course at BC. As a result, the NBER health economics boot camp comes at a perfect time for Kritika, and could really help launch her dissertation research.

I am very impressed by Kritika's energy and initiative in generating research ideas, both on her own and jointly with fellow classmate Cristian Figueroa (for whom I am also writing a letter). At the start of the semester, Kritika and Cristian came to me with an interesting idea about over-entry by subway franchisees due to vertical contracting issues. That project is on hold, but already Kritika has come to be again with a new idea of her own: She is interested in whether medical device recalls hurt manufacturer reputations and reduce demand for related products by the same manufacturer and whether recalls affect device innovation. Each time she has come to pitch an idea to me, I find that the idea is already substantially fleshed out with clear research questions, slides on related work, and concrete steps already made towards obtaining data.

Moreover, I have recently learned that Kritika and Cristian have another joint research idea in progress, this one related to how financial payments between medical device manufacturers and physicians influence prices hospitals end up paying for devices. They are particularly interested in how Physician networks (possibly measured by co-authorships) affect the influence of manufacturer payments. The rapidity and depth with which Kritika is iterating over new ideas is encouraging. This all makes me optimistic that she will soon be off and running on a strong dissertation project, whether it is one of these ideas or another one—perhaps from an idea generated at the boot camp.

I very much hope you will accept **Kritika Goel** to the camp. If you do, you will not be disappointed! Kritika will be ready to engage and will be a pleasure to have in camp for speakers and peers alike. If you have any questions, please do not hesitate to contact me by phone or e-mail (below).

Sincerely,



Michael D. Grubb
Associate Professor of Economics
Boston College

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