Falak Arrora
3 England Crescent,
Leamington Spa,
CV31 3JH,
United Kingdom
Mob no.: +44 7831645766

Dear Organizers,

I am writing to apply to the NBER innovation boot camp. I am very excited at the prospect of getting to learn from such esteemed scholars and hope to be considered for a place in the program.

I am a Ph.D. student in economics, currently in my fourth year of the program. I completed the master's part of my Ph.D. program with distinction and received a grade of 80 for my MRes dissertation. My supervisors are Professor Motty Perry, Professor Jacob Glazer, and Professor Francesco Squintani. Professor Glazer is also my recommendation letter writer for this application. My research interests are primarily in industrial organization, contract theory, mechanism design, and health economics. I enjoy studying real-life problems and using game-theoretic tools to understand the equilibrium behavior of the agents. I am especially interested in the R&D behavior of firms and the incentives that govern their activities.

I am confident I'll benefit greatly from the summer school. I am particularly keen on exploring various perspectives in innovation economics and integrating them into my research on firm behavior. Enclosed please find my CV which includes all the coursework completed as part of the MRes degree and a statement of purpose elaborating on my research so far and how it ties in with innovation economics.

Thank you for considering my application. I hope I get to be a part of this stimulating workshop. Please do let me know if you require any further information or clarification.

Warm Regards,
Falak Arrora

FALAK ARRORA

+44 7831645766 ◇ Leamington Spa, UK
falak.arrora@warwick.ac.uk ◇ linkedin.com

PROFILE

I am a fourth year PhD student in Economics at the University of Warwick. My research interests are in microeconomic theory specifically with a focus on IO and health economics.

EDUCATION

PhD in Economics, University of Warwick — Sept 2022 - Dec 2022
Research Interests: Microeconomic Theory specifically IO, Health Economics, Contract Theory
Supervisors: Professor Motty Perry, Professor Jacob Glazer, Professor Francesco Squintani

MRes in Economics (*with Distinction*), University of Warwick — 2020 - 2022
1st year Coursework: Advanced Microeconomics Theory, Advanced Macroeconomics, Advanced Econometrics
Second year Coursework: Topics in Advanced Economic Theory I & II, Topics in Empirical Political Economy, Labour Economics

MSc. in Economics, Indira Gandhi Institute of Development Research — 2016 - 2018

BA (Hons) in Economics, Miranda House, University of Delhi — 2013 - 2016

EXPERIENCE

Senior Graduate Teaching Assistant — Sept 2021 - Present
Courses Taught: EC107 (Economics), EC202 (Microeconomics), EC326 (Industrial Organisation)

Business Analyst — Jun 2018 - Aug 2020
American Express — *Gurgaon, India*

Worked as a business analyst with the Global Lending and Co-Brand Economics Team. Was responsible for cleaning and analyzing data for US consumer base to help with the marketing strategies for different cards

Intern — May 2017 - July 2017
American Express — *Gurgaon, India*

Worked on a project aimed at enhancing prospect acquisition for the direct mail channel response models

WORK-IN-PROGRESS

- *Optimal Risk-Sharing Contracts*
- *Medicare Price Negotiations*

AWARDS

- Graduate Teaching Assistant Award — Jan 2024
- Department Scholarship, University of Warwick — Sept 2020 - Sept 2026
- Analyst of the Quarter, American Express — 2019

OTHER SKILLS

Technical Skills	SQL, SAS, STATA, LaTeX, MATLAB, R
Soft Skills	Communication, Presentation, Problem-Solving
Communication	Hindi (native), English (business), French (beginner), Spanish (beginner)
Other	Github, Microsoft Office

Statement of Purpose

I am a fourth-year Ph.D. student in Economics with research interests in applied theory with a focus on industrial organization, mechanism design, contract theory, and health economics. I enjoy studying real-world mechanisms being deployed by firms and governments across the world and looking for ways to improve upon them. My research so far has been intricately tied to the R&D activities of the firms and their pricing strategies.

My first research question was inspired by something Boeing deployed to build the 787 Dreamliner. They wanted to build a technologically advanced plane where each section of the plane relied on different innovations. To execute this, they contracted with a different supplier for each innovation and put in place a novel contract that stipulated that no single supplier would be paid unless all the suppliers were successful in their respective innovations. Even a single failure would result in non-payment for all suppliers. In return, the suppliers got to own the patent for their respective innovations so that they retain the exclusive right to supply it. I study such a risk-sharing contract where the principal contracts with 2 agents who experiment each period. I look for the stopping times for each breakthrough under the first best (i.e. when the principal performs both tasks) and the second best to study the loss of experimentation. I also study the optimal wage payment to both agents. My main result identifies a loss of experimentation in such a contract. Contracting independently with each supplier is superior to such a risk-sharing contract.

My second research question came from an interest in trying to understand why the prices of crucial, life-saving drugs were so exorbitantly high in the United States. I study the price negotiations set to take place for pharmaceutical drugs covered in Medicare Part D as delineated by the government guidelines. These negotiations have been targeted at the more expensive prescription drugs that have so far enjoyed monopoly pricing. I model the 3-stage bargaining game between the government and the pharmaceutical firms and assume an asymmetry of information about the budget of the government for a particular drug. The novel aspect of these negotiations is that the firms would not know the coinsurance at the time of negotiations. Instead, they will be determined ex-post the negotiations by the plan sponsors. At best, they can try to infer the coinsurance from their expectations about the budget of the government. I find that the three-stage bargaining game is equivalent to an ultimatum game under the assumptions of the model. The firms either never learn the coinsurance or learn it completely in any sub-game.

For future research, I am also interested in understanding how the pharmaceutical industry decides to innovate and how that is related to the market structure of a country. The most socially beneficial innovation might not be the most profitable one, so I am curious about how the government can help regulate these misaligned incentives of pharmaceutical firms to innovate. I have also been thinking about how firms competing for the same innovation, decide when to go public. A firm working on an innovation can choose to experiment publicly or privately. But to influence public opinion and have a first-mover advantage, a firm would want to go public sooner than its rivals. This might cause an unraveling effect, where the other firms are also forced to go public with the status of their innovation to reveal their private signals.

I think the innovation boot camp is an amazing opportunity to understand how innovation impacts different fields of economics. I am excited at the prospect of becoming aware of all the research that has taken place so far and how that shapes our understanding of where to go. I am particularly interested in understanding the different mechanisms at play when it comes to the firm's R&D activities. Since the literature on innovation economics is wide and interdisciplinary, I would greatly benefit from hearing how different scholars think about the incentives to innovate and how to regulate such incentives. It would also be a great honor to discuss my research further with the lecturers and other participants at the boot camp.

WARWICK
THE UNIVERSITY OF WARWICK

Dear Organisers,

I am writing to very strongly recommend Ms. Falak Arrora for the NBER innovation boot camp. Falak is an excellent and extremely dedicated student who is passionate about her research. She is deeply interested in the R&D activities of firms, the incentives to innovate, and how to price such innovations.

Her first paper studied a novel risk-sharing contract put in place by Boeing to execute multiple innovations in an aircraft. She studied the optimal stopping timing and the optimal contract for the agents. Her main result showed a loss of experimentation compared to a first best, where the principal carries out the innovations herself. Her second paper studies the price negotiations for prescription drugs covered in Medicare that are set to take place between the US government and pharmaceutical firms. Government guidelines lay down a three-stage bargaining game where the government makes the first and last offer. She further assumes an asymmetry of information regarding the budget of the drug. This paper's main result is that the three-stage game is equivalent to a *take-it-or-leave-it* offer.

I am confident she would benefit tremendously from the summer school and would make for a valuable participant. The chance to be amongst and interact with some of the best researchers is an esteemed one and I highly endorse Falak's candidature for it.

Please do not hesitate to contact me if you require any further information.

Sincerely,



Jacob Glazer

Professor of Economics

The University of Warwick

Department of Economics
The University of Warwick
Coventry CV4 7AL
Tel: +44(0)24 7652 3055
Fax: +44(0)24 7652 3032

www.warwick.ac.uk