Digitization Tutorial

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Dear Professors Martin Beraja, Avi Goldfarb, and Catherine Tucker,

My name is Dean Li, and I am writing to apply to attend the Digitization Tutorial. I am a second-year Economics Ph.D. student at MIT and am keenly interested in studying the labor and macroeconomic consequences of privacy regulations, data sharing, and digitization. These research interests have closely informed my ongoing work.

For example, in ongoing work with Mert Demirer, Diego Jiménez-Hernández, and Sida Peng, we use confidential data from Microsoft Azure to study the effects of the GDPR on firms' data storage and computation decisions over a six-year horizon. In particular, the widespread adoption of cloud computing and its on-demand nature make it an attractive setting for studying the impact of policy changes on firm data usage. Using this data, we estimate the reduced-form impact of the GDPR on firm data decisions. We then propose a production function framework that allows us to estimate the "cost of privacy" by mapping the shift in data input choices to production. I'm particularly excited by this project because our observation of both firm storage and firm computation allows us to consider data usage as a multi-dimensional object. We use our production function framework to estimate the elasticity of substitution between storage and computation and to evaluate the size of the wedge introduced by the GDPR.

In another ongoing project, I draw from American Health Association IT Surveys and Medicare Part D data to study the effects of data sharing—and a lack thereof—on risky prescription opioid use. Many of the most common policies aimed at curbing the opioid epidemic are fundamentally built on data-sharing procedures. Both prescription monitoring programs and opioid prescribing limits for opioid-naive patients, for example, rely on the ability of medical institutions to share data. I aim to measure the effect that interoperability between electronic health record systems has on preventing opioid abuse and doctor-shopping outcomes.

Finally, in a third project, I aim to study the effects of market fragmentation of electronic health record systems on the healthcare workforce, focusing on the role that incompatible technologies can play in generating monopsony power for firms. I'm particularly interested in how the digitization of medical information impacts training costs across the healthcare workforce.

I would be thrilled at the opportunity to attend the Digitization Tutorial, to learn from leading researchers in the area, and to contribute meaningfully to the experience. Beyond the valuable presentations and discussions, I know that I would deeply value the relationships that I would form. For example, during the NBER Privacy Tutorial this past fall, I had the opportunity to meet Garrett Johnson. We grabbed lunch after the conference, and he's become an important source of advice for research and beyond. I hope to form more such relationships at the Digitization Tutorial. In addition, I wouldn't need any accommodation funding because my sister lives in San Francisco.

Thank you for your time and consideration!

Dean Li

Brief Overview of Graduate Studies

ENROLLMENT

MIT - GPA: 4.00/4.00; *NSF GRFP, Castle Krob Fellowship.* **Cambridge, MA • Fall 2021 - Expected 2026**
Doctorate in Economics

FIELDS and COURSEWORK

Intended Majors: Labor, Industrial Organization
Intended Minors: Public Finance, Econometrics

Core Courses

14.121: Microeconomics Theory I (A)
14.122: Microeconomics Theory II (A+)
14.123: Microeconomics Theory III (A)
14.451: Dynamic Optimization Methods (A+)
14.452: Economic Growth (A)
14.453: Economic Fluctuations (A+)
14.380: Statistical Methods in Economics (A+)
14.381: Applied Econometrics (A)
14.382: Econometrics (A+)

Field Courses

14.271: Industrial Organization I (A)
14.385: Nonlinear Econometric Analysis (A)
14.471: Public Economics I (A)
14.471: Public Economics II (A)
14.661: Labor Economics I (A)
14.662: Labor Economics II (A+)

WORKING PAPERS

"What Drives Risky Prescription Opioid Use: Evidence from Migration"
- Working paper with Amy Finkelstein, Matthew Gentzkow, and Heidi Williams studying the drivers of the US prescription opioid crisis and potential policy implications.
- Presenter at 2022 ASSA Annual Meeting

"Data, Privacy Laws, and Firm Production: Evidence from the GDPR"
- Working paper with Mert Demirer, Diego Jiménez-Hernández, and Sida Peng studying the role of data storage and processing in firm production and how firm data and computation decisions evolved in response to the GDPR.
- Presenter at MIT IO Lunch Fall '22

RESEARCH IN PROGRESS

"How Competition Can Lead to Monopsony: Market Fragmentation in Hospital EHR Systems"
- This project studies the impact of the market fragmentation of electronic health record systems on the healthcare work force, focusing on the role that incompatible technologies can play in generating monopsony power for firms.

"The Role of EHR Interoperability in Risky Prescription Opioid Use"
- This project studies how interoperability between EHR systems—and particularly, a lack of interoperability—affected the rates of risky prescription opioid use, with a particular focus on the rates of doctor-shopping outcomes.

"The Drivers and Consequences of Outsourcing in Nursing Homes"
- This project, joint with Connie Xu and Ruby Zhang, exploits high-frequency staffing data to study the drivers of steadily increasing outsourcing rates in the nursing home industry and the consequences of this outsourcing on key labor market and health outcomes.

RESEARCH POSITIONS

Microsoft Research **Cambridge, MA • Summers '21 & '22**

Research Intern

- Studied the effects of the GDPR on how firms store and process data, and how data may interact with labor and capital investment in the production function
- Analyzed US Census data with Daron Acemoglu to examine growing wage inequality and the decline of "good jobs"

Massachusetts Institute of Technology **Cambridge, MA • July 2019 – May 2021**

Pre-Doctoral Fellow to Professor Amy Finkelstein

- Provided research assistance on projects related to selection in cancer screening, scope of practice in direct-care workforce, market design in health insurance, geographic variation in healthcare costs and how they relate to wage inequality, and the role of patient-based and place-based channels in influencing hazardous opioid prescribing.