NBER fellowship selection committee
1050 Massachusetts Avenue
Cambridge, MA 02138

Feb 12, 2026

Dear NBER fellowship review committee,

I am writing to apply for the NBER Innovation Research Bootcamp 2026. As a 3rd-year Ph.D. student in the Department of Business Economics and Public Policy at Indiana University Bloomington, my dissertation research centers on the role of special interest groups on market structure and policy design in the energy infrastructure industry. I am applying to attend the bootcamp to clarify the public finance and human capital policy angles that I am currently exploring to refine my path forward.

My past education and work background has shaped my interests in both innovation and energy policy. As an economics undergraduate and master's student at the University of Alberta, I spent my time after school at a startup company working as a marketing associate. Later, as a natural gas analyst, I began to build an understanding of the natural gas market and pipeline infrastructure. I saw commonalities between technology startups and the energy industry in the desire for growth. Currently, I am looking for policy designs that could promote innovation and responsible growth in energy infrastructure. Using a complete administrative record of US natural gas pipeline permitting, I found that interest group engagements are associated with construction delays but not predicted costs. In my application essay, I discuss the policy design directions implied by the market structure that I found. I am eager to engage in in-depth discussion on these policy directions during the bootcamp.

At Indiana University, my doctoral training forms a strong basis to support my innovation research. My training in information economics helps me view interest groups both as information mechanisms that foster innovation and as potential barriers to it. As a law minor student, I also gained skills to understand how antitrust law, federal environmental law, and states-level nonprofit laws manifest in the current energy policy debates. However, gathering market evidence for the policy design that I envision require public finance and labor economics methods, which I currently lack. The bootcamp would help me engage in discussions on the budgetary and diffusion dimensions of innovation policy and guide my empirical approach to finding evidence in the energy industry.

Given my current stage of research and area of focus, I am well positioned to engage in innovation research in energy infrastructure policy. The NBER Innovation Research Bootcamp would offer crucial exposure to the public finance and labor diffusion dimensions of infrastructure policy design, to help me clarify a path forward between them. As reference, please contact my advisor, Andrew Butters (rabutter@iu.edu) who submitted a reference letter in support of my application. Thank you for your time and consideration, and I look forward to talking more.

Sincerely,
Natasha Ting

Natasha Ting

ting@iu.edu

Bloomington, IN
Updated Feb 2026

Education

Ph.D. in Business Economics and Public Policy, minor in law, **08/2023 - present**
Indiana University Bloomington
M.A. Economics, University of Alberta **2021**
B.A. (Hons) Economics with *First Class Honors*, minor in Math, University of Alberta **2020**

Working Paper

Not All Talk is Cheap: The Role of Interest Groups in Natural Gas Pipeline Permitting
Submitted and currently in revision for candidacy.

Research Experience

Research Assistant of Kelly Yang **01/2026 - present**
Research Assistant of R. Andrew Butters **09/2023 - present**
Research Assistant of John Maxwell **09/2023 - 08/2025**
Assisted with Faculty Assistance in Data Science grant, Indiana University **06/2024 - 08/2024**
Project Manager for 2 Masters in Data Science research assistants

Teaching Experience

Instructor of *Business, Government, and Society*, Kelley School of Business **Summer 2025, *Summer 2026**
*: Scheduled. Course Code: BUS-G202, Evaluation: 3.26/4
Graduate Teaching Assistant, University of Alberta Dept. of Economics **09/2020 - 04/2021**
Honors Undergraduate Tutor, University of Alberta Dept. of Economics **09/2018 - 04/2020**
Undergraduate Teaching Fellow for 1000-student MOOC CMPUT 174, **09/2019 - 08/2020**
University of Alberta Dept. of Computer Science

Work Experience

Natural Gas **Research Associate**, Wood Mackenzie Calgary, Canada **09/2021 - 06/2023**
Marketing Associate, Zept Inc Edmonton, Canada **12/2017 - 06/2020**

Award

2x **CALI Award**, Maurer School of Law, Indiana University **Spring 2025**
Highest Grades in Antitrust Law and Intro to Environmental Law
Market Call Wizard Award, Wood Mackenzie **2022Q4**
Winner of quarterly natural gas futures simulated trading competition
Honourable Mention, COMAP International Mathematical Contest in Modelling **02/2020**
3x **Economics Honours Award**, University of Alberta Dept. of Economics **2018 - 2020**
Economics Merit Scholarship, University of Alberta Dept. of Economics **09/2019**
Best Fintech Solution at HackED 2019, University of Alberta **01/2019**

Fellowship

Advanced Cyberinfrastructure Fellow in High Performing Computing, Indiana University **10/2025 - present**
Doctoral Fellowship, Kelley School of Business **2023 - present**
Graduate Teaching Fellowship, University of Alberta Dept. of Economics **09/2020 - 06/2021**

Presentation

Poster presentation at Indiana Legislature Science Communications Day, Science Policy Initiative at Notre Dame **03/2025**
4× Brown bag seminars, Dept. of Business Economics and Public Policy, Kelley School of Business **2023-2025**

Skill

- **General:** Python, R, BASH, VBA, MATLAB.
- **Data/analysis:** PostgreSQL, MySQL, STATA
- **Interface:** Flask, LaTeX.
- **Production/transportation:** GeoSCOUT, GPCM
- **Languages**: English, Mandarin, Malay, Cantonese.

Complete PhD Course List (Page 1 of 3)

All taken at Indiana University Bloomington
Student: Natasha Ting, ordered by semester of course taken

- **Optimization Theory in Economics**
  - ECON-E 520, Fall 2023
  - Instructor: Michael Kaganovich
  - Description: Mathematical optimization and economic dynamics designed to provide essential tools for graduate micro- and macroeconomics.

- **Econometric Methods in Business I**
  - BUS-G 651, Fall 2023
  - Instructor: R. Andrew Butters
  - Description: First-year PhD econometrics course covering multiple regression models, generalized least squares, and distributed lag models, applying these to business and economic problems.

- **Economic Modeling**
  - BUS-G 750, Fall 2023
  - Instructor: Aaron Kolb
  - Description: First-year PhD microeconomics course with basic price and production theory, general equilibrium, with additional treatment of career concerns and financial trading models.

- **Theory of Prices and Markets 1**
  - ECON E-521, Fall 2023
  - Instructor: Gustavo Torrens
  - Description: First-year PhD microeconomics course covering price theory, market analysis, non-cooperative game theory.

- **Econometric Methods in Business II**
  - BUS-G 652, Spring 2024
  - Instructor: Kelly Yang
  - Description: PhD-level structural econometric models and estimation methods central to modern empirical industrial organization.

- **Econometrics II**
  - ECON-E 572, Spring 2024
  - Instructor: Yoosoon Chang
  - Description: PhD-level econometrics with linear algebra-based treatments of linear models, simultaneous equation models, nonlinear models, nonparametric models, large dimensional models and resampling methods.

Complete PhD Course List (Page 2 of 3)

- **Game Theory**
  - BUS-G 751, Spring 2024
  - Instructor: Marilyn Pease
  - Description: PhD-level introduction to formal modeling of interactions between decision-makers, covering static and dynamic games with complete and incomplete information.

- **Causal Inference II**
  - BUS-X 699, Spring 2024
  - Instructor: Boyoung Seo
  - Description: PhD-level theory and applications regression discontinuity, difference-in-difference, synthetic control methods, and quantile regression.

- **Torts**
  - LAW B-531, Fall 2024
  - Instructor: Donald Gjerdingen
  - Description: First-year law course examining the legal principles governing civil wrongs and liabilities.

- **Elements of Artificial Intelligence**
  - CSCI-B 551, Fall 2024
  - Instructor: David Leake
  - Description: Overview of artificial intelligence concepts and foundational elements, covering symbolic logic and focused on coding assignments.

- **Empirical Industrial Organization**
  - ECON-E 685, Fall 2024
  - Instructor: Ruli Xiao
  - Description: Review of estimation methods in IO covering random utility, nested logic, static and dynamic discrete games, and empirical auction.

- **Legislation and Statutory Interpretation**
  - LAW-B 554, Fall 2024
  - Instructor: Deborah Widiss
  - Description: Second-year law course covering the legislative process and the rules on statutory law interpretation.

- **Introduction to Environmental Law**
  - LAW-B 782, Fall 2024
  - Instructor: John Applegate
  - Description: Second-year law course introducing statutes and regulatory processes in environment across land, air, water resources.

Complete PhD Course List (Page 3 of 3)

- **Antitrust Law**
  - LAW-B 729, Spring 2025
  - Instructor: Donald E. Knebel
  - Description: Second-year law course covering statutes and case law on antitrust including predatory pricing and tying arrangements.

- **Reinforcement Learning**
  - CSCI-B 490/B659, Spring 2025
  - Instructor: Roni Khardon
  - Description: PhD and advanced undergraduate course focused on theory and simulations of Markov Decision Processes and various Deep Reinforcement Learning algorithms.

- **Econometrics of Big Data and Machine Learning**
  - ECON E-724, Spring 2025
  - Instructor: Joon Y. Park
  - Description: Second-year Ph.D. course exploring factor models, functional data analysis, and machine learning from an econometric perspective.

- **Movement Lawyering and Business Law**
  - LAW L-710, Fall 2026
  - Instructor: Alvin Velazquez
  - Description: Law seminar exploring the intersection of social movements and commercial law topics with research paper requirement.

- **Agency Theory** (Currently taking)
  - BUS-G 753, Spring 2026
  - **Instructor:** Raphael Boleslavsky
  - **Description:** A PhD-level theory course on the economics of agency, focusing on incomplete information and team-based incentives.

Application Essay:
Innovation Policy Design in Energy Infrastructure under Adversarial Setting

Natasha Ting

Energy infrastructure sits at the intersection of innovation and political conflict, making it a critical setting for innovation policy design. My research seeks to understand innovation and growth incentive under this adversarial setting, and I am seeking to attend the NBER Innovation Bootcamp 2026 to explore public finance and diffusion methods to refine and resolve my empirical approach to gathering market evidence.

Energy infrastructure builders could be innovators. For example, a natural gas pipeline company could find a less intrusive way to conduct waterway crossings or to retrofit pipelines to transport hydrogen gas. However, the U.S. natural gas pipeline market is marked by pervasive litigation and regulatory uncertainty that may reduce firms' incentives to innovate. My research used pipeline permitting records to show that the construction time per-mile statistically increase under interest group engagement. My future research agenda centers on this market structure to understand whether adversarial engagement could form a barrier to innovation, and what policy design could leverage interest group interaction to foster innovation.

During the bootcamp, I hope to have in-depth discussions on public finance and human capital diffusion perspectives on infrastructure innovation policy with the aim to refine my path forward. From the public finance angle, a good infrastructure policy should efficiently aggregate and prioritize contrasting interests. Policymakers could leverage interest group input in the permitting process for a transparent evaluation of public goods issues in the discussion, shaping clear priority that incentivizes firms to shift away from technologies that are no longer favored, much like light-water plants in the 1960s (Bryan 2017). Rather than leaving room for strategic delay and capture (Mokyr 2000), it could limit entrenched interests' ability to block innovation. Next, a federal policy should incorporate state-level incentive reallocation to reduce permit-withholding from states that host a traversing pipeline without benefitting from increased production or delivery. To this end, I could discuss with bootcamp participants whether state-level energy R&D matching or spillover mechanisms, as in Myers and Lanahan (2022), are relevant to my setting.

On the other hand, the human capital angle of an infrastructure innovation policy involves management and labor diffusion. Under the status quo, energy companies may not want to pursue innovation if doing so signals a moral motivation that attracts adversarial engagement (Baron 2009). Additionally, if fossil fuel industry professionals are branded as regressive, they may become welcoming to innovation. In my dataset, for example, energy labor unions are found to support pipelines from both labor and ideological standpoint. A policy increasing the diffusion of labor between energy industries could increase innovation much like in international collaboration (Giorcelli 2019) and immigration (Ganguli and MacGarvie 2025). During the discussions, I want to clarify the feasibility of researching this policy angle using my dataset.

My research is directly linked to the focus of the NBER Innovation Research Bootcamp from both the public finance and the human capital diffusion policy angles. I am currently weighing these two policy angles and am eager to learn how other scholars navigate such choices. By attending the bootcamp, I hope to receive feedback on my approaches that will help clarify my path forward.

References

Baron, David P. "A Positive Theory of Moral Management, Social Pressure, and Corporate Social Performance." *Journal of Economics & Management Strategy* 18, no. 1 (2009): 7–43. https://doi.org/10.1111/j.1530-9134.2009.00206.x.

Bloom, Nicholas, John Van Reenen, and Heidi L. Williams. 2019. "A Toolkit of Policies to Promote Innovation." *Journal of Economic Perspectives* 33 (3): 163–184

Ganguli, Ina and Megan MacGarvie, "International Students, Immigration Policies and Implications for Innovation," *NBER Working Paper* 34212 (2025), https://doi.org/10.3386/w34212.

Mokyr, Joel. "Innovation and Its Enemies: The Economic and Political Roots of Technological Inertia." In *A Not-so-Dismal Science*, 1st ed., edited by Mancur Olson and Satu Kähköhnen. Oxford University Press. Oxford, 2000. https://doi.org/10.1093/0198294905.003.0003.

Bryan, Kevin A. "The Perils of Path Dependence." In *Survive and Thrive: Winning Against Strategic Threats to Your Business*, 1st ed., edited by Joshua Gans and Sarah Kaplan. Dog Ear Publishing, 2017.

Myers, Kyle R., and Lauren Lanahan. "Estimating Spillovers from Publicly Funded R&D: Evidence from the US Department of Energy." *American Economic Review* 112, no. 7 (2022): 2393–423. https://doi.org/10.1257/aer.20210678.

KELLEY SCHOOL OF BUSINESS
INDIANA UNIVERSITY

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February 9th, 2026

To Whom it May Concern:

I am writing to offer my enthusiastic support for Natasha Ting's application to the 2026 NBER Entrepreneurship Research Boot Camp. Natasha is an exceptional PhD student in the Kelley School of Business at Indiana University, and I believe she would be an outstanding addition to this year's cohort.

Natasha has already established herself as a productive and careful scholar. She has excelled in coursework across disciplines, including earning two CALI awards for her classes at the Maurer School of Law while pursuing her minor—an achievement that underscores both her intellectual range and her commitment to methodological rigor. As a third-year student, she has also demonstrated impressive early research productivity; for example, she has already had work accepted and presented at highly visible venues such as the Indiana State Legislature.

Perhaps most importantly for the Boot Camp, Natasha is rapidly developing a research agenda that sits squarely at the intersection of entrepreneurship, firm strategy, and innovation. She is currently engaged in analyzing and investigating several different hypotheses all surrounding the firm strategies, regulatory responses, and innovative outcomes surrounding large-scale infrastructure investments in the energy space—specifically in the natural gas sector. The scale of the initial data collection efforts is significant, and her early progress far exceeds what I typically observe among PhD students at this stage. I suspect that some of this is due to previous professional experience—some of which includes sector level expertise—Natasha gained before joining the program.

I also want to note my personal connection to the program: I am an alumnus of the 2012 NBER Entrepreneurship Research Boot Camp, and the experience had a meaningful impact on the trajectory of my research career. Having gone through the program myself, I have a deep appreciation for both the selection of the material and the expectations placed on participants. With this perspective, I can say with confidence that Natasha is exceptionally well suited for this opportunity. I am certain that she will arrive well prepared and will be a thoughtful, active contributor to the group discussions and cohort experience.

Natasha would benefit enormously from the exposure the NBER Boot Camp offers. Coming from a smaller PhD program, the peer and mentoring connections the program would offer will be invaluable

for Natsha going forward. Her research interests are well aligned with the Boot Camp's core themes, and participation would significantly accelerate her development as a scholar in this area.

For these reasons, I strongly encourage you to give Natasha's application your highest consideration.

Please feel free to contact me if I can provide further information.

Sincerely,

