SEUNG HYEONG LEE
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Dear NBER Innovation Research Boot Camp,

I am writing to apply for the NBER Innovation Research Boot Camp 2026. I am a fourth-year Ph.D. student in Economics at Northwestern University with research interests spanning finance, macroeconomics, and labor economics. As an aspiring academic, my research focuses on integrating finance literature with macroeconomics and labor economics frameworks to provide a more comprehensive understanding of households and firms' decision-making. My research focuses on three strands of topics: how firms' decisions influence their employees and labor-market outcomes, households' economic decision-making with an emphasis on responses to shocks, and how expectations influence individuals' decision-making and market responses.

I am excited for the opportunity to learn in the program, and my research interests and experience make me a good fit. Through the boot camp, I plan to develop my current research projects related to innovation and apply what I learn from the training to my other research agenda. Please find enclosed my curriculum vitae and essay. Please also note that a letter of recommendation from Bryan Seegmiller (bryan.seegmiller@kellogg.northwestern.edu) has been sent separately to you via his email address. I would be happy to provide any additional details that you need. Thank you for considering my application, and I look forward to hearing from you.

Sincerely,

Seung Hyeong Lee

Lee, Seung Hyeong

CONTACT INFORMATION

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Evanston, IL 60208

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seunghyeong.lee@u.northwestern.edu
+1 (857) 285-8012

EDUCATION

Northwestern University — **Evanston, IL**
Ph.D. in Economics — *September 2022 - Present*

- First-Year Sequence: Microeconomics, Macroeconomics, Econometrics
- Field Courses: Advanced Macroeconomics, Corporate Finance, Labor Economics, Public Finance, Economics of Social Policy, Economics of Organizations, Industrial Organization, Economic Theory and Methods, Applied Microeconometrics, Innovation Economics and the Science of Science, American Economic History

University of Rochester — **Rochester, NY**
B.A. in Economics (with high distinction) and Mathematics — *May 2020*

- Cumulative GPA: 3.96/4.0, *magna cum laude*
- Certificate of Mathematical Modeling in Political Science and Economics
- Citation in Economic Theory and Application

EMPLOYMENT

Federal Reserve Bank of Chicago — **Chicago, IL**
Visiting Scholar — *September 2024 - December 2024*

Department of Economics, Harvard University — **Cambridge, MA**
Pre-Doctoral Fellow for John Beshears, James Choi, and David Laibson — *June 2020 - May 2022*

RESEARCH INTERESTS

Finance, Macroeconomics, Labor Economics

PUBLICATIONS

"Deep Binding of Language Model Virtual Personas: a Study on Approximating Political Partisan Misperceptions" (with Minwoo Kang, Suhong Moon, Ayush Raj, Joseph Suh, David Chan, and John Canny), *Conference On Language Modeling (COLM) 2025*

"A Randomized Trial of Behavioral Nudges Delivered Through Text Messages to Increase Influenza Vaccination Among Patients With an Upcoming Primary Care Visit" (with Mitesh Patel, Katherine Milkman, and 43 co-authors), *American Journal of Health Promotion*, 2023, 37(3): 324-332

"Test-Based Accountability and the Effectiveness of School Finance Reforms" (with Christian Buerger and John Singleton), *AEA Papers and Proceedings*, 2021, 111: 455-59

WORKING PAPERS

"Giving Up": The Impact of Decreasing Housing Affordability on Consumption, Work Effort, and Investment (with Younggeun Yoo)

Abstract: Housing affordability has declined sharply in recent decades, leading many younger generations to give up on homeownership. Using a calibrated life-cycle model matched to U.S. data, we project that the cohort born in the 1990s will reach

retirement with a homeownership rate roughly 9.6 percentage points lower than that of their parents' generation. The model also shows that as households' perceived probability of attaining homeownership falls, they systematically shift their behavior: they consume more relative to their wealth, reduce labor effort, and take on riskier investments. We show empirically that renters with relatively low wealth exhibit the same patterns. These responses compound over the life cycle, producing substantially greater wealth dispersion between those who retain hope of homeownership and those who give up. We propose a targeted subsidy that lifts the largest number of young renters above the "giving-up threshold." This policy yields welfare gains of 3.2 times greater than a uniform transfer and 10.3 times greater than a transfer targeted to the bottom 10% of the wealth distribution, while also improving homeownership rate, labor effort, and reducing social safety net reliance.

"Anticipatory Spending" (with Scott Baker, Michael Gelman, and Lorenz Kueng)

Abstract: We leverage exogenous income changes from various state and federal transfer policies to demonstrate that U.S. consumers tend to increase spending in advance of income arrival. These anticipatory increases (pre-MPCs) are small compared to the substantial increases observed following income receipt (post-MPCs), but respond to the salience of the payment event. Individuals exhibit significant heterogeneity in anticipatory spending responses and these responses are persistent within individuals over time, suggesting that much of the correlation between MPCs and financial characteristics like liquidity is driven by personality traits. Utilizing this additional dimension of consumption response across multiple policy-induced income changes per individual, we cluster individuals into distinct types. These types' behavior and characteristics correspond roughly to rational (about 45%), mental accounting (24%), rationally inattentive (21%), and present-biased consumers (9%). We find that a number of untargeted characteristics are well captured by this clustering, with present-biased and mental accountants having much lower levels of liquidity, income, and financial market participation than rational and rationally inattentive individuals. Moreover, increases in available financial resources increase the smoothness of consumption surrounding these transfer payments, with present-biased individuals most strongly pulling spending from the post-payment period into the pre-payment period.

"Investing in Human Capital Incubation" (with Bryan Seegmiller, Yufeng Wu, and Miao Ben Zhang)

Abstract: This paper examines the role of firms' intangible capital investments in fostering the growth of employee human capital and the subsequent spillover effects on other firms. Using U.S. Census Bureau employee-employer matched data, we provide the first direct evidence that firms' investments in intangibles significantly enhance the human capital of their employees, designating these firms as "human capital incubators." We develop a model in which workers' preferences for skill development influence their career decisions, thereby shaping the labor supply to firms. Firms recognize this by investing in intangibles not only to boost output but also to attract talent. We validate the model by demonstrating that human capital incubation is positively correlated with firm productivity, profitability, and market power, as well as with greater inflows of younger workers. Our model estimation reveals that firms' ability to incubate workers enables them to gain labor market power and charge larger wage markdowns, accounting for 14.9% of the value difference between incubating and non-incubating firms. It also generates positive spillovers to non-incubating firms, which mitigate the value difference by 4.2%.

"Disagreement, Subjective Uncertainty, and the Stock Market" (with Jingoo Kwon and Younggeun Yoo)

Abstract: We propose a new method to separately quantify investor disagreement and subjective uncertainty at the firm level using equity analyst forecasts. Our approach exploits heterogeneity in how forecast dispersion responds to the arrival of signals that are widely perceived as informative and interpreted homogeneously across agents. Intuitively, for a given level of disagreement in point forecasts, a larger post-signal compression in dispersion indicates greater ex-ante subjective uncertainty in investors' beliefs. Using these measures, we document differences in the economic roles of disagreement and uncertainty. Subjective uncertainty rises sharply prior to crises, while disagreement peaks during and immediately after crises. In the cross-section, stocks with higher disagreement earn lower subsequent returns and exhibit higher trading volume. These effects are significantly attenuated when uncertainty is high. In contrast, higher uncertainty is associated with higher expected returns and lower trading volume. Stock return volatility is strongly related to disagreement but only weakly related to uncertainty. Finally, firm characteristics are more closely linked to disagreement than to uncertainty: Smaller firms, firms with lower profitability, and firms with higher R&D intensity exhibit systematically higher levels of disagreement.

"Signals from SMS: Alternative Data and Distributional Effects in Credit Scoring" (with Kenneth Ryu and Jaehyeok Shin)

Abstract: Using data from 23 million loan applications from a FinTech lender in India, we demonstrate how transaction records and credit histories can be extracted from text messages and used to assess applicants' creditworthiness. We show that an alternative credit scoring system built on these data and machine-learning algorithms predicts consumer delinquency more accurately than traditional credit scores, with gains attributable to both algorithmic improvements and the use of alternative data. We find that this alternative credit scoring system expands credit access by approving loans to new-to-credit applicants with no credit bureau score. However, the benefits of this technological shift are skewed toward financially advantaged groups, due to differences in the amount of extractable information rather than due to algorithmic bias. Requesting additional information does not fully address this disparity: financially disadvantaged groups are less willing to share their data, and even when they provide their data, the additional datasets exhibit uneven coverage of financially informative signals. Our results suggest that underwriting systems need to address frictions in both data-sharing willingness and unequal availability of financial information to achieve truly inclusive credit assessment.

Work in Progress

"How Do Firms Allocate Capital and Labor? The Role of Headquarters Agglomeration" (with Nuri Ersahin and Hyunseob Kim)

"Recovering Individual-Level Investor Beliefs from Account-Level Option Holdings Data" (with Giyoung Kwon, Jingoo Kwon, Seongkyu Gilbert Park, and Younggeun Yoo)

"Access to and Gains from Selective Education" (with Ying Shi and John Singleton)

Teaching Experience

Department of Economics, Northwestern University — **Evanston, IL**

Teaching Assistant

- ECON 309 Public Finance — *Winter 2024, Spring 2024, Winter 2025, Fall 2025*
- ECON 159 Doing Good — *Spring 2025*

Department of Economics, University of Rochester — **Rochester, NY**

Teaching Assistant

- ECO 289 Economic Research and Communication — *Spring 2020*
- ECO 277 Financial Crisis: Theory & Evidence — *Spring 2020*
- ECO 225 Freakonomics — *Spring 2020*
- ECO 217 Contract Theory — *Fall 2019*
- ECO 211 Money, Credit & Banking — *Spring 2019*
- ECO 209 Intermediate Macroeconomics — *Spring 2018*
- ECO 207 Intermediate Microeconomics — *Fall 2015*

Military Service

2502nd Digital Liaison Detachment, 8th United States Army — **Daegu, Korea**

Sergeant — *January 2016 - October 2017*

Awards and Honors

Barry Rapoport Prize, University of Rochester	*May 2020*
Research Presentation Award, University of Rochester	*March 2020*
Phi Beta Kappa (Junior Inductee)	*May 2019*
United States Army Commendation Medal	*October 2017*

Scholarships and Fellowships

Institute for Policy Research Graduate Assistantship	*Fall 2023, Winter 2026, Spring 2026*
Dr. Bong-Soo Lee Memorial Scholarship, Korea-America Finance Association	*2025*
Northwestern University Fellowship	*Fall 2022 - Spring 2023*
University of Rochester College Grant (Merit Scholarship)	*Fall 2014 - Spring 2020*
Continuing Student Scholarship for Undergraduates	*Fall 2019 - Spring 2020*
Korea Defense Veterans Association Scholarship	*Fall 2018 - Spring 2019*

Grants

FIRS PhD Student Grant	*May 2025*
Conference Travel Grant, Northwestern University	*April 2025*
EdChoice Research Grant	*September 2021*

Seminar Presentations

2026: Northwestern University (Macro Lunch Seminar, EconLab, HELP Workshop)
2025: Northwestern University (EconLab, HELP Workshop × 2)
2024: Federal Reserve Bank of Chicago, Northwestern University (Applied Micro Lunch Seminar)

Conference Presentations

(* denotes co-author presentation)
2026: Allied Social Science Associations (ASSA) Annual Meeting*
2025: Financial Intermediation Research Society (FIRS) Conference, World Congress of the Econometric Society (ESWC), Korea Economic Review International Conference (ESWC Pre-Conference)
2024: Yiran Fan Memorial Conference (Poster)*, Economics Graduate Student Conference*
2021: Allied Social Science Associations (ASSA) Annual Meeting*
2020: Association for Education Finance and Policy (AEFP) Annual Conference*,

Association for Public Policy Analysis & Management (APPAM) Fall Research Conference*

Invited Workships

2026: NBER Digital Economics and AI Tutorial

Other

Clearance: U.S. Census Bureau Special Sworn Status (2023 - Present)

Department Service: First Year Mentor (2023 - Present), Third Year Mentor (2025 - Present)

Media Coverage: Washington Post, Financial Times, Bloomberg Businessweek, Fortune, Fox Business, New York Times, Thomas B. Fordham Institute, Realtor.com, *Le Figaro* (in French), *News1* (in Korean), *Chosun Ilbo* (in Korean)

In a paper with Bryan Seegmiller, Yufeng Wu, and Miao Ben Zhang, we investigate how firms' investment in intangible capital, an important source of innovation, brings an increase in human capital, with subsequent spillover effects on other firms. Using employee-employer matched data from the U.S. Census Bureau, we provide the first direct evidence that firms' investments in intangibles significantly enhance their employees' human capital, designating these firms as "human capital incubators." We develop a model which shows how workers' preference for skill development influences their career decisions, thereby shaping labor supply to firms. Firms recognize this by investing in intangibles not only to boost output but also to attract talent. The model captures the fact that human capital incubation positively correlates with firm productivity, profitability, market power, and inflow of younger workers. Our model estimation reveals that human-capital incubating firms gain greater labor market power and charge larger wage markdowns, accounting for 14.9% of the market-value difference between incubating and non-incubating firms. They also generate positive spillovers to non-incubating firms, which mitigate the value difference by 4.2%.

In a different paper with Kenneth Ryu and Jaehyeok Shin, we analyze whether innovation in alternative credit scoring systems can promote loan access for low-income households. Using data from 23 million loan applications from a FinTech lender in India, we demonstrate how transaction records and credit histories can be extracted from text messages and used to assess applicants' creditworthiness. We show that an alternative credit scoring system built on these data and machine-learning algorithms predicts consumer delinquency more accurately than traditional credit scores, with gains attributable to both algorithmic improvements and the use of alternative data. We find that this alternative credit scoring system expands credit access by approving loans to new-to-credit applicants with no credit bureau score. However, the benefits of this technological shift are skewed toward financially advantaged groups, due to differences in the amount of extractable information rather than due to algorithmic bias. Requesting additional information does not fully address this disparity: financially disadvantaged groups are less willing to share their data, and even when they provide their data, the additional datasets exhibit uneven coverage of financially informative signals. Our results suggest that underwriting systems need to address frictions in both data-sharing willingness and unequal availability of financial information to achieve truly inclusive credit assessment.

NBER Innovation Research Boot Camp is an ideal opportunity for me to continue building on my research interests. Lectures from outstanding faculty will help me delve more deeply into my current fields of interest and explore a diverse array of related topics. Interacting with fellow attendees, I will also be able to refine my current research projects and build a foundation for future collaborations. I am eager to learn in the boot camp as a student aspiring to become an academic economist, and to contribute to the intellectual community working on the economics of innovation and innovation policy.

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February 11, 2026

Bryan Seegmiller
Assistant Professor of Finance
Northwestern University

To whom it may concern,

I strongly recommend Seung Hyeong Lee for the NBER Innovation Research Boot Camp. Seung is an exceptional fourth-year economics PhD student at Northwestern, and I have worked with him closely as advisor and co-author. He combines originality, technical strength, and unusual productivity. Seung has quickly built a remarkably strong and broad research portfolio, and he is a great fit for the innovation boot camp.

Seung is working on a a solo project using matched Census employer–employee data to study superstar workers and superstar firms, technological change, and inequality—addressing central questions at the intersection of technology and labor. In our joint work, "Investing in Human Capital Incubation," Seung helped build an econometric and structural framework showing that firms' intangible investments foster workers' human capital growth. He quickly became an indispensable co-author, mastering new literatures and leading key parts of the analysis. His paper, "Giving Up: The Impact of Decreasing Housing Affordability on Consumption, Work Effort, and Investment," (co-authored with a PhD student) develops a lifecycle model linking declining homeownership prospects to higher consumption, lower work effort, and greater financial risk-taking, with supporting empirical evidence and already garnering significant academic and media attention. He is highly productive, and has several other excellent active research projects in the macro, labor, and finance intersection that I don't have space to get into here.

Seung consistently identifies important questions and executes them with rigor and independence. I give him my highest recommendation for participation in the NBER Innovation Research Boot Camp. Please feel free to contact me if I can provide additional information.

Sincerely,

Bryan Seegmiller