Maksim Meinert
272 Elm Street
New Haven, Connecticut 06511
(203) 390 1080
maksim.meinert@yale.edu

NBER
1050 Massachusetts Avenue
Cambridge, Massachusetts 02138-5398

February 6th, 2025

Dear Professor Bryan, Professor Ganguli, and Professor Myers,

I am writing to you to express my interest in the NBER Innovation Research Boot Camp 2025. Currently pursuing a PhD in Economics at Yale University, I have acquired a master's degree in econometrics and mathematical economics (2nd best overall performance), and a bachelor's degree in economics from the University of Munich (top 5%).

My previous research experiences have focused on the interplay between innovation, political economy, and trade. Inspired by Kelly et al., 2021's measure of patent quality, I developed a measure of the innovativeness of legislative texts within my bachelor thesis. I discussed its shortcomings and benefits and utilized methods from Natural Language Processing to compute 'innovativeness scores' for several thousand executive orders, acts, and other legal documents enacted by German states. Using this new dataset, I analyzed how legislative innovation differed among governments, states, and political parties. During my time at LSE, I examined the intersection of trade and innovation economics. Following D. H. Autor et al., 2013's seminal approach of measuring the local impacts of the 'China Shock', I analyzed the effects of increased Chinese import competition on local innovation clusters in the United States. Examining outcomes at the geographical instead of the firm level allowed me to capture the multiplicative effect of reduced R&D efforts at the firm level (D. Autor et al., 2020) through foregone spillovers.

Building on these experiences, I am currently pursuing three research projects within the PhD program. Using a theoretical model, I examine the connection between firms' objectives and and their choices to develop and adopt technologies. Further investigations analyze how demand subsidies and elementary research can alleviate inefficiencies and how the government's ability to optimally engage in innovation policy is hampered by information asymmetry. At last, I set out to test the predictions made by recent advances in the literature on automation empirically.

Research on innovation is challenging. The existing literature features a wide variety of models and relies on both theoretical and empirical methodology. The NBER Innovation Research Boot Camp 2025 would familiarize me with frontier questions and techniques and therefore benefit my current and future research in innovation economics.

Yours sincerely,

Maksim Meinert

Recommendation Letter Writer: Pascual Restrepo, Yale University (pascual.restrepo@yale.edu)

Maksim Meinert

272 Elm Street, 06511 New Haven
(203) 390 1080) | maksim.meinert@yale.edu

Education

Yale University *New Haven*
PH.D. IN ECONOMICS *08/2024 - present*
- Notable Electives: Econometrics V, Measure Theory, Functional Analysis, Economic History

London School of Economics and Political Science *London*
M.SC. IN ECONOMETRICS AND MATHEMATICAL ECONOMICS *08/2023 - 07/2024*
- Notable Electives: Quantitative Economics, Auditing: Macroeconomics for Research Students
- Denis Sargan Prize (2nd best overall performance)

Ludwig-Maximilians-Universität München *Munich*
B.SC. ECONOMICS *10/2020 - 07/2023*
- Final Grade: 1.16/5.0 (equivalent to a GPA of 3.84, top 5%)

COURSEWORK IN MATHEMATICS *10/2020 - 04/2022*
- Notable Courses: Real Analysis, Linear Algebra

University of Tokyo *Tokyo*
U-STEP EXCHANGE PROGRAM *09/2022 - 03/2023*
- Notable Electives: Advanced Development Economics, Macroeconomic Dynamics

Research Experience

EXTENDED ESSAY: 'THE CHINA SHOCK AND REGIONAL INNOVATION CLUSTERS'
- Measurement of the impact of the China Shock on local innovation clusters
- Use of Shift-Share Instrumental Variable design to generate causal evidence

DISSERTATION: 'EVIDENCE ON THE INNOVATIVENESS AND DIFFUSION OF LEGISLATION'
- Conceptual development of a measure of the innovativeness of legislative texts
- Creation of a dataset of American and German legislative texts using automated Web scraping and document parsing
- Calculation of innovativeness scores on the text level using a natural language processing algorithm and Python
- Use of linear regression to provide indicative evidence: e.g. 'Do governments affect legislative innovativeness?'

SEMINAR PROJECT: 'PREDICTING INSTAGRAM POST LIKES USING NEURAL NETWORKS'
- Creation of a dataset of 10.000+ Instagram posts using dynamic Web scraping and Python
- Development of a non-standard neural network utilizing visual and non-visual data to predict like-counts of posts
- Proposition to use Shapley-Values to interpret the model's predictions

Awards & Honors

2023-2024 **Denis Sargan Prize**, M.Sc. in Econometrics and Mathematical Economics, LSE
2021-2022 **Honors Program**, Faculty of Economics LMU
Since 2021 **Scholarship**, German National Merit Foundation
2021 **Final Round**, German Federal Mathematics Competition
2019 **3rd Prize, 2nd Round**, German Federal Computer Science Competition

Professional Experience

Chair of Comparative Economics, LMU *Munich*

Undergraduate Research Assistant *08/2021 - 08/2022*

- Supervisor: Professor Monika Schnitzer, Maximilian Schader
- Tasks: Literature review, LaTeX editing, Proofreading, Visualisation in Python

Extracurricular Activities

Enactus Munich e.V. *Munich*

Board Member, Head of HR, Speaker at the National Cup *10/2020 - 07/2022*

- Led a team of 10+ members, designed a new recruiting process, recruited 120+ members
- Conducted a qualitative study of the determinants of project success through interviewing 30 Enactus projects
- Supervised a project producing Waterfilters in Tanzania, audited a project set in rural Uganda

Enactus Munich is a student organization contributing to the UN's SDGs through founding and scaling social and sustainable startups. In 2022, more than 120 members worked with projects in countries ranging from Colombia to Thailand.

Heinrich-Heine-Universität Düsseldorf *Duesseldorf*

Coursework in Computer Science *10/2016 - 04/2017*

- Completed the university course 'Programming' with the highest grade of 1.0 within an early-studies program
- Developed and released an Android app using the acquired programming skills

Further Qualifications

Languages: German - Native Proficiency, English - Full Professional Proficiency, Russian - Limited Work Proficiency

Programming: Python, R, Stata, Matlab, Java, C

PhD Courses

Yale University *New Haven*

Completed Courses *08/2024 - 12/2024*

- EC500, Microeconomics I
- EC501, Macroeconomics I
- EC554, Econometrics V
- MATH320, Measure Theory

Current Courses *01/2025 - present*

- EC501, Microeconomics II
- EC511, Macroeconomics II
- EC552, Econometrics III
- EC582, Comparative Histories of Eurasia
- MATH325, Introduction to Functional Analysis
- EC531, Mathematical Economics II (Audit)

Knowledge of macroeconomics generates immense impact, but any advance in this understanding requires tremendous effort. Slightly exaggerated, this is the essence of Banerjee, 2008. The same can be said for innovation economics. While essential for the study of growth, inequality, and trade, research on innovation requires the understanding of a large literature and of a wide set of methods from empirical research and theory - an understanding I would like to acquire through the NBER Innovation Research Boot Camp.

My current research focuses on three projects. The first develops a unified framework to capture how the interplay of market dynamics, subsidies, and elementary research influence the development of technologies. An incredible success story of innovation policy are solar panels. Demand subsidies contributed to lowering the price of solar modules by 99.6% since 1976. They transformed solar energy from an unprofitable technology to the cheapest source of electricity (Roser, 2020) and a profitable business. Deviating from the models of leap-frog or step-size innovation, I examine an environment in which firms with a limited time horizon adopt and develop innovations with varying potential. Similar to the early versions of solar panels, technologies might feature low contemporaneous payoffs, but immense potential for improvement. Contrarily, technologies with high immediate payoffs might not be improved much further. In combination with firms that only consider a limited number of future payoffs, this leads to competitive equilibria in which technologies with immense potential are left undeveloped. Elementary research, which reduces the "time to profitability" or demand subsidies that favor higher potential technologies as in the case of solar panels, alleviate this inefficiency.

While macroeconomic trends like climate change make the future potential of technologies more predictable, it is generally unclear which technologies feature potential worth being developed. In markets with said inefficiencies, this decision cannot be solely left to markets. My second research project models how private information about the potential of technologies hampers the government's ability to subsidize efficiently. Firms with private information are inherently incentivized to overstate the potential of the technologies they develop. Designing a mechanism that alleviates this problem is therefore of great importance.

My last ongoing project aims at the empirical falsification of recent advances in the theory of automation. Several papers have attributed decreases in the labor share in the 1990s to capital-augmenting technologies and automation. However, since many of the technologies developed in the previous decades fall into the same category, researchers have posed the question whether these observations are compatible with Uzawa's theorem. It states that balanced growth a key feature of economic development between 1950 and 1990 - can only be achieved by labor augmenting technological progress. The literature has identified to channels that offset the effects of automation. First, the creation of new tasks for labor Acemoglu and Restrepo, 2018 and second, productivity increases in the already automated tasks. It is now left to test these two varying explanations empirically. Building on Webb, 2019, I work on identifying whether patents innovated on already automated tasks or targeted those carried out by labor. The relative prevalence of automating and capital productivity-improving patents might substantiate the theory put forward by Jones and Liu, 2024.

During my PhD applications, I once asked a professor why the field of innovation albeit central to the understanding of growth is usually not counted as a distinct field in economics departments. Sharing my enthusiasm for the field, he responded that it was due to the difficulty of entry. Understanding innovation requires tools from empirical research, theoretical modeling, and insights into many subfields of economics. I am applying to this boot camp to acquire these tools, so that little progress in knowledge can make a lot of impact.

References

Acemoglu, D., & Restrepo, P. (2018). The race between man and machine: Implications of technology for growth, factor shares, and employment. *American economic review*, *108*(6), 1488–1542.

Banerjee, A. (2008). Big answers for big questions: The presumption of macro.

Jones, B. F., & Liu, X. (2024). A framework for economic growth with capital-embodied technical change. *American Economic Review*, *114*(5), 1448–1487.

Roser, M. (2020). Why did renewables become so cheap so fast? [https://ourworldindata.org/cheap-renewables-growth]. *Our World in Data*.

Webb, M. (2019). The impact of artificial intelligence on the labor market. *Available at SSRN 3482150*.