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February 6, 2025

Application to the NBER Innovation Research Boot Camp 2025

Dear Madam/Sir,

I am a fourth-year PhD student at Yale University, and I am writing to express my strong interest in attending the NBER Innovation Research Boot Camp in the summer of 2025. As I aim to develop a research portfolio at the intersection of international trade, development and innovation, the Innovation Research Boot Camp would provide me with a fantastic opportunity to learn about frontier research and tools in the economics of innovation, as well as to discuss early-stage research with like-minded students and world-class faculty.

My research interests revolve around the effects of trade on economic growth in developing countries, focusing on whether certain types of more complex products, which some countries may be led to specialize in after opening up to trade, lead to stronger effects of trade on economic growth. In a future second project, I also hope to study whether and what types of organizational barriers prevent firms in developing countries from entering more complex sectors. Finally, I study innovation activity in the US, concentrating on when producers and input suppliers decide to co-innovate.

The wide range of topics taught during the event will prove particularly valuable for me to broaden my research focus and acquire new knowledge in key areas. While I have already taken many courses on trade and economic growth, the course would provide me with a rare opportunity to learn about different types of externalities and market failures that shape firms' incentives to innovate. I would also love to get better acquainted with the data and methods used in empirical research on innovation.

I am convinced that the many interactions with students and faculty will prove particularly valuable at this intermediate stage of my PhD, which further motivates me to participate this year. As I aim to diffuse my research in settings outside of my home university, I would be delighted to engage with fellow students' research, develop potential collaborations, and attend the NBER Summer Institute Innovation Policy meeting.

You will find my CV, list of completed courses and research essay below. **Professor Samuel Kortum (samuel.kortum@yale.edu) submitted a recommendation letter in support of my application on Tuesday, February 4, 2025.**

I thank you for your consideration and look forward to hearing from you soon.

Sincerely,

Lorenzo Kaaks

February 2025

LORENZO KAAKS

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Citizenship : Italian, Dutch

Research Interests

International Trade, Economic Growth, Innovation

Education

2021 – **Ph.D. in Economics, Yale University**
Dissertation title: *Trade, Product Complexity, and Growth* (committee: Prof. Amit Khandelwal, Prof. Samuel Kortum)
Oral Qualifying Examinations: International Trade (*with distinction*), Macroeconomics

2017 – 2019 **M.Sc. in Economics, Sciences Po Paris,** *summa cum laude (top 2%)*

2016 – 2017 **General Course (undergraduate exchange program), London School of Economics**

2014 – 2017 **B.A. in Social Sciences, Sciences Po Paris,** *summa cum laude (top 2%)*

Research

"Trade, product complexity, and growth" (in progress)

"Innovation spillovers within firm-to-firm relationships, and their aggregate consequences" (in progress)

"Knocking on closed doors? Identifying the determinants of employer call-backs for unskilled youth" (Master's thesis, *Sciences Po Paris - Best Master's Thesis Prize 2019*)

Research Experience

2023 Research Assistant, Prof. Samuel Kortum (Yale University)

2021 Research Assistant, Aurélien Saussay (LSE, Grantham Institute)

2019-2021 Pre-doctoral Research Assistant, Prof. Francis Kramarz (CREST-ENSAE)

Teaching Experience

Intermediate Macroeconomics (Yale undergraduate), TA for Prof. William Nordhaus (Fall 2023) and Dr. Marnix Amand (Spring 2024)

Intermediate Microeconomics (Yale undergraduate), TA for Dr. Evangelia Chalioti (Fall 2024)

Introductory Macroeconomics (Yale undergraduate), TA for Prof. Aleh Tsyvinski (Spring 2025)

Professional Experience

2018 Research Intern, French Economic Observatory (OFCE, Paris)

2015 Intern, Cultural Programming Division, Goethe-Institut Nancy (France)

Skills

Programming Stata (Experienced), Matlab (Intermediate), R (Intermediate), Julia (Beginner), LaTeX

Languages English (fluent), French (bilingual), German (bilingual), Italian (native), Dutch (native)

List of current and completed PhD courses at Yale University

Fall 2021

General Economic Theory: Microeconomics I (Larry Samuelson, Johannes Hörner)
General Economic Theory: Macroeconomics I (Zhen Huo, Michael Peters)
Econometrics I (Donald Andrews)
General Economic History: Western Europe (Timothy Guinnane)

Spring 2022

General Economic Theory: Microeconomics II (Philipp Strack, Ryota Iijima)
General Economic Theory: Macroeconomics II (Giuseppe Moscarini)
Econometrics II (Edward Vytlacil)

Fall 2022

International Trade I (Costas Arkolakis, Lorenzo Caliendo)
Advanced Macroeconomics I (Giuseppe Moscarini, Ilse Lindenlaub)
Industrial Organization I (Philip Haile, Mitsuru Igami)
Topics in Empirical Economics and Public Policy (Philip Haile, Joseph Altonji, Yusuke Narita)

Spring 2023

International Trade II (Samuel Kortum, Amit Khandelwal)
Advanced Macroeconomics II (Fabrizio Zilibotti, Marta Prato)
International Trade Policy (Giovanni Maggi)

Spring 2025

Empirical Trade and Development: A Practitioner's Guide (Mayara Felix)

Research essay

My primary research interest revolves around the effects of international trade on economic growth in developing countries, with a particular focus on the role of product complexity in explaining countries' growth experience after opening up to trade. In an ongoing project, I show that after gaining access to foreign markets, many low- and middle-income countries were able to start exporting more complex products despite starting at an initial comparative disadvantage in those sectors. This points towards potentially large dynamic gains from trade liberalizations, as complex products are typically associated with stronger learning externalities. To quantify these gains, I am currently working on a quantitative trade and growth model building on existing models of idea-based growth and knowledge diffusion across countries. I plan to use the model to simulate the effects of trade and industrial policies on growth, focusing both on recent globalization episodes as well as on the resurgence of protectionism worldwide.

Within this line of work, I plan to start a separate project studying the firm-level mechanisms behind why trade would increase productivity in complex sectors in developing countries. I plan to use firm-level micro data to answer two main questions. First, what types or productive or organizational investments do firms in developing countries need to make to be able to enter more complex industries and catch up with the world technological frontier? Second, can two-sided trade liberalization alleviate these constraints, for example by generating economies of scale through a more efficient division of labor, by reorganizing local supply chains, or by addressing public-private coordination failures?

Attending the NBER Innovation Research Bootcamp would help me greatly in pursuit of this research agenda by strengthening my foundations in the micro- and macroeconomics of innovation. I would love to learn more about seminal and recent work on the importance of scale economies and on the key externalities shaping incentives to innovate and adopt new technology. I would also be excited to engage with frontier empirical research on innovation and gain novel insights on, for example, how to estimate innovation production functions, measure knowledge spillovers, as well as ways to analyze the textual content of patents. I hope to apply these data-driven tools in my own research, for example to develop new ways of defining and measuring product complexity.

Complementing my interest in trade and economic growth, I have recently started a project on the propagation of innovation through the US production network and its implications for firm dynamics and aggregate economic growth. I intend to investigate how product innovations affect the life cycle of upstream input suppliers, for example by inducing more upstream innovation (especially among long-term suppliers) or by causing producers to switch to new suppliers. Additionally, I am interested in establishing whether buyers and suppliers engaged in long-term relationships are more likely to co-innovate and benefit from mutual knowledge spillovers. I am confident that this research will shed light on the nature of contracting frictions in the innovation process, and on whether long-term relationships can boost aggregate innovation and growth.

In this context, I look forward to attending the lectures on innovation policy and knowledge diffusion, taught by Professors John van Reenen and Kevin Bryan in recent years. These would prove very useful for me to deepen my understanding of innovation policy tools and institutions in the US, and how policies can be designed to leverage the benefits from long-term R&D cooperation between firms along the supply chain while minimizing potential risks, such as information leakage or an inefficiently low rate of supplier switching.

Dear Brett,

I am writing to recommend Lorenzo Kaaks for the fourth Innovation Research Bootcamp. Lorenzo is a very talented fourth year PhD candidate at Yale. I first met Lorenzo when he was a research assistant of Francis Kramarz. We worked closely together in completing my paper (with Eaton and Kramarz), "Firm-to-Firm Trade: Imports, Exports, and the Labor Market" (now conditionally accepted at Econometrica). Lorenzo earned my trust as someone who thought deeply about the economics and carried out the empirical work with great care. As a student at Yale. Lorenzo has one paper exploring the economics of Ricardo Hausmann's work that uses product level trade data to gauge a country's economic development. That study has led Lorenzo to also pursue the role of innovation spillovers among clusters of firms that leads to the growth effects envisioned by Hausmann.

Bernardo Ribeiro, who I recommended for an earlier boot camp, came away from it greatly inspired leading him to write an excellent job-market paper. He is now a postdoc at Princeton and then will be heading to Enaudi in Rome. Lorenzo has the same soft-spoken intensity and determination as Bernardo. I think Lorenzo will thrive at the boot camp, contribute to its success, and go on to excellent research in the area of innovation and growth.

Best, Sam

Samuel Kortum

James Burrows Moffatt Professor of Economics

Director, Cowles Foundation for Research in Economics

Yale University