NBER Innovation Bootcamp 2026

Application

Sara Savini

February 11, 2026

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Cover letter

Sara Savini
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February 11, 2026

Dear Members of the Selection Committee,

I am writing to apply for the NBER Innovation Research Boot Camp 2026. My name is Sara Savini, and I am a third-year PhD student in a double degree programme of Università degli Studi dell'Insubria (Italy) and the Université de Bordeaux (France), under the joint supervision of Professors Francesco Lissoni and Carlo Brambilla. My doctoral research focuses on the regional dynamics of technology diffusion, particularly that of the steam engine, in the UK and France during the eighteenth and nineteenth centuries. It examines how these dynamics are shaped by spatial spillovers and infrastructure development, particularly railways, through improved market and knowledge access. The boot camp closely aligns with my current research agenda and my long-term goal of contributing to empirical research in innovation economics. In particular, exposure to the innovation research community and the coursework offered by the boot camp would significantly enrich this thesis project's scope.

I am particularly drawn to the boot camp's emphasis on foundational ideas, empirical methods and frontier questions in innovation research. As innovation is not typically taught as a standalone subject within economics departments, I consider this programme to be a valuable opportunity to deepen my knowledge of the institutions, datasets, and conceptual frameworks that shape the field.

My academic training reflects a broad and rigorous background in economics combined with a strong focus on economic history and spatial econometrics. The advanced coursework I completed, the conferences I attended and my visiting studentship at the University of Cambridge all demonstrate this dual focus. Although my Master's degrees were firmly grounded in the economics of innovation and included high-level training in this area, I am now at a stage where PhD-level, field-specific training in innovation economics would be highly beneficial. This would enable me to position my dissertation more clearly within the innovation literature and strengthen its contribution to ongoing debates.

Throughout my PhD, I acquired a solid methodological foundation by taking advanced quantitative courses. I now apply this foundation to my research at the intersection of innovation economics and economic history. Interacting closely with economic historians, particularly during my time at the Faculty of History at the University of Cambridge, has also shaped my approach to historical data and the long-term processes of technological change. An intensive programme dedicated to innovation research would be crucial at this point in my academic career, helping me to consolidate my profile as an innovation economist with strong historical and empirical expertise. In particular, I am interested in better understanding the implications of my historical studies of regional industrialisation for ongoing debates about theories and policies in the field of innovation. I am also motivated to get to know fellow PhD students in innovation topics, especially from US' institutes and universities, in order to enrich my own research.

My supervisor Prof. Francesco Lissoni, fully supports my application and will contact you to provide a recommendation letter. Thank you very much for considering my candidature. It would be an honour to participate in the NBER Innovation Research Boot Camp 2026, and I look forward to contributing to and learning from this community.

Sincerely,
[Sara Savini]

CV and PhD courses

Sara Savini

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Updated: February 11, 2026

Profile

- I am a third-year Ph.D. student with research interests in *economic history*, *history of technology*, and *innovation*. My work focuses in particular on the historical diffusion of technologies, with a strong emphasis on *spatial dynamics* and inter-territorial spillover effects.
- I serve as the *Ph.D. students' representative* in the Academic Board of the PhD MMED programme at the University of Insubria and I am co-organizer of the PhD MMED seminar series.

Education

[2023 – ...]
Ph.D., Università degli Studi dell'Insubria Methods and Models for Economic Decisions
Thesis: *Three Essays on Innovation Diffusion*
Supervisors: Profs. Carlo Brambilla & Francesco Lissoni

[2023 – ...]
Ph.D., Bordeaux School of Economics Sciences économiques
Thesis under a cotutelle agreement

[2025]
Visiting Studentship @ University of Cambridge
Supervision: Dr Alexis Litvine @ CAM.POP, Faculty of History

[2025]
REGIS Summer school @ Bordeaux

[2024]
KID 2024 Summer school on *Knowledge Dynamics, Industry Evolution, Economic Development* @ Nice

[2021 – 2023]
M.Sc. GEEM – Economics of Innovation @ Università degli Studi dell'Insubria
Thesis title: *Mapping the Diffusion of Steam Engines in the British Industrial Revolution: Regional Phenomena and Persistence of Technologies*
Final grade: *summa cum laude*

[2021 – 2023]
M2 Économie de l'innovation et veille stratégique @ Université de Bordeaux
Thesis completed within a Double Degree programme
Final grade: *Très bien*

[2018 – 2021]
Bachelor in Economia e Management @ Università degli Studi dell'Insubria

Thesis title: *A Statistical Study on the Under-Reporting Tendency of the Self-Employed*
Final grade: *summa cum laude*

Conferences and Workshops

[2026]
ASSA 2026 Annual Meeting, Philadelphia, PA, January 3
Organized by: *Allied Social Science Associations* – Hosted by: *Cliometric Society*

[2025]
Rencontres d'Histoire et d'Histoire Economique d'Agen – 4ème édition, Agen, France, December 16th
Organized by: *BxSE*

Brown Coffee Seminar, Cambridge, United Kingdom, October 23
Organized by: *CAM.POP @ University of Cambridge*

EHES 2025 Conference, Stuttgart, Germany, September 4–6
Organized by: *European Historical Economics Society*

SEW2025 *International Workshop in Spatial Econometrics and Statistics*, Saint-Étienne, France, 4–6 June
Organized by: Groupe d'Analyse et de Théorie Économique (GATE-LSE) & Saint-Étienne School of Economics (SE^2)

EBHS 2025 Conference, Birmingham, Alabama, May 29–31
Organized by: *Economic and Business History Society*

EHS 2025 Conference, Glasgow, United Kingdom, April 4–6
Organized by: *Economic History Society*

BSE Seminar Series, Bordeaux, France, January 29

Professional experiences

[2025 – ...]
Tutoring in economics and management courses (Economics, Business and Law fields) – Università degli Studi dell'Insubria
Personalized academic support and teaching assistance (120h).

[2024]
Research assistant – Osservatorio MP4I
Production of descriptive statistics based on a survey conducted by the Observatory on the innovative activities of Italian SMEs, both innovative and non-innovative.

[2021 – 2022]
Internship – Ufficio Studi e Statistica Camera di Commercio di Varese
Data collection for the update of the Recovery Monitor and other thematic reports published on `www.osserva-varese.it`
Management of data requests from public and private institutions
Drafting of reports on the socio-economic characteristics of the local area based on survey results, published on the website

References by: Prof. Francesco Lissoni ✉ `francesco.lissoni@u-bordeaux.fr`

Complete list of PhD courses attended

At Università degli Studi dell'Insubria:

- Advanced Econometrics for Decision Making — 12h
- Optimization with Applications for Finance and Economics — 16h
- Stata Laboratory for Financial and Economic Analyses — 10h
- Applied Econometrics: Causality and Policy Evaluation — 20h
- Introduction to Macro AB Models — 10h
- Introduction to MATLAB — 8h
- An Introduction to Risk Measures and Portfolio Optimization — 10h
- Economic Growth Theory — 8h
- Stochastic Programming — 6h
- History of Decision Making — 12h
- Multidimensional Approaches for Measuring Well-Being and Poverty — 10h
- Networks: Theory and Applications — 10h
- Preferences, Utility and Optimization — 20h
- Applied Health Economics — 15h
- The Economics of Altruistic Decisions and Charitable Giving — 10h
- Transport Decision Making and Sustainability — 10h
- Topics in Cognitive Economics — 15h
- Becoming a Researcher: Navigating the Publication Process — 6h
- What can we learn from Editormetrics? Data, Approaches, Insights — 4h
- The Geography of Employment and the Environment — 6h
- Calibration, Validation and Inference for Complex Simulation Models — 6h
- Innovation Camp for PhD students - `Open badge` issued on 29/07/2024

At Université de Bordeaux:

- MOOC Éthique de la recherche — 12h
- MOOC Research Integrity in Scientific Professions — 15h

Current and future research

My doctoral research examines how spatial connectivity, infrastructure and access to markets and knowledge influence the diffusion of major technologies, generating persistent regional disparities in industrialisation outcomes. Analysing the diffusion of steam power during the eighteenth and nineteenth centuries, I consider innovation to be a spatial and networked process rather than a purely local decision driven by factor endowments (Atack et al., 1980; Nuvolari et al., 2011). By combining newly compiled historical data with modern spatial econometric techniques, my work speaks to core questions in innovation economics: spillovers, adoption frictions, and infrastructure-enabled technological change.

The first chapter examines the early diffusion of steam engines in the United Kingdom, building on the work of Nuvolari et al. (2011) but modelling the adoption process as spatially interdependent. I estimate spatial econometric models that explicitly capture local and global spillovers, distance decay and agglomeration effects. The results demonstrate that proximity to dynamic industrial centres is a strong predictor of more intense adoption, even when controlling for local industrial structure and resource endowments, and that knowledge spillovers were significant in explaining the diffusion of more complex engine models. This chapter shows that knowledge diffusion and geographic externalities were central to the initial spread of this General-Purpose Technology.

The second chapter turns to France, where the diffusion of steam power was slower and more uneven. This setting allows me to study infrastructure as a key constraint and enabler of adoption, using newly assembled data from the `COMMUNES project` (2024) and a new panel of steam engine data (Le Chapelain and Wilke, 2025). Here, I demonstrate that navigable waterways and railways influenced the diffusion of steam power via two distinct yet interconnected channels: by broadening market access and by facilitating the spread of technical knowledge. This chapter highlights how differences in connectivity can generate persistent gaps in the adoption of innovations. It also speaks directly to adoption frictions and infrastructure-enabled diffusion (Américo, 2024; Yamasaki, 2025).

The third chapter will extend the analysis to examine how access to international trade, induced by infrastructure, shaped regional industrialisation paths. The central hypothesis is that regions with better access to ports and foreign markets specialised in different industries and adopted steam power more quickly, resulting in different development paths. The chapter links local diffusion to global market exposure, showing how infrastructure-mediated trade access shaped divergent regional development paths.

In general, the thesis demonstrates that technological diffusion is inherently spatial and significantly shaped by connectivity. Adoption responds not only to local characteristics, but also to neighbouring activity, infrastructure networks and access to domestic and international markets. Methodologically, historical data allow me to identify spillovers and network effects that are central to modern innovation economics yet difficult to isolate in contemporary settings due to simultaneity and limited time horizons.

My future research will extend this framework to other technologies and time periods, with a focus on network-based diffusion, infrastructure complementarities and policy-relevant barriers to adoption. More broadly, my aim is to translate historically identified mechanisms into insights that are relevant to contemporary debates on infrastructure investment, regional inequality and technological change. In this context, the NBER Innovation Research Boot Camp is a valuable opportunity to further position my work at the intersection of economic history and innovation economics and refine its contribution to modern studies of technological diffusion.

Américo, Pedro (2024). *The Industrialization Path: Railroads, Technology Adoption, and Structural Transformation in Brazil*. DOI: 10.2139/ssrn.4942062.

Atack, Jeremy et al. (June 1980). "The Regional Diffusion and Adoption of the Steam Engine in American Manufacturing". In: *The Journal of Economic History* 40.2, pp. 281–308. DOI: 10.1017/S0022050700108216.

French Historical GIS, 1700–2020: Administrative Units, Populations, Transports, Economy (2024). DOI: 10.5281/zenodo.3727273.

Le Chapelain, Charlotte and Wilke, Ralf A. (Jan. 2025). "Spatial patterns of steam technology diffusion in nineteenth-century France". In: *Cliometrica*. DOI: 10.1007/s11698-024-00302-6.

Nuvolari, Alessandro et al. (Oct. 2011). "The early diffusion of the steam engine in Britain, 1700–1800: a reappraisal". In: *Cliometrica* 5.3, pp. 291–321.

Yamasaki, Junichi (July 2025). "Railroads and technology adoption in Meiji Japan". In: *Explorations in Economic History* 97, p. 101683. DOI: 10.1016/j.eeh.2025.101683.

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To the selection committee
2026 NBER Innovation Bootcamp

Subject : Sara Savini's application

Bordeaux, 10/02/2026

Dear Kevin, Bryan and Ina

I wish to express my full support for the application of **Sara Savini** for admission to the 2026 NBER Innovation Bootcamp. Sara is currently a third-year candidate in the joint PhD Econ programme of the universities of Insubria (Italy) and Bordeaux (France), under my supervision and Carlo Brambilla's. I have known her since she was a master student of mine here in Bordeaux and - over the years - I have been able to appreciate her very serious work ethic, her genuine enthusiasm for historical research, and her strong interest in economics and spatial econometrics—fields in which she demonstrates remarkable proficiency.

Sara's doctoral project examines the historical diffusion of technologies through an innovative regional and econometric approach. It analyzes the spread of early steam engines in England and in France, in connection with the development of transport infrastructure. The research combines advanced quantitative methods with the construction of an original historical database derived from digitized French archival sources. Sara has an excellent command of the statistical software R and Stata, the most advanced techniques in spatial econometrics, and has acquired solid experience in managing and processing complex historical data. My assessment is fully shared by her co-supervisor, as well as by her co-authors Claude Diebolt and Charlotte Le Chapelain, with whom I am in regular contact.

Participating to the bootcamp would give Sara a great opportunity to improve her analytical skills, better connect her specific research project with both the fundamentals of economic theory on innovation and the research agendas of both senior and junior researchers at NBER and beyond.

I remain at your disposal for any further information.

Yours faithfully,



Francesco Lissoni