Alexis Stevenson

Directorate General for Research and Innovation, European Commission 1049 Bruxelles/Brussel, Belgium | +32 2 29 63975| alexis.stevenson@ec.europa.eu

For the attention of the Selection Committee of the NBER Innovation Research Bootcamp 2025

I am writing to apply for the Innovation Research Boot Camp 2025, organised by the NBER. I obtained my PhD in Economics in 2022 from Hanken School of Economics (Finland) and KU Leuven (Belgium), specializing in the Economics of Innovation and Industrial Organization. My dissertation explores the Economics of Patent Rights, through three essays, applying renewal decision models to estimate the private value of patents in different contexts. One of these essays, which is a counterfactual analysis of the European Unitary Patent, was presented by my PhD supervisor, Otto Toivanen, at the NBER Summer Institute 2023 Innovation conference.

Following my PhD, I joined the Directorate-General for Research and Innovation at the European Commission as a Statistical Officer. In this role, I contribute to policy publications, including the 2024 Science, Research, and Innovation Performance of the EU report, where I co-authored a chapter on scientific performance. My work analyses the state of research in the EU, comparing it to global competitors using bibliometric data. I also contributed to the last editions of the European Innovation Scoreboard, which monitors innovation performance across EU countries and selected international economies, including the US and China.

This boot camp is a great opportunity to engage with leading scholars, explore key topics in economics of innovation, and refine my research agenda. I am particularly interested in the questions of measuring the value of innovation, innovation indicators, spillovers from public R&D support and the impact of innovation policy.

With my European policy experience and strong analytical background, I can bring a valuable perspective to discussions on innovation measurement and policy. This program will allow me to stay at the frontier of innovation research and further develop my work in this field which will also benefit my organisation.

Thank you for your time and consideration. I look forward to the opportunity to join the NBER Innovation Research Boot Camp and contribute to this research community.

Sincerely,

Alexis Stevenson

ALEXIS STEVENSON

PERSONAL DATA:

Address:	Chaussée de Boondael 155, 1050, Ixelles, Belgium
Nationality:	French
Date of birth:	12/06/1990
Phone Number:	+33 (0) 650428761
Email:	alexis.stevenson@ec.europa.eu

CURRENT POSITION:

May 2023 - ... Statistical Officer in the Chief Economist Unit and Foresight Service, DG Research and Innovation, European Commission

- In charge of the publications European Innovation Scoreboard and Regional Innovation Scoreboard: data analysis, review, and contract management.
- Drafting policy papers in the areas of science, technology, and innovation, such as the flagship report "Science, Research and Innovation Performance (SRIP) Report."
- Supporting the Directorate with data analysis and data collection.

EDUCATION:

Sept 2022 Ph.D in Economics, *KU Leuven*, Belgium & *Hanken School of Economics,* Finland
Essays on the Economic of Patent Rights.

July 2014 Master's in Economics and Econometrics, *Toulouse School of Economics*, France
Thesis: "Evaluation of Innovation in Cancer treatments"

July 2013 Double Bachelor's in Economics and Business, *ENS Paris-Saclay, France*
Thesis: "An economic approach of net neutrality"

July 2011 Admitted at *Ecole Normale Supérieure Paris-Saclay*, France
National competitive exam in Economics and Business (national rank: 15)

PREVIOUS WORK EXPERIENCE:

Jul 2022 - ... Economic assistant (contract agent FGIII) in the unit responsible for the ex-post economic evaluation of competition policy, DG Competition, European Commission

- Accompanying internal and external evaluation studies of past enforcement action and competition policy
- Co-drafting policy reports and papers on ex-post economic evaluation
- Contributing to the development and implementation of state-of-the-art and robust economic evaluation methodologies and practices

- Working on data processing, data analysis and data visualisation

Oct 2021 - June 2022 Policy Assistant (Blue Book trainee and then intérimaire), DG Research and Innovation, European Commission

- Data collection and analysis for the development of a composite index of transitions as well as statistical and economic analysis of the results
- Contribution to the drafting of several chapters of the report "Transitions Performance Index" including the economic and governance pillars
- Presentations during internal meetings, participation to meetings and conferences and drafting of several briefings
- Assisting in tasks related to the communication and dissemination of the report: support the preparation of the launch event and related communication activities

Jul 2015- Dec 2016 Economic Attaché, Embassy of France in Helsinki

- Reporting on the economic and financial situation in Finland to the French authorities, including providing input to the preparations of the French representations to the OECD and the IMF for their meetings on the OEDC Report and the IMF article IV consultations.
- Liaising with the French Treasury regarding the Finnish positions for the Economic and Financial Affairs Council meetings.
- Deputizing for the Head of the Economic Unit in her absence.

May 2013- Aug 2013 Internship in the department "Eco-efficiency of industrial processes", EDF R&D, Moret-sur-Loing, France

- Writing a report on the co-benefits (welfare, health, environmental externalities, jobs, impact on asset value, etc..) of energy efficiency policies in the building sector.
- Implemented a cost-benefit analysis of energy efficiency policies at the house-level.
- Estimated jobs creation and destruction in each sector with a scenario of renovation of buildings at the national-level. Method based on the use of input-output tables.

Jun 2012 - Aug 2012 Internship in the department "Market dynamics", CREDOC, Paris, France

- Statistical data analysis with Excel and SAS.
- Produced sectorial brochure based on data analysis.

PUBLICATIONS AND RESEARCH PROJECTS:

Peer-Reviewed Journal Articles

- Takalo, T., Hyytinen, A., & Stevenson, A. (2021) "Patenttien yksityinen arvo: kirjallisuuskatsaus ja uusia tuloksia Suomesta." *Kansantaloudellinen Aikakauskirja*

Policy Work

- European Commission: Directorate-General for Research and Innovation, Science, research and innovation performance of the EU, 2024 – A competitive Europe for a sustainable future, Publications Office of the European Union, 2024, https://data.europa.eu/doi/10.2777/965670

- European Commission: Directorate-General for Research and Innovation, European Innovation Scoreboard 2024, Publications Office of the European Union, 2024, https://data.europa.eu/doi/10.2777/779689 (Contact for DG RTD)

- Benavente, D., Prevost & Stevenson, A. (2022). Transitions Performance Index: Towards fair and prosperous sustainability. DG Research and Innovation, European Commission.

- Salminen, V., Halme, K., Kettinen, J., Härmälä, V., Järvelin, A. M., Suominen, A., ... & Stevenson, A. (2021). Aineettomien oikeuksien tilanne Suomessa 2020: IPR-strategian taustoitus.

Work in progress

- The Incentive and Welfare Effects of the European Unitary Patent (joint with Tuomas Takalo and Otto Toivanen).

- How much are patent citations worth? A simulation estimation based on patent renewal decisions.

TEACHING EXPERIENCE:

- Teaching assistant for the course "Economics of Strategy" and "Competition Economics" at *Hanken School of Economics*, Spring 2018, 2020, 2021 and 2022.

- Co-supervision of 6 master's thesis students in Business Economics since 2019, *KU Leuven*.

PRESENTATIONS AT CONFERENCES:

2023	European Policy for Intellectual Property (EPIP) Conference, Krakow, Poland
2022	European Policy for Intellectual Property (EPIP) Conference, Cambridge, United Kingdom
2020	DRUID Academy Conference, Odense, Denmark
	Summer School on Data & Algorithms for Science, Technology and Innovation Studies, *KU Leuven*, Belgium

2019 Research on Innovation, Science and Entrepreneurship (RISE) Conference, *Max Planck Institute For Innovation and Competition*, Munich, Germany

Other regular presentations: IO PhD workshops in Finland, IO weekly seminar in KU Leuven, Management Science and Innovation (MSI) Department in KU Leuven

LANGUAGES AND COMPUTER SKILLS:

Languages French (mother tongue), English (fluent), German (basic knowledge), Finnish (level A1.2)

Computer Skills R, STATA, Latex, Matlab

OTHER INTERESTS:

Cello, running, tennis.

Completed PhD courses:

- Health Economics (Hanken School of Economics)
- Empirical Industrial Economics (Hanken School of Economics, Prof: Zhang)
- Advanced Microeconomics 1/2/3/4 (Finnish Doctoral Programme in Economics)
- Advanced Macroeconomics 1/2/3/4 (Finnish Doctoral Programme in Economics)
- Advanced Industrial Economics (KU Leuven, Prof: Verboven)
- Advanced Econometrics 1/2/3/4 (Finnish Doctoral Programme in Economics)
- Dynamic Methods (KU Leuven, Prof: Van Biesebroeck)
- Research Ethics
- Machine Learning

Alexis Stevenson

My research during my PhD focused on **measuring the private value of innovation using patent renewal models**. I build on this literature to estimate the value of patents granted to firms, examining how renewal decisions reflect expected patent returns. My work contributes to the field by decomposing patent value across technological fields and estimating the returns to R&D investments. Additionally, I analyze the private value of patents in Germany's semiconductor industry, incorporating **a dynamic learning framework where patent holders update their valuation based on forward citations**. This allows for a counterfactual analysis of how citations influence perceived value over time. As part of the model, I also apply machine learning techniques to predict patent grant probabilities using patent abstracts, modeling pre-grant renewal decisions.

Another part of my research, conducted jointly with Otto Toivanen and Tuomas Takalo, assesses **the impact of introducing the Unitary Patent in Europe**. We estimate the private value of chemical patents and analyze how this major policy change – reducing translation and legal costs while standardizing renewal fees – affects inventors' incentives to innovate, consumer surplus, and the financial position of national patent offices. We develop a three-part model that integrates a patent renewal framework, a patent production function linking R&D investment to innovation value, and a mapping between private value and consumer surplus.

Looking forward, I aim to deepen my understanding of the determinants of the value of innovation over time. Specifically, I plan to **apply my modelling framework to study the effects of the American Inventors Protection Act**, which mandates public disclosure of patent applications 18 months after filing instead of at grant. Using a dynamic stochastic renewal model, I seek to evaluate how this change influences firms' renewal decisions and perceived patent value. This research will provide insights into the disclosure effects of the patent system and the learning process associated with innovation valuation.

Beyond patents, I am interested in applying machine learning techniques to estimate firm-level R&D investment. The European Commission annually publishes an EU industrial R&D investment scoreboard, but some major companies, such as Amazon and JD.com, do not report R&D in accordance with the Frascati Manual and therefore are not included in the scoreboard. I started to develop **a predictive model to estimate R&D expenditures for such firms and assess how their inclusion in the scoreboard would affect innovation rankings and policy insights**.

Attending the NBER Innovation Research Boot Camp would provide **a unique opportunity to engage with leading scholars in the field, explore key topics in innovation economics, and refine my research agenda**. The program's focus on empirical methods and policy implications aligns well with my interests, and I look forward to exchanging ideas with faculty and fellow participants to strengthen my understanding of economics of innovation.

Dear Brett,

I am pleased to write this email in support of the application of Alexis Stevenson for the NBER Innovation Research Boot Camp 2025. As his former PhD adviser, I have closely followed his research on the economics of innovation, particularly in measuring the private value of patents using renewal models. Alexis has demonstrated strong analytical skills, an excellent understanding of innovation policy, and an ability to apply rigorous model from empirical industrial organisation to important research questions.

One of his PhD essay conducted jointly with Tuomas Takalo and myself, assesses the incentive and welfare effects of introducing the Unitary Patent. This research provides key insights into the effects of a major change in the EU patent system on innovation incentives in Europe. We had the opportunity to present this work at the NBER Summer Institute in 2023, where it was well received.

These contributions and his current work in the European Commission are highly relevant to the themes of the boot camp. I highly recommend Alexis for this opportunity and believe he will be an excellent addition to the program. Please feel free to contact me should you require further information.

Otto Toivanen

Professor

Department of Economics

Aalto University School of Business