

Francesco Saverio Bellelli

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Bio

I am an applied economist, with interests ranging from macroeconomic and financial forecasting, to trade, machine learning and environmental issues.

After completing a PhD in economics at Durham University, I moved to Switzerland, where I went on working for international organisations and in the banking industry. Over the past years, I developed climate risk and economic forecasting models, analysed and wrote about macroeconomic issues, created new datasets on environmental policies, applied advanced text analysis and machine learning techniques, developed programming libraries, and even served as expert in international trade disputes.

Relevant experience

UBS

since March 2022

Quantitative analyst

I am currently working in the credit risk methodology team of UBS as a specialist for climate risk. The division develops and maintains firm-wide credit risk models, which are used to assess the impact of macro-economic scenarios on the firm's profitability, financial statements and capital adequacy. I am working on embedding climate-related physical and transition risk in the bank's main credit models. To this end, I apply a variety of techniques and knowledge from quantitative risk management, climate science, financial mathematics and econometrics.

WTO

Jan 2020 – Feb 2022

Research economist

As a member of the Quantitative modelling and analysis unit of the World Trade Organisation (WTO), I dealt with economic research and modelling of trade, with a particular focus on the environment-related activities of the WTO. My research projects related to innovation, environmental measures, fisheries subsidies, regional trade agreements, climate change and international trade. As part of my work, I applied advanced data analysis techniques, such as econometric modelling, natural language processing algorithms, or machine learning algorithms, to gain insights from WTO member data. I also participated to the drafting of WTO flagship publications, research papers, and other internal reports. I served as economic expert in two international trade disputes.

Pictet
June – December 2019

Econometrician trainee

Banque Pictet is a Swiss multinational private bank specialised in wealth and asset management. I worked within the Asset Allocation & Macro Research (AA&MR) team, whose main tasks consist in analysing sectoral and global economic dynamics in order to formulate an economic scenario and a medium- to long-term investment strategy. Among other things, my work involved collecting and analysing financial and macroeconomic data, replicating models from the empirical financial and economic literature, and econometric research on macroeconomic and financial trends. For example, I developed for the bank a set of mixed-frequency data models to track and forecast in real-time the business cycle and other financial indicators.

UNHCR
June – July 2019

Data analyst intern

The UNHCR is the UN agency for refugees. The main tasks of the internship involved the production of statistics related to UNHCR staff, the analysis of trends in the personnel data, the management of the UNHCR database and the implementation of automation processes for the analysis of data from the Division of Human Resources. At the time of my internship UNHCR was enacting a policy of decentralisation and regionalisation of the central bureaux. Within this context, I supported the staff appointment decisions through the provision of statistics that were used to assess the gender and geographic distribution during the selection process.

Durham University
May 2016 – April 2019

PhD candidate & researcher

My main duties consisted in performing economic research with the aim of fulfilling the requirements of the doctorate programme. In addition, in 2017 I offered tutoring service in econometrics to postgraduate students at Durham University Business School. And in the years 2017-2018 I acted as representative of PhD students at Durham University. In this role, I participated to the faculty's board meetings and represented the interests of doctoral students. This entailed providing guidance on academic and procedural matters, being the first contact for students in trouble, improving communication with academic staff, and coordinating with other representatives to further student requests with the faculty.

Education

Ph.D in Economics (2019) — Durham University, Durham, UK.

- Supervisors: Prof. Riccardo Scarpa and Dr. A. Aftab.
- Grant from Durham University Business School

M.Sc. in Financial Economics (2015) *with distinction* — Oxford Brookes University, Oxford, UK.

- Highest score among the 2015 cohort

B.Sc in Economics (2014) *Laurea triennale* — Università degli Studi di Roma Tre, Rome, Italy.

Baccalauréat économique et social (2010) — Lycée Chateaubriand, Rome, Italy

Languages & skills

- Language skills:**
- Italian — mother tongue
 - English — fluent (C2)
 - French — fluent (C2)
 - Portuguese — good (B2)
 - Spanish — beginner (A2)

- Computer skills:**
- General: Latex, Microsoft Office suite
 - Programming languages: R, Python, Julia
 - Statistical packages: Stata, Eviews, MLwiN
 - Interactive data visualisation: Shiny apps, Tableau
 - Other specialised software: Datastream, Bloomberg, QGIS

Additional information

- Creator and maintainer of the R package `countries` (<https://fbellelli.github.io/countries/>)
- Multicultural background: I lived in 8 different countries (Italy, Brazil, India, United Kingdom, Belgium, North Macedonia, China and now Switzerland) and enjoy travelling.
- Member of the Royal Economic Society (RES), European Association of Environmental and Resource Economists (EAERE) and European Consortium of Political Research (ECPR)

Publications

Notes and scientific papers

1. Bellelli, F.S. and Xu, A. (2024) The Impact of Environmental Measures on Trade and Innovation: Evidence from the WTO Environmental Database (EDB). *Environmental and Resource Economics*, 87, 2629–2682. <https://link.springer.com/article/10.1007/s10640-024-00898-3>.
2. Bellelli, F.S., Scarpa, R. and Aftab, A. (2023) An empirical analysis of participation in environmental agreements. *Journal of Environmental Economics and Management*, 118, 102783. <https://www.sciencedirect.com/science/article/abs/pii/S0095069623000013>.
3. Bellelli, F.S., Scarpa, R. and Aftab, A. (2023) The participation dilemma: A survey of the empirical literature on international environmental agreement ratification. *Review of Environmental Economics and Policy*, 17(1). <https://www.journals.uchicago.edu/doi/10.1086/722906>.
4. Bellelli, F.S. and Xu, A. (2022) How do environmental policies affect green innovation and trade? Evidence from the WTO environmental database (EDB). *WTO Staff Working Paper, ERSD-2022-03*. Available at: https://www.wto.org/english/res_e/reser_e/ersd202203_e.pdf.
5. Xu, A., Tresa, E., Bellelli, F.S., Bacchetta, M., Monteiro, J.A.. Trade and the transfer of climate-related technologies. *World Trade Organization, Trade and climate change information brief*.
6. Bellelli, F.S., Xu, A. Why should we fish for an agreement? An economic analysis of fisheries subsidies. (*under embargo, to be published as WTO discussion paper*)

7. Bellelli, F.S., Monteiro, J.A. and Xu, A. Assessing the environmental effectiveness of environmental provisions in regional trade agreements. (*Drafting in progress*)
8. Xu, A., Bellelli, F.S., Tresa, E., Bacchetta, M., Monteiro, J.A. (2021) Carbon content of international trade. *World Trade Organization, Trade and climate change information brief*, n°4. Available online at: https://www.wto.org/english/news_e/news21_e/clim_03nov21-4_e.pdf.
9. Bellelli, F.S. (2019) An overview of the main climate change agreements and the process that led to their formation. *The Foundation Journal*, Vol.XI, pp 1–15. Available at: <https://fbellelli.com/papers/articolo%20foundation%20published.pdf>.

Contributions to books and reports

1. WTO (2022) *World Trade Report 2022; Climate change and international trade*. World Trade Organization. Geneva, Switzerland. Available at: https://www.wto.org/english/res_e/publications_e/wtr22_e.htm.
2. Bellelli, F.S. (2022) *The Determinants of Environmental Policy and Diplomacy: An Analysis of Participation in Environmental Treaties*, Elivia Press. <https://www.amazon.com/dp/9994980432>.
3. WTO (2021) *World Trade Report 2021; Economic resilience and trade*. World Trade Organization. Geneva, Switzerland. Available at: https://www.wto.org/english/res_e/publications_e/wtr21_e.htm.

Other publications

1. Bellelli, F.S. (2022) The fascinating world of Voronoi diagrams. *Built in*. Available at: <https://builtin.com/data-science/voronoi-diagram>. Previous version published on *Towards Data Science* available at: <https://towardsdatascience.com/the-fascinating-world-of-voronoi-diagrams-da8fc700fa1b>.
2. *Maps & data visualisation for:* Johnson, S. (2019) The great haul of China, illustrated. *Financial Times*. November 19. Available online at: <https://www.ft.com/content/4975eb8a-0ab6-11ea-bb52-34c8d9dc6d84>.
3. *Maps & data visualisation selected for:* Smith, A. (2019) Ten charts that tell the story of 2019. *Financial Times*. December 29. Available at: <https://www.ft.com/content/62fbf660-2651-11ea-9a4f-963f0ec7e134>.
4. Bellelli, F.S. (2019) Understanding climate change. *New Vision*. April 11. Available online at: https://www.newvision.co.ug/new_vision/news/1498270/understanding-climate-change.
5. Bellelli, F.S. (2019) The determinants of environmental policy and diplomacy; An empirical investigation of participation in environmental treaties and the influence of domestic groups. *Doctoral theses, Durham University*. Available at: <http://etheses.dur.ac.uk/13328/>.
6. Bellelli, F.S. (2015) The dynamic relationship of income with health and education spending. *Theses, Oxford Brooks University*. Available at: <https://radar.brookes.ac.uk/radar/items/8e1f4895-c565-4228-9eec-65a13e87f634/1/.PDF>
7. Bellelli, F.S. (2014) Del principio della domanda effettiva in Keynes e Kalecki. *Tesi, Università degli Studi di Roma Tre*. Available at: <https://fbellelli.com/research.html>