François Lafond

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Research Interests

Economics of innovation and productivity
Environmental, energy and climate change economics
Networks and complex systems
Applied econometrics and forecasting

Current positions

University of Oxford
2020- Deputy director of the Complexity Economics group, INET
2023- Lead researcher, Smith School for Enterprise and the Environment
2017- Associate member, Nuffield College
2014- Oxford Martin fellow, Oxford Martin School
Complexity Science Hub, Vienna
2024- External faculty

Past positions

University of Oxford
2019-2023 Lead researcher, Mathematical Institute
2018-2019 Senior Research Officer, INET
2017-2019 Associate Researcher, Oxford Martin School
2014-2018 Research Officer, INET
London Institute for Mathematical Sciences
2014-2016 Postdoctoral researcher

Education

Maastricht University
2009-2014 PhD in Economics, PhD program *Economics and Policy Studies of Technical Change*, UNU-MERIT
Thesis: *The evolution of knowledge systems*. Supervisor: Robin Cowan
University of Strasbourg
2008-2009 Research Master in the Economics of knowledge
University of Clermont-Ferrand
2002-2007 Bachelor and Professional Master in Economics

Publications

In peer reviewed journals

Mungo, L., Brintrup, A., Garlaschelli, D. & Lafond, F., Reconstructing supply networks, *Journal of Physics: Complexity*, 2024.

Goldin, I., Koutroumpis, P., Lafond, F., & Winkler, J. Why Is Productivity Slowing Down? *Journal of Economic Literature* 62(1), pp. 196-268 (Direct submission).

Pangallo, M., Aleta, A., del Rio Chanona, M., Pichler, A., Martin-Corral, D., Chinazzi, M., Lafond, F., Ajelli, M., Moro, E, Moreno, Y., Vespignani, A. & Farmer, J.D, The unequal effects of the health-economy tradeoff during the COVID-19 pandemic, *Nature Human Behaviour*, accepted, *arXiv 2212.03567*.

Pichler, A., Diem, C., Brintrup, A., Lafond, F., Magerman, G., Buiten, G., Choi, T., Carvalho, V., Farmer, J.D. & Thurner, S., Building an alliance to map global supply networks, *Science* (Policy Forum) 382.6668: 270-272.

Mungo, L. , Lafond, F., Estudillo, P., & Farmer, J. D. (2023), Reconstructing production networks using machine learning, *Journal of Economic Dynamics & Control*, 148, 104607.

Pichler, A., Pangallo, M., del Rio-Chanona, R. M., Lafond, F., & Farmer, J. D. (2022). Forecasting the propagation of pandemic shocks with a dynamic input-output model. *Journal of Economic Dynamics & Control*, 144, 104527.

Lafond, F., Greenwald, D. and & Farmer, J. D. (2022), Can stimulating demand drive costs down? World War II as a natural experiment. *Journal of Economic History* 82(3), 727-764.

Hötte, K., Pichler, A. & Lafond, F. (2021), The rise of science in low-carbon energy technologies. *Renewable & Sustainable Energy Reviews* 139, 110654.

del Rio-Chanona, R.M, Mealy, P., Beguerisse, M., Lafond, F. & Farmer, J. D. (2021), Automation and occupational mobility: a data-driven network model. *Journal of the Royal Society Interface* 18(174).

del Rio-Chanona, R.M, Mealy, P., Pichler, A., Lafond, F. & Farmer, J. D. (2020), Supply and demand shocks in the COVID-19 pandemic: An industry and occupation perspective. *Oxford Review of Economic Policy* 36, Supp 1, S94--S137.

Mariani, M. S., Medo, M., & Lafond, F. (2019). Early identification of important patents: Design and validation of citation network metrics. *Technological Forecasting and Social Change* 146, 644-654.

Way, R., Lafond, F., Lillo, F., Panchenko, V., & Farmer, J. D. (2019). Wright meets Markowitz: How standard portfolio theory changes when assets are technologies following experience curves. *Journal of Economic Dynamics & Control* 101, 211- 238.

Lafond, F., & Kim, D. (2019). Long-run dynamics of the US patent classification system. *Journal of Evolutionary Economics* 29(2), 631-664.

Lafond, F., Bailey, A. G., Bakker, J. D., Rebois, D., Zadourian, R., McSharry, P., & Farmer, J. D. (2018). How well do experience curves predict technological progress? A method for making distributional forecasts. *Technological Forecasting & Social Change* 128, 104-117.

Farmer, J. D., & Lafond, F. (2016). How predictable is technological progress? *Research Policy* 45(3), 647-665.

Lafond, F. (2015). Self-organization of knowledge economies. *Journal of Economic Dynamics & Control* 52, 150-165.

Working papers

Bacilieri, A., Estudillo, P., Borsos, A. & Lafond, F., Firm-level production networks: what do we (really) know?, *INET Oxford WP* No. 2023-08.

Yang, J., Heinrich, T., Winkler, J., Lafond, F., Koutroumpis, P., & Farmer, J. D. (2022). Measuring productivity dispersion: a parametric approach using the Lévy alpha-stable distribution, *INET Oxford WP* 2019-04.

Pichler, A., Lafond, F & Farmer, J. D. (2020) Technological interdependencies predict innovation dynamics, *INET Oxford WP* No. 2020-04.

Advanced work in progress

Asano, Y., Vary, S., Lafond, F., Farmer, J.D., & Beguerisse Díaz, M., Uncovering technological eras.

Ren, X., Marotta, F., & Lafond, F., The industry origins of aggregate emissions intensity: evidence from a dynamic factor model.

Ravigné, E. & Lafond, F., The impact of the net zero transition on aggregate productivity.

Edited volumes

Bednar, J., Beinhocker, E., del Rio Chanona, M., Farmer, J.D., Lafond, F., Mealy, P., Pangallo, M. & Pichler, A. (in preparation, 2024) *The Economy as an evolving complex system IV*, SFI press

Bednar, J., del Rio Chanona, M., Farmer, J.D., Lafond, F., Mealy, P., Pangallo, M. & Pichler, A. (in preparation, 2024) *Special Issue on Complex System Approaches to 21st Century Challenges: Inequality, Climate Change, and New Technologies*, Journal of Economic Behavior & Organization.

Policy reports

Koutroumpis, P. and Lafond, F. (2018), Disruptive technologies and regional innovation policy, Background paper for an OECD/EC Workshop on 22 November 2018 within the workshop series "Broadening innovation policy: New insights for regions and cities", Paris.

Teaching

Courses

University of Oxford, MSc in Sustainability, Enterprise and the Environment

2023 Introduction to Macroeconomics
2023 Practicum on forecasting
2021 Co-designing one lecture, Introduction to complexity and network science for environmental economics.

UNU-MERIT PhD program

2012, 2013 Lecturing and tutoring, Introduction to quantitative methods and microeconomics.

Maastricht University, Bachelor in Economics

2011 Tutoring, Network economics.

Summer schools

Oxford Summer School in Economic Networks

2018, 2019 Networks in the economics of innovation.
2017, 2018 Introduction to network theory.

EU project "GROWTHCOM" complex systems summer school

2015 Technology forecasting.

Co-supervision of doctoral students

2021- Benjamin Wagenvoort, School of Geography and the Environment, Oxford
Essays in energy transition and technology diffusion

2020- Xiyu Ren, School of Geography and the Environment, Oxford
Granular insights on the net-zero transition in electricity and industry

2019-2023 Luca Mungo, Mathematical Institute, Oxford
Reconstruction of production networks and other studies in Complexity Economics

2017-2023 Andrea Bacilieri, School of Geography and the Environment, Oxford
Production networks and planetary boundaries: challenges and opportunities for Integrated Assessment Models

2017-2021 Anton Pichler, Mathematical Institute, Oxford
Network-dependent dynamics of innovation and production
Placement: JSMF Fellow, Complexity Science Hub, Vienna and Institute for Social Ecology at BOKU, Vienna.

2016-2021 Maria del Rio Chanona, Mathematical Institute, Oxford
Multi-agent, non-equilibrium, and network models of labour economics and financial contagion
Placement: JSMF Fellow, Complexity Science Hub, Vienna.

Other supervision: 1 Master student (Mathematical Institute, Oxford, 2020), multiple RAs, 1 intern (Ogden fellow).

Grants and awards

Projects

2022-2025 Co-Investigator, ESRC project " Productive and Inclusive Net Zero (PRINZ) - Opportunities and barriers in the transition to sustainable and equitable growth".

2021-2023 Co-Investigator, ONS - Alan Turing Institute project "Understanding production networks".

Prizes

2021 Rebuilding Macro "Complexity and macroeconomics" third prize for Pichler et al. (2020) "In and out of lockdown: Propagation of supply and demand shocks in a dynamic input-output model".

Professional service

University of Oxford [Omitted]

External PhD thesis committees

2020 Utrecht University, Economic geography.

2018 Australian National University, Economics.

Events (Co-organizer) [2022-23 only]

2023 Complex System Approaches to 21st Century Challenges: Inequality, Climate Change, and New Technologies, Santa Fe Institute, August 2023.

2023 3^{rd} Interdisciplinary Workshop on Firm-Level Supply Networks: Reconstruction and Dynamics, IfM Cambridge, July 2023.

2023 2^{nd} Interdisciplinary Workshop on Firm-Level Supply Networks: Policy, CSH Vienna, June 2023.

2022 1^{st} Interdisciplinary Workshop on Firm-Level Supply Networks: Reconstruction and Dynamics

2019- INET Complexity Economics seminar series.

2022 The Future of Complexity Economics, 3 days Conference, Santa Fe.

Hiring committees: Postdocs & doctoral students ($\sim$ 10).
Refereeing: ($\sim$ 35).

Impact and outreach

Press coverage: e.g *BBC News* (web), *The Guardian*, and *Bloomberg* for our work on renewables costs, *Financial Times* (twice) for our work on productivity, and *Los Angeles Times* for our work on Covid-19. **Popular science books, Blogs and Government reports [Omitted]; Occasional consulting [Omitted]**

Research visits

WINTER 2024 IMT Lucca (Prof. Diego Garlaschelli).

SPRING 2023 University of Cambridge (Prof. Vasco Carvalho).

SPRING 2019 MIT International Design Center (Prof. Chris Magee).

SUMMER 2015 University of Fribourg (Prof. Yi-Chen Zhang).

SUMMER 2014 Santa-Fe Institute.