Giovanni Ballarin

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Education

Ph.D., Economics, University of Mannheim	since 2018
M.Sc., Economics, University of Konstanz	2017–2018
M.Sc., Economics, University of Tor Vergata	2016–2018
B.Sc., Mathematics, University of Milano–Bicocca	2013–2016

Research Fields

Econometrics, Time Series Analysis, Machine and Statistical Learning, Macroeconometrics.

Job Market Paper

Impulse Response Analysis of Nonlinear Time Series Models

Linear time series models are the workhorse of structural macroeconometric analysis. Yet, economic theory as well as data suggest that nonlinear and asymmetric effects might be key to understanding the potential effects of sudden economic changes. This paper proposes a new semi-nonparametric sieve approach to estimate impulse response functions of nonlinear time series within a general class of structural models. Using physical dependence conditions, I prove that a two-step procedure can flexibly accommodate nonlinear specifications, avoiding the choice of fixed parametric forms. Sieve impulse responses are proven to be consistent by deriving uniform estimation guarantees, while an iterative algorithm makes it straightforward to compute them in practice. Simulations show that the proposed semi-nonparametric approach provides insurance against misspecification at minor efficiency costs. In a US monetary policy application, I find that the sieve GDP response associated with a rate hike is, at its peak effects, 16% larger than that of a linear model. Finally, when studying interest rate uncertainty shocks, sieve responses imply up to 54% and 71% stronger contractionary effects on production and inflation, respectively.

Publications

Reservoir Computing for Macroeconomic Forecasting with Mixed Frequency Data (with Petros Dellaportas, Lyudmila Grigoryeva, Marcel Hirt, Sophie van Huellen and Juan-Pablo Ortega)
To appear, International Journal of Forecasting

Research Papers

Memory of Recurrent Networks: Do We Compute It Right? (with Lyudmila Grigoryeva and Juan-Pablo Ortega)
Submitted

Ridge Regularized Estimation of VAR Models for Inference
Currently under revision for resubmission

References

Prof. Carsten Trenkler	Prof. Lyudmila Grigoryeva	Prof. Petros Dellaportas	Prof. Juan-Pablo Ortega
University of Mannheim	University of St. Gallen	UCL	NTU Singapore
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Conferences and Workshops

2023 DEDS 2023 · University of Mannheim · ENTER Jamboree · 43rd International Symposium on Forecasting · HKMetrics Workshop · Tilburg University · Vrije Universiteit Amsterdam · Universidad Carlos III de Madrid · FinEML Conference 2023

2022 Young Researchers Workshop "Big and Smart Data Analysis in Finance" · 5th Vienna Workshop on High-Dimensional Times Series in Macroeconomics and Finance · 2nd International Econometrics PhD Conference

2021 HKMetrics Workshop · University of Mannheim · ENTER Jamboree

2020 University of Mannheim

2018 JuliaCon

Teaching Experience

University of Mannheim

Advanced Econometrics I (PhD Level) — 2021–2023
Teaching Assistant to Prof. Christoph Rothe

Advanced Macroeconomics III (PhD Level) — 2021
Teaching Assistant to Assistant Prof. Matthias Meier

Mathematics for Economists (PhD Level) — 2019–2020
Teaching Assistant

Professional Experience

Research Assistant, ZEW Mannheim, Prof. Sebastian Siegloch — 2020

Student Assistant, University of Konstanz, Jr. Prof. Lyudmila Grigoryeva — 2018

Honors, Scholarships, and Fellowships

CDSE Teaching Award, University of Mannheim — 2020

Preis des Vereins der Ehemaligen der Universität Konstanz (VEUK e.V.) — 2018

Merit Prize for First Year M.Sc. Students, University of Tor Vergata — 2017

Referee Work

International Journal of Forecasting · *Neural Networks* · *Journal of Econometrics*

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