

ALEXANDROS GILCH

CONTACT

Institute of Finance and Statistics
Adenauerallee 24-26, Office 1.006
53113 Bonn, Germany

alexandros.gilch[at]uni-bonn.de [✉](#)
Website [✉](#)
Phone: +49 228 73 6103

EDUCATION

Ph.D. in Economics University of Bonn	since 2020
M.Sc. in Economic Research (GPA: 1.2) University of Bonn	2020–2022
M.Sc. in Mathematics (GPA: 1.3) University of Bonn	2017–2020
B.Sc. in Mathematics (GPA: 1.4) University of Göttingen – Exchange student: University of Warwick, 2016–2017	2014–2017

RESEARCH INTERESTS

Computational Economics, (International) Macroeconomics, Structural Econometrics

JOB MARKET PAPER

Inference for Missing Data in State-Space Models

with Gregor Reich (Tsumcor Research AG).

Nonlinear, non-Gaussian state-space models are a standard tool for analyzing time series or panel data with latent state variables, but estimating their parameters and, even more so, the latent states is challenging. We provide a comprehensive methodology to estimate the latent states, particularly addressing two issues: First, because the latent state is serially correlated, accurate point estimators and prediction bands require evaluating high-dimensional integrals arising from marginalizing the latent path. We propose a deterministic recursive quadrature and interpolation (RQI) algorithm to approximate these integrals, exploiting the efficiency of lower-dimensional numerical algorithms. Second, ignoring uncertainty about the model parametrization yields overconfident prediction bands. We develop a framework of prediction-band unions that incorporate parameter uncertainty, which can be computed via a sequence of constrained optimization problems solvable with off-the-shelf packages. We demonstrate the efficiency of RQI in extensive Monte Carlo studies for a Stochastic Volatility model, benchmarking against RQI a popular particle smoothing algorithm. Finally, we conduct full predictive inference for a sequence of endogenously unobserved prices using data from a steel-trading firm and a dynamic profit-maximization model.

Working paper [✉](#)

PUBLICATIONS

“Small Data”: Efficient Inference with Occasionally Observed States

with Andreas Lanz, Philipp Müller, Gregor Reich, and Ole Wilms.

Accepted at *Management Science*, 2025.

Published version [↗](#) • Working paper [↗](#)

Sparse Tensor Product Approximation for a Class of Generalized Method of Moments Estimators

with Michael Griebel and Jens Oettershagen.

International Journal for Uncertainty Quantification, 2022.

Published version [↗](#) • Working paper [↗](#)

WORK IN PROGRESS

Financial Sanctions Interact(ed) with Trade Sanctions

with Christian Bayer, and Farzad Saidi.

Working paper [↗](#) .

Asymptotic Properties of the Maximum Likelihood Estimator under Occasionally Observed States

with Gregor Reich, and Ole Wilms.

Working paper [↗](#)

PRESENTATIONS

(* indicates presentation by co-author)

EC-CEPR-JIE conference “Global Shocks”*, Penn Macro Lunch Seminar, Penn Econometrics Lunch Seminar	2025
---	------

ASSA Winter Meeting 2024, Bonn Finance Seminar (Brown Bag), Bonn Macro Lunch Seminar, Bonn-Frankfurt-Mannheim PhD conference, 3rd Kiel- CEPR Conference on Geoeconomics, IMFS Research Workshop, CRC TR224 Retreat	2024
---	------

Bonn-Frankfurt-Mannheim PhD conference, CRC TR224 Retreat	2023
---	------

TEACHING

University of Bonn

– Econometrics (B.Sc. Economics), teaching assistant	2022, 2023
– Corporate Finance (B.Sc. Economics), teaching assistant	2022
– Numerical Mathematics I (B.Sc. Mathematics), teaching assistant	2018, 2019
– Numerical Mathematics II (B.Sc. Mathematics), teaching assistant	2018

AFFILIATIONS AND SCHOLARSHIPS

Collaborative Research Center TR 224, Fellow Universities of Bonn and Mannheim	since 2023
Doctoral scholarship Bonn Graduate School of Economics	2020–2025
Studienstiftung scholarship German Academic Scholarship Foundation	2015–2020

OTHER WORK AND RESEARCH EXPERIENCE

Visiting Ph.D. scholar, University of Pennsylvania Host: Prof. Dirk Krueger	2025
Intern, Deutsche Bundesbank , Financial Stability Department	2020
Research Assistant, Institute for Numerical Simulation Group Prof. Michael Griebel	2019–2020
Intern, d-fine GmbH (consulting firm)	2019

SKILLS

<i>Languages</i>	German (native), English (fluent), Greek, French (basic)
<i>Software</i>	Python, MATLAB, Stata, L ^A T _E X, git

Bonn, October 10th, 2025