Luis Winter
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Website — GitHub — Google Scholar

ACADEMIC POSITIONS

Doctoral Research Assistant Apr 2022 - Present
University of Cologne, Germany

- Institute of Econometrics and Statistics

EDUCATION

Ph.D. in Economics Oct 2022 - Mar 2027 (Expected)
University of Cologne, Germany

- Thesis Topics: Macro- and Time Series Econometrics

M.Sc. in Economics Oct 2020 - Sep 2022
University of Cologne, Germany

- Grade: 1.3 (German GPA)
- Exchange Semester: University of Amsterdam UvA (Sep 2021 – Jan 2022)

B.Sc. in Business & Economics Oct 2017 – Sep 2020
Goethe University Frankfurt, Germany

- Grade: 1.4 (German GPA)
- Exchange Semester: Northumbria University Newcastle (Sep 2019 – Jan 2020)

PROFESSIONAL EXPERIENCE

Student Research Assistant Nov 2020 – Mar 2022
German Economic Institute Cologne, Germany

- Wage Policy and Labour Relations

Student Research Assistant Nov 2018 – Sep 2020
Goethe University Frankfurt, Germany

- Management and Microeconomics

Intern Feb 2020 – Apr 2020
ING AG Frankfurt, Germany

- Wholesale Banking Client Coverage Multinationals

Intern Mar 2019 – May 2019
Cofinpro AG Frankfurt, Germany

- Consulting and Asset Management

RESEARCH INTERESTS

Time Series Econometrics, Macroeconometrics, Forecasting & Nowcasting, Functional Data, Factor Models, Scenario Analysis

WORKING PAPERS AND WORK IN PROGRESS

Functional Factor Regression with an Application to Electricity Price Curve Modeling
with Sven Otto, 2025

- Abstract: We propose a function-on-function linear regression model for time-dependent curve data that is consistently estimated by imposing factor structures on the regressors. An integral operator based on cross-covariances identifies two components for each functional regressor: a predictive low-dimensional component, along with associated factors that are guaranteed to be correlated with the dependent variable, and an infinite-dimensional component that has no predictive power. In order to consistently estimate the correct number of factors for each regressor, we introduce a functional eigenvalue difference test. While conventional estimators for functional linear models fail to converge in distribution, we establish asymptotic normality, making it possible to construct confidence bands and conduct statistical inference. The model is applied to forecast electricity price curves in three different energy markets. Its prediction accuracy is found to be comparable to popular machine learning approaches, while providing statistically valid inference and interpretable insights into the conditional correlation structures of electricity prices.

Bayesian Nowcasting of German GDP – a Precision-Sampler-Based Toolbox
with Max Diegel, 2026 WIP

- Abstract: We develop a suite of real-time nowcasting tools that are compatible with the precision sampler for missing data in linear state-space models by Chan et al. (2023). Firstly, we introduce an alternative approach to measure the impact of data releases and revisions on the GDP nowcast in the absence of the Kalman filter. Secondly, we describe a data-driven scenario analysis framework that exploits the sampler's unique ability to condition on additional information. Leveraging the computational efficiency of the precision-based method, we conduct a large-scale model comparison for nowcasting German GDP. Our application demonstrates that scenario nowcasts conditional on expert GDP projections improve prediction accuracy and post-COVID uncertainty assessment compared to solely model-driven approaches.

Projection Estimators for Structural Impulse Responses from Functional Data
2026 Early WIP

- Abstract: TBA

ACADEMIC PRESENTATIONS

2025: EAYE Annual Meeting (London, UK); RCEA International Conference in Economics, Econometrics, and Finance (Jersey City, USA); International Conference on Econometrics and Statistics – EcoSta (Online); Institute of Econometrics and Statistics Cologne Research Seminar

2024: Institute of Econometrics and Statistics Cologne Research Seminar; Workshop on High-Dimensional Times Series in Macroeconomics and Finance (Vienna, Austria); Annual Conference of the International Association for Applied Econometrics – IAAE (Thessaloniki, Greece)

TEACHING

Exercise – Descriptive Statistics and Probability Theory Apr 2022 – Present
University of Cologne, Germany
Exercise – Inferential Statistics and Econometrics Oct 2022 – Present
University of Cologne, Germany
Extracurricular Lecture – Data Science with R Oct 2023 – Present
University of Cologne, Germany

LANGUAGES

- German (Native)
- English (Fluent)