Wei Zhang

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Education

Purdue University — West Lafayette, IN, U.S.A.
- Ph.D. Candidate in Econometrics. (GPA: 3.95/4.0) — August 2025 (expected)
- Doctoral Student Research Fund, Summer Research Grant, Federick N. Andrews Fellowship

Humboldt University of Berlin — Berlin, Germany
- Master of Science, majoring in Econometrics. (GPA: 1.3, on a scale where 1.0 is the highest) — August 2017

University of International Business and Economics — Beijing, China
- Master of Economics, majoring in International Trade. (GPA: 3.9/4.0) — June 2017

Zhongnan University of Economics and Law — Wuhan, China
- Bachelor of Management, Minor in Finance — June 2014

Skills and Interests

- Expertise (10+yoe): **Econometric Modelling**, **Time Series Analysis**, **Empirical Macroeconomics**, **Forecasting**, **Monetary Policy Analysis**
- Programming Languages (7+yoe): MATLAB, **Python**(pandas, NumPy, matplotlib, PyMC), **R**, **Stata**, **SQL**.
- Languages: English (fluent), Chinese (native), Japanese (beginner), German (basic)
- Interests: Painting, Piano, Hiking, Yoga

Selected Research Projects

[1] **Bayesian Dynamic Factor Model for High-dimensional Matrix-valued Time Series**

Econometric Modelling, ***Time Series Analysis***, ***Empirical Macroeconomics***
- *Under Review*, ***Journal of Econometrics***
- Introduced a Bayesian Matrix Dynamic Factor Model that efficiently captures dynamic interdependencies in matrix-valued time series in macro-financial data; developed a scalable Gibbs–MH sampling algorithm with Kronecker-structured priors while accommodating time-varying volatility and outliers.

[2] **Measuring Inflation Risk Using Matrix Dynamic Factors: A Granular Approach for the Euro Area**

Time Series Analysis, ***Forecasting***, ***Monetary Policy Analysis***
- Developed a matrix factor model that effectively recovers missing observations and entire series in high-dimensional macroeconomic panels from the ECB dataset, yielding improved forecast performance over traditional factor models; constructed an inflation and deflation risk indicator for ten euro area countries, accurately estimating country-level probabilities of tail inflation events.

[3] **Bayesian Model Comparison for Large Bayesian VARs after the COVID-19 Pandemic**

Econometric Modelling, ***Time Series Analysis***, ***Monte Carlo Simulations***
- *R&R*, ***Journal of Econometrics***
- Developed a variational inference algorithm to dramatically reduce computation time in forecasting with large vector autoregressions on high-dimensional macroeconomic data; combined with importance sampling for efficient model comparison.

[4] **Asymmetric Dynamic Factor Model**

Econometric Modelling, ***Monte Carlo Simulations***, ***Empirical Macroeconomics***
- Proposed an asymmetric dynamic factor model with threshold-dependent factor loadings to capture nonlinear effects of economic conditions; designed an efficient MCMC sampler and uncovered significant asymmetries in macroeconomic responses, with stronger effects during downturns.

Industry Experience

European Central Bank — July 2024–August 2024

*Summer Trainee (MATLAB, **R**, **Python**)*
- Collaborated with economists to develop a reliable indicator of inflation risks in the euro area, capable of signaling inflation and deflation at least three months in advance; presented the paper "Bayesian Dynamic Factor Models for High-dimensional Matrix-valued Time Series" to policy-makers at an internal seminar.

Personal Information

US permanent resident