iu.ricardo@maastrichtuniversity.nl
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Ivan Ricardo

ivanuricardo.github.io

Education

Maastricht University — Maastricht, The Netherlands
PhD in Time Series Econometrics — *Sep 2023 – Present*

- **Research Topic**: Tensor methods in econometrics
- **Supervisors**: Alain Hecq and Ines Wilms

Maastricht University — Maastricht, The Netherlands
MSc. in Economic and Financial Research — *Aug 2021 – Aug 2023*

- **Specialization**: Econometrics

University of California, Santa Barbara — Santa Barbara, CA
B.A. in Economics — *Aug 2017 – May 2020*

Working Papers

- **Reduced Rank Matrix Autoregressive Models: A Medium N Approach**: Reduced-rank regressions are powerful tools used to identify co-movements within economic time series. However, this task becomes challenging when we observe matrix-valued time series, where each dimension may have a different co-movement structure. We propose reduced-rank regressions with a tensor structure for the coefficient matrix to provide new insights into co-movements within and between the dimensions of matrix-valued time series. Moreover, we relate the co-movement structures to two commonly used reduced-rank models, namely the serial correlation common feature and the index model. Two empirical applications involving U.S. states and economic indicators for the Eurozone and North American countries illustrate how our new tools identify co-movements. Link to paper.
- **Detecting Cointegrating Relations in Non-stationary Matrix-Valued Time Series**: This paper proposes a Matrix Error Correction Model to identify cointegration relations in matrix-valued time series. We hereby allow separate cointegrating relations along the rows and columns of the matrix-valued time series and use information criteria to select the cointegration ranks. Through Monte Carlo simulations and a macroeconomic application, we demonstrate that our approach provides a reliable estimation of the number of cointegrating relationships. Link to paper.

Software

- **CommonFeatures.jl**: Julia library for reduced-rank tensor regressions
- **GraphicalLasso.jl**: Julia library for the graphical lasso algorithm

Conference Participation and Refereeing

- **Presentations**: CFE-CM Statistics (forthcoming, 2024), Econometrics Seminar Maastricht University (2024)
- **Posters**: The Netherlands Econometrics Study Group (2024)
- **Participation**: Network Econometrics summer school at the University Ca'Foscari (2023), Workshop on Dimensionality Reduction and Inference in High-Dimensional Time Series at Maastricht University (2022)
- **Refereeing**: Journal of Econometrics

Teaching Experience

- **Quantitative Methods III for Bsc. International Business**: Avg. tutor grade: 8.65/10
- **Statistics I for University College Maastricht**: Avg. tutor grade: 5/5
- **Macroeconomics for Bsc. Econometrics and Operations Research**: Avg. tutor grade: 8.69/10
- **Econometric Methods I for Bsc. Econometrics and Operations Research**: Avg. tutor grade: NA/10 (to be taught)

Skills

Languages: Julia, R, Python, Lua, MATLAB, Bash

Technologies: Git, ReactJS, Docker, Linux