Hanno Reuvers

Contact Information

Erasmus University Rotterdam
Department of Econometrics
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Current Occupation

Assistant Professor at Erasmus University Rotterdam

Research Interests

Bootstrap Inference, Climate Econometrics, Nonlinear Cointegration, Spatial Econometrics

Education

Maastricht University, Maastricht, The Netherlands
Ph.D., Econometrics, 01/09/2013 – 14/05/2018

- Ph.D. thesis: *"Vector Autoregressions: Lag Order Uncertainty and Least Absolute Deviations"*
- Ph.D. award date: 14/05/2018
- Supervisors: Prof. dr. Franz Palm & Prof. dr. Jean-Pierre Urbain[†]

Maastricht University, Maastricht, The Netherlands
M.Sc., Econometrics and Operations Research, 01/09/2012–31/08/2013

- Master Thesis: *"Estimating Risk-Parameters in Conditional Volatility Models"*
- Supervisors: Prof. dr. E. Beutner & Dr. S. Smeekes
- GPA: 9.4/10, cum laude

Eindhoven University of Technology (TU/e), Eindhoven, The Netherlands
M.Sc., Applied Physics, coursework taken, not graduated[‡]

- GPA: 8.3/10

Academic Experience

Tor Vergata University of Rome, Rome, Italy
Visiting Researcher, 18/10/2021 - 17/12/2021

Erasmus University Rotterdam, Rotterdam, The Netherlands
Assistant Professor (60% research, 40% teaching), 01/09/2018 – Present

- Courses: Case Studies in Applied Econometrics, Probability Theory, Seminar in Financial Econometrics, Statistics

Maastricht University, Maastricht, The Netherlands
Lecturer (20% research, 80% teaching), 01/09/2016 – 31/08/2018

- Courses: Analysis I, Econometric Methods 1, Econometric Methods 2, Mathematical Statistics, Quantitative Methods 3, Statistics 1, Statistics 2, Time Series and Dynamical Modeling

Research and Teaching Assistant (80% research, 20% teaching), 01/09/2013 – 31/08/2016

- Courses: Econometric Methods 1 (2014–2016), Mathematical Statistics (2013–2016), Quantitative Methods 3 (2013–2016)

[†]Prof. dr. Jean-Pierre Urbain passed away on 01/10/2016. Dr. S. Smeekes subsequently became co-promotor.

[‡]On 01/01/2012, in the middle of the academic year, I started a pre-master programme at Maastricht University.

Lund University, Lund, Sweden
Visiting Researcher, 01/10/2015 - 20/12/2015

MISCELLANEOUS

Organizer of the Econometrics Internal Seminar (EIS), 01/10/2019 – Present
Candidate Fellow of the Tinbergen Institute, 05/04/2019 – Present
University Teaching Qualification (Basis Kwalificatie Onderwijs), 28/06/2016

PUBLICATIONS

M. Friedrich, E. Beutner, H. Reuvers, S. Smeekes, J.-P. Urbain, W. Bader, B. Franco, B. Lejeune, and E. Mahieu (2020), "A Statistical Analysis of Time Trends in Atmospheric Ethane", **Climatic Change**, DOI: 10.1007/s10584-020-02806-2

Short description: Atmospheric observations on air pollutants often shows signs of autocorrelation, heteroskedasticity and missing observations (due to e.g. instrument failure or bad weather conditions). We illustrate that a novel autoregressive wild bootstrap addresses all these issues and illustrate the method using ethane data.

Lohmeyer, J., Palm, F., Reuvers, H. and Urbain, J.-P. (2019), "Focused Information Criterion for Locally Misspecified Vector Autoregressive Models", **Econometric Reviews**, DOI: 10.1080/07474938.2017.1409410

Short description: Vector autoregressive models play a prominent role in time-series modelling. We analyse the Focused Information Criterion and plug-in average to respectively select or average among models with various lag length. An asymptotic local-to-zero misspecification framework shows that previously reported optimality properties do not hold.

WORKING PAPERS

H. Reuvers and E. Wijler, "Sparse Generalized Yule-Walker Estimation for Large Spatio-temporal Models with an Application to NO_2 Satellite Data"

Working paper: `https://arxiv.org/abs/2108.02864`

Short description: We consider penalised estimation of a class of high-dimensional spatio-temporal models. Our approach can be customised towards the analysis of spatial grids (e.g. satellite images). As an application, we analyse satellite data of NO_2 concentrations in London.

Y. Lin and H. Reuvers (2021), "Cointegrating Polynomial Regressions with Power Law Trends: Environmental Kuznets Curve or Omitted Time Effects?"

Working paper: `https://arxiv.org/abs/2009.02262`

Short description: The Environmental Kuznets Curve (EKC) suggests a turning point after which additional economic growth results in environmental improvement. This EKC hypothesis is often confirmed in economic studies but refuted by the fact that rich countries continue to be among the heaviest polluters. We reason that omitted time effects can explain this contradiction.

Y. Lin and H. Reuvers (2020), "Efficient Estimation by Fully Modified GLS with an Application to the Environmental Kuznets Curve"

Working paper: `https://arxiv.org/abs/1908.02552`

Short description: We propose to estimate multivariate cointegrating polynomial regressions using the Fully Modified GLS estimator. This estimator is more efficient and yields better control of the Type I error when testing coefficients. We study the relationship between GDP per capita and CO_2 emissions for six early industrialized countries.

Work in progress

Nonparametric Penalized Spatial Modelling (with T. Arduini and F. Belotti)

Short description: A new model is proposed in which the interaction strength between spatial units is solely a function of inter-unit distance. This function is unknown and estimated nonparametrically.

Sparsity in Cholesky-GARCH

Short description: Due to its triangular structure, the Cholesky-GARCH model by Darolles et al. (2018) automatically provides a positive definite covariance matrix. However, for large n, the dimensionality of the parameter space is an issue. We use a lasso estimator to exploit sparsity. The sparsity assumption comes natural when a limited number of factors drive most of the variance.

Conferences

2021 $(EC)^2$ conference : Econometrics of Climate, Energy and Resources, Online, 10/12/2021–11/12/2021;

Paper presented: *Sparse Generalized Yule-Walker Estimation for Large Spatio-temporal Models with an Application to NO_2 Satellite Data*

5^{th} Conference on Econometric Models of Climate Change, Online, 26/08/2021–27/08/2021;

Paper presented: *Sparse Generalized Yule-Walker Estimation for Large Spatio-temporal Models with an Application to NO_2 Satellite Data*

Econometrics Internal Seminar (EIS), Online, 07/07/2020;

Paper presented: *Sparse Generalized Yule-Walker Estimation for Large Spatio-temporal Models with an Application to NO_2 Satellite Data*

13^{th} International Conference on Computational and Financial Econometrics, London, United Kingdom, 14/12/2019–16/12/2019;

Paper presented: *Cointegrating Polynomial Regressions with Power Law Trends: Environmental Kuznets Curve or Omitted Time Effects?*

Econometrics Internal Seminar (EIS), Online, 28/11/2019;

Paper presented: *Cointegrating Polynomial Regressions with Power Law Trends: Environmental Kuznets Curve or Omitted Time Effects?*

6^{th} RCEA Time Series Econometrics Workshop, Larnaca, Cyprus, 22/06/2019–23/06/2019;

Paper presented: *Efficient Estimation by Fully Modified GLS with an Application to the Environmental Kuznets Curve*

Invited Seminar at the Econometric Institute, Rotterdam, The Netherlands, 12/07/2018;

11^{th} International Conference on Computational and Financial Econometrics, London, United Kingdom, 16/12/2017–18/12/2017;

Ph.D. chapter presented: *Residual Bootstrap for VAR Models Estimated by Least Absolute Deviations*

8^{th} European Seminar on Bayesian Econometrics (ESOBE), Maastricht, The Netherlands, 26/10/2017–27/10/2017;

Workshop on Human Capital and Regional Development, Maastricht, The Netherlands, June 2017;

Invited discussant of: *Estimating Literacy Levels at a Detailed Regional Level: An Application Using Dutch Data,* by J. Allen, J. van den Brakel, I. Bijlsma and R. van der Velden

11^{th} Meeting of the Netherlands Econometrics Study Group (NESG), Leuven, Belgium, 26/06/2016–27/06/2016;
Ph.D. chapter presented: *Estimating VAR Models by Least Absolute Deviations*

9^{th} International Conference on Computational and Financial Econometrics, London, United Kingdom, 12/12/2015–14/12/2015;
Ph.D. chapter presented: *Estimator Averaging for Improving Efficiency*

NBER-NSF Time Series Conference, Vienna, Austria, 25/09/2015–26/09/2015;

European Meeting of Statisticians (EMS), Amsterdam, The Netherlands, 06/07/2015–10/07/2015;
Paper Presented: *A Focused Information Criterion for Locally Misspecified Autoregressive Models*

10^{th} Meeting of the Netherlands Econometric Study Group (NESG), Maastricht, The Netherlands, 12/06/2015–13/06/2015;
Poster Presented: *A Focused Information Criterion for Locally Misspecified Autoregressive Models*

23^{th} Symposium of the Society for Nonlinear Dynamics and Econometrics (SNDE), Oslo, Norway, 19/03/2015–20/03/2015;
Paper Presented: *A Focused Information Criterion for Locally Misspecified Autoregressive Models*

UvA-Econometrics Panel Data Workshop, Amsterdam, The Netherlands, 30/01/2015;

9^{th} Meeting of the Netherlands Econometric Study Group (NESG), Tilburg, The Netherlands, 20/06/2014;

Refereeing

Econometrics and Statistics, Empirical Economics, Journal of Econometrics

Skills

Languages: Dutch (native), English (fluent), German (good), Italian (beginner).
Computer Skills: C++, LaTeX, Matlab, R.

Blog posts

See `https://hannoreuvers.github.io`) for blog posts on

- The Vasiček Short-rate Model
- Climate Econometrics 1: the Greenhouse Effect
- Which Computational Language to choose?

Coursera Courses

C for Everyone: Programming Fundamentals (Ira Pohl; University of California, Santa Cruz)

C for Everyone: Structured Programming (Ira Pohl; University of California, Santa Cruz)

Global Warming I: The Science and Modeling of Climate Change (David Archer; University of Chicago)

Interest Rate Models (Damir Filipović; École Polytechnique Fédérale de Lausanne)

Machine Learning (Andrew Ng; Stanford University)

Interests	Playing piano, classical music, cycling, literature
MSc thesis supervision	D. C. van Wijngaarden - Using Dynamic Copulas to Estimate Downside Risk Measures (ongoing)
	R. van Oostenbrugge - Estimating and Improving the KNW Model (ongoing)
	F. Löwe - The Dependence Structure between the Stock Market and the Cryptocurrency Market (ongoing)
	R. M. J. Goijen - The KNW Model: A Different Kalman Filter Approach (ongoing)
	R. M. Darmoutomo - A Review of the KNW Model (ongoing)
	M. H. T. Platenkamp - Optimal Copula in a Downside-risk Hedging Framework for Oil Refineries (defended: 30/08/2021)
	S. T. Njio - Multi-commodity Price Risk Hedging using Asymmetric Tail Dependence Modelling (defended: 28/07/2021)
	K. A. N. Lucas - Quantification of Portfolio Uncertainty: A Bootstrap Approach (defended: 18/02/2021)
	L. P. R. Kremer - Increasing the Profitability of Dutch Hospitals by Improving the Efficiency of Monthly Revenue Forecasts (defended: 15/01/2021)
	J. G. M. van den Neste - Forecasting the Market Development of the Automotive Industry using Feature-based Forecast Model Averaging (defended: 03/11/2020)
	N.L. Lether - Bootstrapping Approach to Quantify Portfolio Uncertainty (defended: 08/10/2020)
	J. P. F. M. Kemper - Sparse Cholesky-GARCH Models (defended: 07/10/2020)
	M. P. van der Tas - Modelling Correlated Defaults using Latent Risk Factors (defended: 24/08/2020)
	O. O. Smit - The Explanatory Power of Oil Shocks on Stock Market Returns across Countries in Different Stages of the Energy Transition (defended: 19/05/2020)
	Y. E. Ozturk - Currency Hedging: An Evaluation of Dynamic Econometric Models for Estimating the Optimal Hedge Ratio in European Futures Markets (defended: 09/04/2020)
	S. Singh - Factors Determining Bank Net Interest Margins in EU15 (defended: 26/09/2019)
	M. K. Vollebregt - The Behaviour and Performance of Individual Investors across European Countries (defended: 25/09/2019)
	C. Detilleux - A Comparative Study on Various Filters Performances (defended: 05/09/2016)

BSc thesis supervision

S. Spa - Dynamic Correlation between Foreign Exchange Rates (defended: 07/07/2019)

M. A. J. Lemmens - The Application of Copulas to Capital Allocation: A Value-at-risk Approach (defended: 07/07/2019)

T. H. Hoogteijling - Standard Errors in Semiparametric Copula-based Univariate Time Series Models (defended: 07/07/2019)

L. J. Daniels - Parametric Copula Models Applied in Finance (defended: 07/07/2019)

E.C. Walrave - Mixture Copulas and the Housing Crisis (defended: 06/07/2019)