

High-dimensional time series analysis

Citation for published version (APA):

Wijler, E. (2021). *High-dimensional time series analysis: unit roots, cointegration and forecasting*. [Doctoral Thesis, Maastricht University]. Datawyse / Universitaire Pers Maastricht. <https://doi.org/10.26481/dis.20210114ew>

Document status and date:

Published: 01/01/2021

DOI:

[10.26481/dis.20210114ew](https://doi.org/10.26481/dis.20210114ew)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy

If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.

Propositions (Stellingen)

Accompanying the thesis

HIGH-DIMENSIONAL TIME SERIES ANALYSIS UNIT ROOTS, COINTEGRATION AND FORECASTING

by

Etienne Wijler

1. Under high levels of non-sphericity, shrinkage estimators can sparsely approximate the factor space more accurately than factor models. (Chapter 2)
2. In high-dimensional applications, the overly ambitious goal of correct model specification should be abandoned in favour of pursuing models that are robust to misspecification. (Chapter 3)
3. Stochastic trends induce collinearity that result in high-dimensional covariance matrices becoming ill-behaved, thereby preventing the application of standard compatibility conditions. (Chapter 4)
4. The forecast performance of models derived from a VECM is relatively insensitive to the classification of the order of integration of the predictor variables, but correct classification of the dependent variable is essential. (Chapter 5)
5. Counterintuitively, the gain in popularity of high-dimensional statistics has led to an increased importance of finite-sample results.
6. The field of random matrix theory, which treats all observations jointly as a single random object, is going to be the key driver of progress in high-dimensional statistics.
7. If statisticians are fishing for results, then high-dimensional statistics made their pond a whole lot bigger.
8. Given the overlap between econometrics and machine learning, the collaboration between researchers and practitioners from both fields is surprisingly limited. Increased integration of these two fields would be beneficial to the progression of each science.
9. Based on the overwhelming amount of problems in econometrics that can be tackled with linear algebra, the curriculum of an econometrics student should contain at least as much formal training in linear algebra as in calculus.
10. While marginal theoretical contributions at the scientific frontier can feel intellectually rewarding, their societal impact may be hard to gauge. On the contrary, inspiring a new generation of students through teaching, even elementary techniques, is certain to leave a meaningful impact. Academics should therefore not treat the act of teaching as merely an obligatory chore.