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EDUCATION

- 2018 - present **Ph.D. Candidate in Economics**
Universitat Pompeu Fabra
Programme in Economics, Finance and Management
Advisor: Geert Mesters
Expected completion date: July 2022
- 2016-17 **Master of Research in Economics, Finance and Management**
Universitat Pompeu Fabra, Spain
- 2015-16 **Master of Science in Economics and Finance**
Barcelona Graduate School of Economics, Spain
- 2009-13 **BSc in Economics**
University of Bath, UK

FIELDS

Econometric & statistical theory, semiparametric models, time series, non-asymptotic statistics, applied econometrics

RESEARCH PAPERS AND WORK IN PROGRESS

1. [Robust and efficient inference for non-regular semiparametric models](#)

Job Market Paper

Abstract: This paper considers hypothesis testing problems in semiparametric models which may be non-regular for certain values of a potentially *infinite dimensional* nuisance parameter. I establish that, under mild regularity conditions, tests based on the efficient score function are uniformly correctly sized and enjoy minimax optimality properties. This approach is applicable to situations with (i) identification failures, (ii) boundary problems and (iii) distortions induced by the use of regularised estimators. Full details are worked out for two examples: a single index model where the link function may be relatively flat and a linear simultaneous equations model where identification may be based on an assumption of non-Gaussianity. In practice the tests are easy to implement and rely on χ^2 critical values. I illustrate the approach by using the linear simultaneous equations model to examine the labour supply decisions of men in the US. I find a small but positive effect of wage increases on hours worked for hourly paid workers, but no effect for salaried workers.

2. **Robust non-Gaussian inference for linear simultaneous equations models**, *with Geert Mesters*

Submitted

Abstract: All parameters in linear simultaneous equations models can be identified (up to permutation and scale) if the underlying structural shocks are independent and if at most one of them is Gaussian. Unfortunately, existing inference methods that exploit such a non-Gaussian identifying assumption suffer from size distortions when the true shocks are close to Gaussian. To address this *weak non-Gaussian* problem, we develop a robust semi-parametric inference method that yields valid confidence intervals for the structural parameters of interest regardless of the *distance to Gaussianity*. We treat the densities of the structural shocks non-parametrically and construct identification robust tests based on the efficient score function. The approach is shown to be applicable for a broad class of linear simultaneous equations models in cross-sectional and panel data settings. A simulation study and an empirical study for production function estimation highlight the practical relevance of the methodology.

3. **Robust tests in structural VAR models identified by non-Gaussianity**, *with Lukas Hoesch and Geert Mesters*

Work in progress

Abstract: Existing methods that assume non-Gaussian distributions to identify parameters and conduct inference in SVAR models work poorly when the deviations from Gaussianity are small. In particular, confidence bands for the impulse responses suffer from coverage distortions. We propose a robust and efficient semi-parametric approach to conduct hypothesis tests and compute confidence bands in the SVAR model. The method exploits non-Gaussianity when it is present, but yields correct coverage regardless of the distance to the Gaussian distribution. We evaluate the method in a simulation study and revisit several empirical studies to highlight the practical relevance of our methodology and the limitations of assuming non-Gaussianity for identification.

4. **Non-Independent Components Analysis**, *with Geert Mesters and Piotr Zwiernik*

Work in progress

RESEARCH EXPERIENCE

2017-18

Research Assistant

Princeton University, USA

Full time RA at the Julis-Rabinowitz Centre for Public Policy & Finance. Supporting Prof. Maryam Farboodi on various research projects, primarily relating to the numerical implementation of models at the intersection of big data and macroeconomics.

TEACHING EXPERIENCE

- 2020-21* **Advanced Econometric Methods III***, Barcelona GSE for Prof. K. Petrova.
Econometrics, U. Pompeu Fabra for Prof. K. Petrova.
Econometrics II, U. Pompeu Fabra for Prof. K. Evdokimov & Prof. G. Mesters.
- 2019-20* **Advanced Econometric Methods III***, Barcelona GSE for Prof. K. Petrova.
Econometrics, U. Pompeu Fabra for Prof. K. Petrova.
Econometrics II, U. Pompeu Fabra for Prof. K. Evdokimov & Prof. G. Mesters.
- 2018-19* **Advanced Econometric Methods III***, Barcelona GSE for Prof. A. M. Herrera.
Quantitative & Statistical Methods III*, Barcelona GSE for Prof. E. Mertens
& Prof. G. Ricco.
Econometrics II, U. Pompeu Fabra for Prof. J. Fajardo.
Introduction to Game Theory, for Prof. F. Klijn.
- 2016-17* **Advanced Econometric Methods III***, Barcelona GSE for Prof. G. Mesters.
Econometric Methods III*, Barcelona GSE for Prof. E. Granziera & Prof. D.
Giannone.
Topics in Macroeconomics, for Prof. F. Broner.

* denotes graduate teaching.

AWARDS & SCHOLARSHIPS

- 2015-16* Full fee-waiver, Barcelona GSE.
- 2013* Neil Farmery Prize for “outstanding work in quantitative economics”, University of Bath.

PROFESSIONAL ACTIVITIES

- Presentations* Barcelona GSE Jamboree (2020, 2021)
- Posters* EC² (Paris, 2020)

IT SKILLS

Languages R, Julia, C++ (Armadillo, Eigen, Boost), Python, MATLAB

Miscellaneous Linux, L^AT_EX, Git

OTHER PROFESSIONAL EXPERIENCE

2013-15 **Assistant Economist** **HM Treasury, UK**

2011-12 **Economist Intern** **UBS Global Asset Management, UK**

PERSONAL INFORMATION

Citizenship British

Languages English (native), Spanish (intermediate)

REFERENCES

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