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Eugène Dettaa

Contact Information

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Education

Ph.D. in Economics, University of Montreal, Montreal, QC, Canada — 2019 - 2025 (expected)

M.Sc. in Economics and Statistics, Sub-regional Institut of Statistics and Applied Economics (ISSEA), Yaoundé, Cameroon — 2016 - 2019

B.Sc. in Mathematics, University of Yaoundé I, Yaoundé, Cameroon — 2012 - 2015

Dissertation Committee and References

Prof. Marine Carrasco (**Chair**)	Prof. Benoit Perron	Prof. Mathieu Marcoux
University of Montreal	University of Montreal	University of Montreal
Department of Economics	Department of Economics	Department of Economics
marine.carrasco@umontreal.ca	benoit.perron@umontreal.ca	mathieu.marcoux@umontreal.ca

Research Fields

Econometrics, High-dimensional Time Series Analysis, Machine Learning, Applied Macroeconomics.

Job Market Paper Summary

"*Inference in High-Dimensional Linear Projections: Multi-Horizon Granger Causality and Network Connectedness.*" with Endong Wang (McGill University)

This paper presents a Wald test for multi-horizon Granger causality within a high dimensional sparse Vector Autoregression (VAR) framework. The null hypothesis focuses on the causal coefficients of interest in a local projection (LP) at a given horizon. Nevertheless, the post-double-selection method on LP may not be applicable in this context, as a sparse VAR model does not necessarily imply a sparse LP for horizon $h > 1$. To validate the proposed test, we develop two types of de-biased estimators for the causal coefficients of interest, both relying on first-step machine learning estimators of the VAR slope parameters. The first estimator is derived from the Least Squares method, while the second is obtained through a two-stage approach that offers potential efficiency gains. We further derive heteroskedasticity- and autocorrelation-consistent (HAC) inference for each estimator. Additionally, we propose a robust inference method for the two-stage estimator, eliminating the need to correct for serial correlation in the projection residuals. Monte Carlo simulations show that the two-stage estimator with robust inference outperforms the Least Squares method in terms of the Wald test size, particularly for longer projection horizons. We apply our methodology to analyze the interconnectedness of policy-related economic uncertainty among a large set of countries in both the short and long run. Specifically, we construct a causal network to visualize how economic uncertainty spreads across countries over time. Our empirical findings reveal, among other insights, that in the short run (1 and 3 months), the U.S. influences China, while in the long run (9 and 12 months), China influences the U.S. Identifying these connections can help anticipate a country's potential vulnerabilities and propose proactive solutions to mitigate the transmission of economic uncertainty.

Other Working Paper

- "*Ridge-regularization for moment-based estimation in high-dimensional settings*", with Marine Carrasco (University of Montreal).

Work-in-Progress

- "*Double/debiased machine learning for parameter estimation of the New Keynesian Phillips curve*".
- "*Impact of immigration on native wages: an unsupervised machine learning-based skills groups approach*", with Féraud Tchuisseu (University of Montreal).

Pre-doctoral Unpublished Reports

- "*Composition of public expenditure and economic growth in Cameroon.*" with Sylvain Djatio (Revenu Québec), for ISSEA-Yaoundé (Cameroon), Winter 2019.

- "*Discriminant analysis and neural networks for measuring the risk of non-execution of a project in the Public Investment Budget of Cameroon using administrative data.*" with Luc B. DIMAI, for ISSEA-Yaoundé and the Ministry of Enonomy (Cameroon), Fall and Winter 2018.

TEACHING EXPERIENCE

Undergraduate Lecturer (University of Montreal)

ECN1160A, *Economic Data Analysis*, Fall 2022

ECN1075A, *Mathematics for Economic Analysis 2*, Fall 2021, Summer 2022, Winter 2024

Teaching Assistant (University of Montreal - *Undergrad level unless stated otherwise*)

ECN7065A, *Advanced Econometrics* (Ph.D. level), Winter 2021-2024

ECN7060A, *Probability Theory for Economists* (Ph.D. level), Fall 2020

ECN2160A, *Econometrics 2*, Fall 2022

ECN1160A, *Economic Data Analysis*, Winter 2023

ECN1070A, *Mathematics for Economic Analysis 1*, Fall 2020, Fall 2021, Winter 2022

ECN1075A, *Mathematics for Economic Analysis 2*, Summer 2023

FELLOWSHIPS AND AWARDS

The Fonds de recherche du Québec - Société et culture (FRQSC) (CAD $33,000), 2023 - 2025

Canadian Economics Association students travel grant, Winnipeg, June 2023

Ph.D. Fellowship, Department of Economics, University of Montreal, 2019 - 2024

Grad Excellence Award (M.sc.), ISSEA-Yaoundé, 2018 - 2019

Award for the best student in Mathematics (B.Sc.), University of Yaoundé, 2014 - 2015

PRESENTATIONS AT SEMINARS AND CONFERENCES

- *Dagenais Econometrics Seminars*, Montreal, QC, Canada, Oct 2024
- *NBER-NFS Time Series conference*, Philadelphia, PA, US, Sep 2024
- *African Meeting of the Econometric Society (AFES)*, Abidjan, Côte d'Ivoire, June 2024
- *CIREQ-CMP Econometrics Conference in Honor of Eric Ghysels*, Montreal, QC, Canada, May 2024
- *1st CIREQ Interdisciplinary PhD Student Conference on Big Data and Artificial Intelligence*, Montreal, QC, Canada, June 2023
- *57th Annual Canadian Economics Association Meetings*, Winnipeg, MB, Canada, June 2023
- *18th CIREQ PhD Students' Conference*, Montreal, QC, Canada, May 2023
- *62nd Annual Congress of Société canadienne de science économique (SCSE)*, Quebec City, QC, Canada, May 2023
- *CIREQ-UdeM Roundtable Discussion on Research for PhD Students*, Montreal, QC, April 2024
- *Quebec Ph.D. Workshop in Economics Statistics and Finance (QPESF)*, Montreal, Winter 2021-2024

OTHER PROFESSIONAL EXPERIENCES

- *Chair, Session on 'Time Series Models and Moment-based Estimation' at the 57th CEA Annual Meeting*, Winnipeg, June 2023
- *Chair, Session on 'Machine Learning' at the 62nd SCSE Annual Congress*, Quebec City, May 2023
- *Design assistant and head of the preparatory team for a statistical survey on E-transactions*, ISSEA-Cameroon, Winter 2018.
- *Economist and Statistician Intern*, Ministry of Economy, Planning and Regional Development, Cameroon, Summer and Winter 2018

LANGUAGES

English (advanced), French (native).

SKILLS

Programming: Python, MATLAB, R, STATA.

Other software: Microsoft Office (Word, Excel, PowerPoint), LaTeX.