

# IGOR CUSTODIO JOÃO

## Contact and personal information

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Born 27 May 1993, male, Brazilian and Italian citizen.

## Education

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| 7/2020–9/2024  | <b>Ph.D. in Economics</b> (expected)<br>Vrije Universiteit Amsterdam and Tinbergen Institute<br>Supervised by André Lucas and Julia Schaumburg                                   |
| 9/2023–12/2023 | <b>Visiting Scholar</b><br>Duke University, North Carolina<br>Hosted by Andrew Patton  |
| 9/2018–8/2020  | <b>M.Phil. in Economics</b> (Advanced Econometrics track)<br>Tinbergen Institute, Amsterdam<br>Thesis: Clustering Dynamics and Persistence for Financial Multivariate Panel Data |
| 9/2015–8/2017  | <b>Master in Economics</b> (Summa cum Laude)<br>Toulouse School of Economics<br>Specialization: Econometrics and Empirical Economics   |
| 2/2011–12/2014 | <b>B.A. in Economics</b><br>Fundação Getulio Vargas, Rio de Janeiro  |
| 9/2013–12/2013 | <b>Visiting Student</b><br>Sciences Po, Paris  |

## Research interests

Clustering in econometrics, financial econometrics, networks.

## References

André Lucas  
Full Professor  
Vrije Universiteit Amsterdam  
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Andrew Patton  
Zelter Family Distinguished Professor  
Duke University  
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Julia Schaumburg  
Full Professor  
Vrije Universiteit Amsterdam  
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Bernd Schwaab  
Senior Economist  
European Central Bank  
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## Working papers and ongoing work

### Testing for Clustering Under Switching (Job Market Paper)

I refine the test for clustering of Patton and Weller (2022) to allow for cluster switching. In a multivariate panel setting, clustering on time-averages produces consistent estimators of means and group assignments. Once switching is introduced, we lose the consistency. In fact, under switching the time-averaged  $k$ -means clustering converges to equal, indistinguishable means. This causes the test for a single cluster to lose power under the alternative of multiple clusters. Power can be regained by clustering the  $N$  times  $T$  observations independently and carefully subsampling the time dimension. When applied to the empirical setting of Bonhomme and Manresa (2015) of an autoregression of democracy in a panel of countries, we are able to detect clusters in the data under noisier conditions than the original test.

### Financial Development and Fragility: a clustering analysis, with Pietro Calice, André Lucas and Julia Schaumburg.

We explore the potential correlations between financial development and fragility or institutional vulnerability using a sample of 137 countries observed over the period from 1998-2019 and World Bank indicators. We group countries into clusters that capture the different joint states of financial development and fragility. We do so with and without controls, and with and without allowing countries to switch cluster membership over time. We obtain a robust positive association between higher financial development and lower fragility after controlling for several forms of observed and unobserved heterogeneity. The new switching methodology further allows a qualification of the evolution of countries in terms of CPIA scores and its relation to underlying variables. Irrespective of the precise methodology as used in this paper, we find a clear negative trend in average CPIA worldwide after controlling for both observed and unobserved heterogeneity.

### An autoregressive model of lending networks, with André Lucas, Julia Schaumburg and Iman van Lelyveld

## Publications

**Dynamic clustering of multivariate panel data** with André Lucas, Julia Schaumburg and Bernd Schwaab, *Journal of Econometrics* (2022).

**Dynamic Nonparametric Clustering of Multivariate Panel Data** with Julia Schaumburg, André Lucas and Bernd Schwaab, *Journal of Financial Econometrics* (2022).

**The natural interest rate and the Taylor rule in Brazil: 2003/2015** (in Portuguese) with Fernando de Holanda Barbosa and Felipe Diogo Camêlo, *Revista Brasileira de Economia*, 70(4), 399-417 (2016).

## Past employment and appointments

SINCE 01/2023	<b>Visiting researcher</b> Dutch National Bank
07/2023–08/2023	<b>External consultant</b> World Bank
10/2017–6/2018	<b>Research trainee</b> European Central Bank, Financial Research division, Frankfurt
5/2017–9/2017	<b>Data analytics trainee</b> Deloitte, Brussels
4/2016–8/2016	<b>Data analysis intern</b> Elseco, Dubai
9/2014–11/2014	<b>Intern</b> Gulf Capital Partners, Rio de Janeiro
3/2013–6/2013	<b>Research assistant</b> IBRE, Rio de Janeiro

## Teaching

Business statistics (teaching assistant)  
Vrije Universiteit Amsterdam, undergraduate business administration  
Spring 2021, 2022, 2023, 2024

Econometrics III (teaching assistant)  
Vrije Universiteit Amsterdam, undergraduate econometrics and data science  
Spring 2022, 2023, 2024

Advanced Econometrics III (teaching assistant)  
Tinbergen Institute, PhD program  
Spring 2020

Supervision of Bachelor theses  
Vrije Universiteit Amsterdam, undergraduate econometrics and data science  
Spring 2021, 2022, 2023, 2024

## Seminar and conference presentations

- 2023 Duke Financial Econometrics Lunch Group, Duke University.  
Statistics and Machine Learning in Finance (SMLFin) seminar series,  
University of Oxford (hybrid).
- 2022 Annual Conference of the Society for Financial Econometrics (SoFiE),  
University of Cambridge.  
Annual Conference of the International Association for Applied Econometrics (IAAE),  
King's College London.  
Vienna-Copenhagen Conference on Financial Econometrics (VieCo),  
University of Copenhagen.
- 2021 European Winter Meeting of the Econometric Society.  
NBER-NSF Time Series Conference.

2020 Dimensionality Reduction and Inference in High-Dimensional Time Series Online Workshop.  
Brownbag seminar, Vrije Universiteit Amsterdam.

### **Other skills**

Python, R, Julia, MatLab, SQL, LaTeX, Ox, Stata.

Portuese (native), English (fluent), French (fluent), Dutch (A2).