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Education

- **Ph.D. Economics**, Carlos III University of Madrid, *2021 - June 2025 (expected)*
  - ◇ Supervisor: Jesús Gonzalo
- **Visiting Ph.D. Student**, Aarhus University, *Spring 2024*
- **M.Sc. Economic Analysis**, Carlos III University of Madrid, *2019 - 2021*
- **M.Sc. Economic Sciences**, National University of Colombia, *2015 - 2017*
- **B.Sc. Economics**, National University of Colombia, *2011 - 2015*

References

1. Jesús Gonzalo
   UC3M, Full Professor
   Email: jgonzalo@est-econ.uc3m.es
2. Juan J. Dolado
   UC3M, Full Professor
   Email: dolado@eco.uc3m.es
3. Eric Hillebrand
   Aarhus University, Professor
   Email: ehillebrand@econ.au.dk
4. Gustavo Canavire
   World Bank Group, Senior Economist
   Email: gcanavire@worldbank.org

Research interests

- **Primary:** Time series econometrics, Climate and environmental economics
- **Secondary:** Applied econometrics, Macroeconomics

Research and Publications

Job Market Paper

- Quantitative Analysis of Climate Heterogeneity via an Unconditional Quantile Vector Error Correction Model.

  Abstract: Econometric modeling of climate systems requires procedures that account for the well-documented heterogeneity in climate dynamics across space and time. This paper introduces a time-series methodology to analyze heterogeneity in the temperature distribution and its association with climate forcings. The approach consists of a Vector Autoregressive Model (VAR) for a range of unconditional distributional characteristics of temperature —mean and quantiles— alongside the total radiative forcing, including the radiate forcing from anthropogenic Greenhouse Gases (GHGs) like carbon dioxide (CO_2). At global or hemispheric scales, the unconditional quantiles of temperature represent temperature at different latitudes. Thus, based on physics theory from climate models, an equivalence

is established between a One-Dimensional (1D) Energy Balance Model (EBM) and the unconditional-quantile VAR model in a restricted Vector Error Correction (VEC) form. An empirical analysis is conducted for the Globe, the Northern Hemisphere, and Europe, utilizing station-level temperature data from the Climatic Research Unit (CRU) for the period 1880-2021. The unconditional-quantile VEC model is estimated and tested using time-series procedures that are robust to the nature of trends in climate variables. The proposed methodology allows for the production of several outcomes, including: *i)* estimation of physical parameters such as climate sensitivity, *ii)* forecasting, *iii)* identification of shocks and impulse-response analysis, and *iv)* predictions of temperature under hypothetical emissions/concentration scenarios. Obtaining these outcomes across different parts of the temperature distribution provides a deeper understanding of global warming dynamics. Furthermore, these outcomes can be integrated into economic studies that forecast and project the economic consequences of climate change, thereby better informing adaptation and mitigation policies that explicitly account for different patterns of heterogeneity.

Journal Publications

- Chen, L., Dolado, JJ., Gonzalo, J. and Ramos, A. Heterogeneous predictive association of CO_2 with global warming. *Economica* 2023; 90(360): 1397-1421. doi: 10.1111/ecca.12491.
- Pappa, E., Ramos, A. and Vella, E. Which Crisis Support Fiscal Measures Worked During the Covid-19 Shock in Europe? *SERIEs-Journal of the Spanish Economic Association* 2023. doi: 10.1007/s13209-023-00288-w.

Working Papers under revision

- On the Effects of Wildfires on Poverty in Bolivia, with Gustavo Canavire and Alejandro Puerta. *R&R in Journal of Development Economics*
- Trends in Temperature Data: Micro-foundations of Their Nature, with Lola Gadea and Jesús Gonzalo. *R&R in Economics Letters*

Work in Progress

- Becoming Green: Aggregate and Firm-level Effects of Green Technology News Shocks, with Oscar Jaulín
- The Heterogeneous Effects of Changes in Precipitation on Poverty and Labor Outcomes in Ecuador, with Gustavo Canavire and Alejandro Puerta
- High-frequency Density Nowcasts of CO_2 Emissions in U.S. States, with Ignacio Garrón
- From Paleo-Cooling to Paleo-Warming, with Jesús Gonzalo

Reports and Policy Writing Contributions

- Poverty and Equity Assessment in Ecuador, World Bank (*forthcoming*)

Teaching

- **Carlos III University of Madrid, 2019-2024**. Teaching Assistant for the courses:
  - ◇ Econometrics III: Panel Data and Time Series (PhD level). Fall 2021*, 2022, and 2023*
  - ◇ Econometrics II: ARIMA, VAR and Cointegration (Master level). Spring 2021*, 2022, 2023, and 2024
  - ◇ Econometric Techniques (Bachelor level). Fall 2022 and 2023*
  - ◇ Urban and Regional Economics (Bachelor level), Fall 2020*

  - ⋆ Awarded for Excellence in Teaching

- **National University of Colombia, 2016-2019**. Main instructor for the courses:
  - ◇ Advanced Econometrics (Master level). Semesters 2018-II and 2019-I
  - ◇ Econometrics I (Bachelor level). Semesters 2016-II, 2017-I, 2017-II, 2018-I
  - ◇ Microeconometrics I (Bachelor level). Semester 2018-II
  - ⋆ All Teaching Evaluation Scores above 4.2/5.0

Other Relevant Experience

- Short-term Research Consultant, *World Bank Group*, 2023-2024
- Professional for Economic Valuation of Environmental Impacts, *Servicios Ambientales y Geográficos S.A*, 2015-2019
- Research and Administrative Assistant in Leisure and Cultural Economics, *National University of Colombia*, 2012-2017
- Academic Visiting, *Universidad de la República de Uruguay*, 2017

Presentations in Seminars, Workshops, and Conferences

- **2024**: Research Seminar at the CID (National University of Colombia, Online); Virtual Workshop for Junior Researchers in Time Series (VTSS, Online); 2024 EAYE Annual Meeting (Paris School of Economics); ENTER Jamboree (Université Libre de Bruxelles); IAAE Annual Conference (University of Macedonia, Thessaloniki); 44th International Symposium on Forecasting (International Institute of Forecasters, Dijon); EMCC-VIII Econometric Models of Climate Change (King's College, University of Cambridge)
- **2023**: IAAE Annual Conference (BI Norwegian Business School, Oslo); EMCC-VII Econometric Models of Climate Change (Vrije Universiteit Amsterdam); ENTER Jamboree (University of Mannheim, Discussant)
- **2022**: XII Workshop in Time Series Econometrics (University of Zaragoza); EMCC-VI Econometric Models of Climate Change (Toulouse School of Economics); ENTER Jamboree (Universidad Autónoma de Barcelona, Discussant)

Additional Coursework

- **2024**: Macroeconomics and Climate Change (CEMFI, Instructors: *John Hassler* and *Per Krusell*)
- **2023**: Local Projection Methods for Time Series and Panel Data (CEMFI, Instructor: *Óscar Jordà*); Econometrics of Program Evaluation using Stata (Timberlake Consultants, Instructor: *Giovanni Cerulli*)
- **2022**: High Dimensional Time Series: Factor Models (Barcelona School of Economics, Instructor: *Luca Sala*); High-Dimensional Time Series: Big Data and Machine Learning (Barcelona School of Economics, Instructor: *Christian Brownlees*)
- **2021** The Economics and Econometrics of Climate Change Policy (CEMFI, Instructor: *James Stock*)

Fellowships, Honors, and Awards

- Grant *Formación de Personal Investigador (FPI)*. Ministry of science and innovation of Spain, 2022-2025
- Grant *Programa de Personal Investigador Predoctoral en Formación (PIPF)*, UC3M, 2021-2022
- Grant *Programa de Estudios en el Exterior*, Banco de la República de Colombia, 2019-2021
- *Summa Cum Laude* distinction to Master's thesis, National University of Colombia, 2017
- Master Programme Scholarship, National University of Colombia, 2015-2017
- *Degree in Economics with Honors*, National University of Colombia, 2015

Personal and Technical Skills

- Languages: Spanish (Native), English (C2), French (B1 and improving)
- Programming: R, Matlab, Julia (Basic), Phyton (Basic)
- Statistics: R, Stata, Eviews, SPSS
- Others: QGIS, ARCGIS

Last updated: September 12, 2024