

# Andrey D. Ramos-Ramírez

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## Education

- **Ph.D. Economics**, Carlos III University of Madrid, 2021 - *Ongoing*  
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

## Research interests

- Time series econometrics, Climate and environmental economics, Applied econometrics

## Research and Publications

### *Job Market Paper*

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

**Abstract:** Econometric modelling of climate systems requires procedures that account for the well-documented heterogeneity in climate dynamics across space and time. This paper introduces a novel time-series quantitative methodology to analyze heterogeneity in the temperature distribution and its association with climate forcings. The approach employs a Vector Autoregressive Model (VAR) for a range of unconditional distributional characteristics of temperature —mean and quantiles— alongside the radiative forcing of Greenhouse Gases (GHGs), including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). The empirical analysis is conducted across three geographical scales: the Globe, the North Hemisphere, and Europe, utilizing station-level data from the Climatic Research Unit (CRU) during the period 1880-2021. At these scales, the temperature unconditional quantiles represent temperature at different latitudes, and the results are comparable to the predictions of One-Dimensional (1D) Energy Balance Models (EBMs). However, the methodology can be adapted to more general situations with limited spatial variation, assuming there is sufficient cross-sectional or higher frequency data to derive the unconditional distributional characteristics of temperature. The proposed methodology serves various purposes, including: *i*) estimation of physical parameters like the climate sensitivity, *ii*) forecasting, *iii*) identification of shocks and impulse-response analysis, and *iv*) predictions of temperature conditional on hypothetical emissions/concentrations scenarios. Achieving these objectives at different parts of the temperature distribution provides a deeper understanding of global warming dynamics, with significant implications for modelling and policy decisions.

### Journal Articles

- Chen, L., Dolado, J.J., Gonzalo, J. and Ramos, A. [Heterogeneous predictive association of CO<sub>2</sub> 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

- [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
- High-frequency Density Nowcasts of CO<sub>2</sub> Emissions in U.S. States, with Ignacio Garrón
- From Paleo-Cooling to Paleo-Warming, with Jesús Gonzalo

## 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, and 2023
  - ◊ Econometric Techniques (Bachelor level). Fall 2022 and 2023
  - ◊ Urban and Regional Economics (Bachelor level), Fall 2020
- **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 2019-I

## 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 (IIF, Dijon)
- **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

- **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)
- Programming: R, Matlab, Julia (Basic), Python (Basic)
- Statistics: R, Stata, Eviews, SPSS
- Others: QGIS, ARCGIS

## References

- [Jesús Gonzalo](#), UC3M, Full Professor, Email: [jgonzalo@est-econ.uc3m.es](mailto:jgonzalo@est-econ.uc3m.es)
- [Evi Pappa](#), UC3M, Full Professor, Email: [ppappa@eco.uc3m.es](mailto:ppappa@eco.uc3m.es)
- [Eric Hillebrand](#), Aarhus University, Professor, Email: [ehillebrand@econ.au.dk](mailto:ehillebrand@econ.au.dk)
- [Gustavo Canavire-Bacarreza](#), The World Bank, Senior Economist, Email: [gustavo@gcanavire.com](mailto:gustavo@gcanavire.com)

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