Isabel Casas

Unravelling uncertainty with Statistics and Data

Associate Professor — Data Scientist — R Developer

casasis@gmail.com — www.icasasweb.com

GitHub: icasas (Dr Houses)

Bilbao, Spain

Research Interests

- Semiparametric and nonparametric econometrics
- Time-varying coefficients multivariate models and their applications
- Time series econometrics and its application to finance
- Renewable energies – wave energy
- R programming

Education

2004 – 2006	Doctor of Philosophy (Econometrics) School of Mathematics and Statistics, University of Western Australia (UWA)
2002 – 2003	Preliminary Ph.D. in Financial Statistics School of Mathematics and Statistics, University of Western Australia.
1997 – 1998	Higher Diploma in Computational Methods and Numerical Software Departments of Computer Science and Mathematical Physics, University College Dublin, Ireland.
1989 – 1997	Honours Degree in Mathematics Department of Mathematics, Autonomous University of Madrid, Spain.

Academic and Research Experience

Academic Positions [2002 – Present]

2020 –	Associate Professor, University of Deusto.
2011 – 2020	Associate Professor, University of Southern Denmark.
2016 – 2018	Marie Skłodowska-Curie Fellow, Basque Center for Applied Mathematics.
2008 – 2011	Postdoc, CREATES, Aarhus University.
2008	Visiting position, Department of Statistics, K.U. Leuven.
2007 – 2008	Assistant Professor, Department of Statistics, Universidad Carlos III.
2006 – 2007	Postdoc, Department of Statistics, K. U. Leuven.
2002 – 2006	Research Assistant, School of Mathematics and Statistics, UWA.

Teaching Experience [2004 – Present]

2025 –	Unsupervised Machine Learning (Master level)
2024 –	Methods of Prediction and Estimation (Bachelor level)
2021 –	Statistics (Bachelor level)
2021 – 2023	Quantitative Methods (Bachelor level)
2020 – 2024	Big Data and Business Intelligence (Bachelor level)
2018 – 2019	Econometrics (Bachelor Level)
2014 – 2019	Business Statistics (Bachelor level)
2011 – 2015	Time Series Econometrics (Master level)
2011 – 2013	Microeconometrics (Master level)
2007 – 2008	Introduction to Econometrics, Statistical Inference (Bachelor level) and Design of Experiments (Master level)
2004 – 2005	Multivariate Calculus (Bachelor level)

Other Academic Activities [2011 – Present]

Supervision of the project entitled "How do central banks work? A crash course", founded by the European Commission. A set of educative videos about monetary policy in layman's terms. The videos may be found here.

Supervision of several Bachelor and Master Thesis in different topics such as option pricing, portfolio forecast, risk management and empirical macroeconomics.

Part of the three PhD Evaluation Committees.

Editorial Activities and Referee

Ad hoc refereeing for:

Journal of Econometrics, Econometrics Journal, Journal of Applied Econometrics, Applied Stochastic Models in Business and Industry, Computational Statistics and Data Analysis, Journal of Nonparametric Statistics, and the European Commission.

2020 – Guest co-Editor of the Special Issue "Predicting Financial Returns" in *Journal of Risk and Financial Management*.

2015 – 2016 Guest Editor of the Special Issue "Nonparametric Methods in Econometrics" in *Econometrics*.

2013 – Editorial Board Member of *Econometrics*.

Administrative Activities [2012 – 2016]

Member of the Department Council. Advisory position to the Head of the Department.

International Staff Coordinator. I help International newly hired staff at the department to settle into the Danish culture.

Publications

Publications in journals

Casas, I. and Lekube, J. (2024). "Electricity forecast adapted to ocean conditions: The Mutriku case study". Applied Ocean Research, Volume 149, 104065.

Casas, I. and Fernandez-Casal, R. (2022). "tvReg: Time-varying Coefficients in Multi-Equation Regression in R". The R Journal, 14, pp. 79-100.

Casas, I., Gao, J., Peng, B. and Xie, S. (2021). "Time-Varying Income Elasticities of Healthcare Expenditure for the OECD and Eurozone". Journal of Applied Econometrics, 36, pp. 328-345. `http://qed.econ.queensu.ca/jae/datasets/casas001/`Code and data

Casas, I. and Veiga, H. (2021). "Exploring option pricing and hedging via volatility asymmetry". Computational Economics, 57, pp. 1015-1039.

Casas, I., Ferreira, E. and Orbe, S. (2021). "Time-varying coefficient estimation in SURE models. Application to portfolio management". Journal of Financial Econometrics, 19, pp. 707-745.

Muñoz, C., Cadierno, T. and Casas, I. (2018). "Different starting points for English language learning: A comparative study of Danish and Spanish young learners". Language Learning, 68, pp. 1076-1109. `https://doi.org/10.1111/lang.12309`.

Villalba, E., Casas, I., Lupiañez-Villanueva, F. and Maghiros, I. (2015). "Adoption of Health Information Technologies by physicians for clinical practice: The Andalusian case". International Journal of Medical Informatics, 84, pp. 477-485.

Aslanidis, N. and Casas, I. (2013). "Nonparametric correlation models for portfolio allocation". Journal of Banking and Finance, 37, pp. 2268-2283.

Villalba, E., Casas, I., Abadie, F. and Lluch, M. (2013). " Integrated personal health and care services deployment: experiences in eight European countries". International Journal of Medical Informatics, 82, pp. 626-635.

Casas, I. and Gijbels, I. (2012). "Unstable volatility functions: the break preserving local linear estimator". Journal of Nonparametric Statistics, 24, pp. 883–904.

Casas, I. and Gao, J. (2008). "Econometric estimation in long–range dependent volatility models: Theory and practice". Journal of Econometrics, 147, pp. 72–83.

Gao, J. and Casas, I.(2008). "Specification testing in discretized diffusion models: Theory and practice". Journal of Econometrics, 147, pp. 131-140.

Casas, I. (2008). "Estimation of stochastic volatility with LRD". Mathematics and Computers in Simulation, 78, pp. 335–340.

Casas, I. and Gao, J. (2007). "Nonparametric Methods in Continuous Time Model Specification". Econometric Reviews, 26, 91–106.

Casas Villalba, M.I, Tan, C.J.K. and Alexandrov, V. (2000). "Efficient Monte Carlo Linear Solver with Chain Reduction and Optimization Using PLFG". High-Performance Computing and Networking, edited by B. Hertzberger, A. Hoekstra and R. Williams. Lecture Notes in Computer Science, 2110, pp. 405–414. Springer-Verlag.

Software

Development of the "tvReg" R package submitted to CRAN (2017). Latest version (Sep 2023): Link

Research papers

Casas, I., Mao, X. and Veiga, H. (2020). "Stock market return predictability before and after the Dodd-Frank Act . Available at SSRN

Casas, I., Gao, J., Peng, B. and Xie S. (2018). "Modelling time-varying income elasticities of health care expenditure for the OECD. Available at SSRN

Casas, I., Mao, X., Veiga, H. (2018). "Reexamining financial and economic predictability with new estimators of realized variance and variance risk premium". CREATES research paper 2018-10.

Casas, I., Ferreira, E. and Orbe, S. (2017). "Time-varying coefficient estimation in SURE models. Application to portfolio management". CREATES research paper 2017-32.

Casas, I. and Grassi, S. (2014). "Tv-VAR estimation: nonparametric vs bayesian". Proceedings ITISE 2014: International Work-conference on Time Series.

Villalba, E., Casas, I., Abadie, F., Lluch, M. and Maghiros, I. (2012). "Towards integrated personal health and care services deployment in Europe". IV Workshop on Technology for Healthcare and Healthy Lifestyle, pp. 30–32.

Aslanidis, N. and Casas, I. (2010). "Modelling asset correlations during the recent financial crisis: A semiparametric approach".CREATES Research Paper 2010-71.

Casas, I. and Gijbels, I. (2009). "Unstable volatility functions: the break preserving linear estimator". CREATES Research Paper 2009-48.

Casas, I. and Gao, J. (2005). "Stochastic volatility with long-range dependence". MODSIM 2005 International Congress on Modelling and Simulation, pp. 802–806.

Collaborations as Statistics Consultant

Cadierno, T., Ibarretxe-Antuñano, I., and Hijazo-Gascón, A. (2016). "Semantic categorization of placement verbs in L1 and L2 Danish and Spanish". Language Learning, 66, pp. 191–223.

Ibarretxe-Antuñano, I., Cadierno, T., and Hijazo-Gascón, A. (2016). "The role of force dynamics and intentionality in the reconstruction of L2 verb meanings: A Danish-Spanish bidirectional study". Review of Cognitive Linguistics, 14, pp. 136–160.

Hijazo-Gascón, A., Cadierno, T., and Ibarretxe-Antuñano, I. (2016). "Learning the placement caused motion construction in L2 Spanish". In S. De Knop and G. Gilquin (Eds.), Applied construction grammar, pp. 185–210. Berlin / New York: Mouton de Gruyter.

Research projects

Principal Investigator

2020 Financial assessment of electricity trading from Mutriku, a successful wave power plant. Research Infrastructure funded by the Carlsberg Foundation (grant no. CF19-0164)

2019 Forecasting electricity from Mutriku, a successful wave power plant. International Research Visit , funded by the Danish Council for Independent Research (grant no. 8142-00010B)

2017- present Maintenance of the tvReg R package.

2016-2018 Forecast of time-varying effects of post-GFC monetary policy and a novel computing application. Marie Skłodowska-Curie Fellowship funded by the Horizon 2020 Research and Innovation program (grant no. 657182)

2008-2011 Volatility modelling: Leverage and long memory. Postdoctoral Fellowship funded by the Danish Council for Independent Research (grant no. 275-08-0078)

Member of research group

2022-2024 Identidad de género, ajuste, liderazgo y salud (IDEALIS) funded by Conselleria de Innovación, Universidades, Ciencia y Sociedad Digital de la Generalitat Valenciana (grant no. CIAICO/2021/136)

2021-2024 Wearables and droneS fOr CIty Socio-Environmental Observations and BEhavioral ChangE (SOCIO-BEE) funded by the Horizon 2020-Societal Challenges program (grant no. 101037648)

2020-present Innovación, Conocimiento, Emprendimiento y Sostenibilidad research group at the University of Deusto funded by The Basque Government

2015-2018 Analyzing common time-varying European risks funded by the Ministerio de Econom??a y Competitividad (grant no. ECO2014-51914-P)

Awards and Scholarships

2020 International research scholarship from the Carlsberg Foundation.

2019 International research scholarship from the Danish Council for Independent Research.

2016–2018 Marie Skłodowska-Curie Fellowship from the European Commission.

2008–2011 Research fellowship from the Danish Council for Independent Research.

2008 Jose Castillejo mobility scholarship for young researchers by the Spanish Ministry of Science and Innovation (6 months research visiting scholarship).

2006 FIRN Younger Research Award by the Australian Research Council Financial Integrity Research Network.

2004 – 2006 Australian Postgraduate Award (3 years research scholarship).

Experience in the Private Sector

1999 – 2002 Software Engineer – Norkom (Dublin)

1998 – 1999 Software Developer – Datasim Education (Amsterdam and Dublin)

Languages

- Spanish. Mother tongue.
- English. Fluent in all respects.
- Danish. Intermediate level.
- Euskera. Beginner level.