

MARINA DIAKONOVA

Data scientist and researcher

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(citations:1049, h-index:14)

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PROFESSIONAL EXPERIENCE

- 2020 - Data Scientist, DG Economics, Bank of Spain
Design and implementation of data science/AI and econometric methodologies for uncertainty and risk indicators, delivery of policy-relevant evidence through applied research
- 2016 - 2020 Data Scientist and Postdoctoral Research Associate, University of Oxford, Oxford, UK
Work on the "METER" study to quantify the capacity of household-level demand side response. Data collection, analysis, visualisation
- 2019 Data Scientist, Thames Valley Environmental Records Centre, Oxfordshire County Council, UK
Application of QGIS to develop optimal intervention strategies to alleviate the reduction of pollinator population
- 2015 - 2016 Postdoctoral Research Associate, Queen Mary University, London, UK
Quantitative analysis into methods to incorporate time to network models of societal processes
- 2012 – 2015 Postdoctoral Research Associate, IFISC, Palma de Mallorca, Spain
Research within an FP7 LASAGNE project on adding dynamic multidimensional ties to network models of opinion dynamics
- 2005 – 2007 Assurance Associate, PwC, London, UK
Audit of private and public companies, part-time ICAS qualification stream in BPP Professional Education

EDUCATION

- 2013 University of Warwick, UK - PhD in Complexity Science
Dissertation on Persistent Mutual Information, an information-theoretic measure to quantify the emergence of patterns in complex systems; testing it on time-series from low-dimensional chaotic maps
- 2008 University of Warwick, UK - MSc in Complexity Science, *with distinction*
Master's projects on fluid dynamics, and evolutionary game theory
- 2005 Imperial College, London, UK - MSc in Quantum Physics and Fundamental Forces
Dissertation on anomalies in regularisation schemes
- 2004 Imperial College, London, UK - BSc in Physics and Theoretical Physics
Dissertation on a computational demonstration of fuzzy logic in economic decision-making

OTHER

- Technical skills Python, R, Matlab, C++, D3, Javascript, SQL, PHP, Git, QGIS, PHP, HTML
- Teaching experience Teaching assistant (4 years), supervision of work experience students at the Bank of Spain, invited lectures at Universidad Carlos III (Madrid) and Barcelona School of Economics, Affiliate Professor at ESCP
- Academic Presentations at >30 international conferences, referee for peer-reviewed journals
- Languages English, Russian (bilingual), Spanish (advanced), French (basic)

WORKING PAPERS IN MACROECONOMICS

- [Rethinking GPR: the Sources of Geopolitical Risk](#), I Alonso-Alvarez, M Diakonova, JJ Pérez. *Banco de España Working Paper*, n. 2522 (2025) -> Media impact: [e-axes](#); [SUERF Policy Brief](#)
- [Political polarization in Europe](#), M Diakonova, C Ghirelli, JJ Pérez. *Banco de España Working Paper*, n. 2533 (2025) → Media impact: [SUERF Policy Brief](#); [Real Instituto Elcano](#); [Business Insider](#); [El Confidencial](#); [El Español](#); [El Comercio](#); [La Razón](#); [La Vanguardia](#)
- The Anatomy of Economic Uncertainty: Deconstructing Proxy Measures through News Narratives, A Azqueta-Gavaldón, M Diakonova, C Ghirelli, GT Larrauri, JJ Pérez. *Draft available upon request*
- Geopolitical Risk: a Database of General and Bilateral Measures, I Alonso-Alvarez, E Bukina, M Diakonova, N Khitarishvili, JJ Pérez, P Piqueras. *Draft available upon request*

PUBLICATIONS

Macroeconomics

- [Economic Policy Uncertainty in Central America and the Dominican Republic](#), M Diakonova, C Ghirelli, JQ Wu. *Latin American Journal of Central Banking*, 100166 (2025)
- [The information content of conflict, social unrest and policy uncertainty measures for macroeconomic forecasting](#), M Diakonova, L Molina, H Mueller, JJ Pérez, C Rauh. *Latin American Journal of Central Banking*, 5, 100130 (2024)
- [The economic impact of conflict-related and policy uncertainty shocks: the case of Russia](#), M Diakonova, C Ghirelli, L Molina, JJ Pérez. *International Economics*, 174, pp. 69-90 (2023) → Media impact: [VoxEU Column](#)

Demand side Management

- [Cluster analysis and prediction of residential peak demand profiles using occupant activity data](#), A Satre-Meloy, M Diakonova, P Grunewald. *Applied Energy*, 260, 114246 (2020)
- [Energy and enjoyment: The value of household electricity consumption](#), P Grunewald, M Diakonova. *Energy and Behaviour*, 263-281 (2020)
- [Societal differences, activities, and performance: Examining the role of gender in electricity demand in the United Kingdom](#), P Grunewald, M Diakonova. *Energy Research & Social Science*, 69, 101719 (2019)
- [The specific contributions of activities to household electricity demand](#), P Grunewald, M Diakonova. *Energy and Buildings*, 204, 109498 (2019)
- [METER: UK Household Electricity and Activity Survey, 2016-2019](#): Secure Access, P Grunewald, M Diakonova. UK Data Service, (2019)
- [Better off with less \(energy\)? Household activities during interventions](#), M Diakonova, P Grunewald. *ECEEE Summer Study 2019*
- [Daily life and demand: an analysis of intra-day variations in residential electricity consumption with time-use data](#), A Satre-Meloy, M Diakonova, P Grunewald. *Energy Efficiency*, 1-26 (2019)
- [What makes you peak? Cluster analysis of household activities and electricity demand](#), A Satre-Meloy, M Diakonova, P Grunewald. *ECEEE Summer Study 2019*
- [The electricity footprint of household activities-implications for demand models](#), P Grunewald, M Diakonova. *Energy and Buildings*, 174, 635-641 (2018)
- [Flexibility, dynamism and diversity in energy supply and demand: A critical review](#), P Grunewald, M Diakonova. *Energy Research & Social Science*, 38, 58-66 (2018)

- [Daily life and demand: New data on behavioral drivers of residential electricity use patterns](#), A Satre-Meloy, M Diakonova, P Grunewald. **ACEEE Summer Study 2018**
- [What we do matters – a time-use app to capture energy relevant activities](#), P Grunewald, M Diakonova, D Zilli, J Bernard, A Matousek. **ECEEE 2017 Summer Study Proceedings**, 2085-2093

Minority Policy Topics

- [Using Twitter data to identify networks of interest in minority policy topics](#), M Morgan, G Killip, M Diakonova. **SRI paper** No. 118, University of Leeds, UK (2019)

Dynamics on Networks

- [Information gerrymandering and undemocratic decisions](#), AJ Stewart, M Mosleh, M Diakonova, AA Arechar, DG Rand, JB Plotkin. **Nature**, 573 (7772), 117–121 (2019)
- [Dynamical leaps due to microscopic changes in multiplex networks](#), M Diakonova, JJ Ramasco, VM Eguíluz. **Europhysics Letters**, 117 (4) (2017)
- [Dynamical origins of the community structure of an online multi-layer society](#), P Klimek, M Diakonova, VM Eguíluz, M San Miguel, S Thurner. **New Journal of Physics**, 18 (8), 083045 (2016)
- [Irreducibility of multilayer network dynamics: the case of the voter model](#), M Diakonova, V Nicosia, V Latora, M San Miguel. **New Journal of Physics**, 18 (2), 023010 (2016)
- [Noise in coevolving networks](#), M Diakonova, VM Eguíluz, M San Miguel. **Physical Review E**, 92 (3), 032803 (2015) – Editors' Suggestion
- [Anomalous Shattered Fragmentation Transition in the Coevolving Multiplex](#), M San Miguel, M Diakonova, VM Eguíluz. **2014 Tenth International Conference on Signal-Image Technology and Internet-Based Systems**
- [Absorbing and shattered fragmentation transitions in multilayer coevolution](#), M Diakonova, M San Miguel, VM Eguíluz. **Physical Review E**, 89 (6), 062818 (2014)

Complexity and Emergence

- [Mathematical examples of space-time phases](#), M Diakonova, RS MacKay. **International Journal of Bifurcation and Chaos**, 21 (08), 2297-2304 (2011)
- [Quantifying emergence in terms of persistent mutual information](#), RC Ball, M Diakonova, RS Mackay. **Advances in Complex Systems**, 13 (03), 327-338 (2010)

NON-REFEREED PAPERS

Macroeconomics

- [Sources of economic policy uncertainty in the euro area: a ready-to-use database](#), A Azqueta-Gavaldón, M Diakonova, C Ghirelli, JJ Pérez. **Banco de España Occasional Paper**, n. 2315 (2023)