

Eoghan O'Neill

epo21@cam.ac.uk

Website: eoghanoneill.com

Telephone: (+44) (0)77 24038466

References:

Dr. Melvyn Weeks (supervisor)	mw217@cam.ac.uk	+44 (0) 1223 355260
Prof. Alexey Onatskiy	ao319@cam.ac.uk	+44 (0) 1223 335240
Dr. Sriya Iyer	si105@cam.ac.uk	+44 (0) 1223 335257

Address for all references: Faculty of Economics, University of Cambridge, CB3 9DD, UK

Cambridge University Job Market Placement Assistant:

Louise Cross JobMarket@econ.cam.ac.uk +44 (0) 1223 335206

Education

2016–present	PhD Economics, University of Cambridge Supervisor: Dr. Melvyn Weeks Research Interests: Econometrics, Machine Learning, Energy Economics
2015–2016	MPhil Economic Research, University of Cambridge
2011–2015	BA (Hons) Mathematics and Economics, Trinity College, Dublin Double first class honours.

Teaching and Professional Experience

2019–present	Teaching Fellow, Faculty of Economics, University of Cambridge Supervisor - Theory and Practice of Econometrics II (Undergraduate)
2018–present	Teaching Assistant, Faculty of Economics, University of Cambridge 2019-2020 Econometrics II Cross Section and Panel Data (Masters) 2019 Applied Econometrics (Masters) 2018 Applied Microeconomics (Masters)
2017–2019	College Teaching Associate, St. Catharine's College, Cambridge Supervisor - Quantitative Methods in Economics (Undergraduate) Supervisor - Theory and Practice of Econometrics I (Undergraduate)
2016–2019	College Supervisor, Newnham, Hughes Hall, Magdalene, Pembroke, St. Catharine's Colleges, University of Cambridge Theory and Practice of Econometrics I (Undergraduate) Quantitative Methods in Economics (Undergraduate)
Summer 2015	Internship, Irish Fiscal Advisory Council, Dublin
Summer 2014	Research Internship, Economic and Social Research Institute, Dublin
Summer 2013	Risk and Valuation Internship, Citco Fund Services, Dublin
Summer 2013	Summer Programme for Undergraduate Research, Maynooth University

Working Papers

- *Causal Forest Estimation of Heterogeneous Household Response to Time-Of-Use Electricity Pricing Schemes* (Job Market Paper) with Melvyn Weeks.
- Abstract We examine the household-specific effects of the introduction of Time-of-Use (TOU) electricity pricing schemes. Using a causal forest, we consider the association between past consumption and survey variables, and the effect of TOU pricing on household electricity demand. We describe the heterogeneity in household variables across quartiles of estimated demand response and utilise variable importance measures. Household-specific estimates produced by a causal forest exhibit reasonable associations with covariates. For example, households that are younger, more educated, and that consume more electricity, are predicted to respond more to a new pricing scheme. In addition, variable importance measures suggest that some aspects of past consumption information may be more useful than survey information in producing these estimates.
- *State-of-the-BART: Simple Bayesian Tree Algorithms for Prediction and Causal Inference*
- Abstract Bayesian Additive Regression Trees (BART) (Chipman et al. 2010) and Bayesian Causal Forests (BCF) (Hahn et al. 2017) are state-of-the-art machine learning algorithms for prediction and individual treatment effect estimation. These methods involve averaging predictions from sum-of-tree models, typically drawn using Monte Carlo Markov Chain methods.
- This paper introduces conceptually and computationally simple alternatives to MCMC implementations of BART, which can exhibit comparable performance. An importance sampling based implementation of BART (BART-IS) builds on the ideas of (Hernandez et al. 2018) and Quadrianto & Ghahramani (2014). Unlike most BART implementations, BART-IS has a data independent prior. This paper also contains an extension to treatment effect estimation, BCF-IS.
- In addition, I describe Bayesian Causal Forests using Bayesian Model Averaging (BCF-BMA), an implementation of BCF (Hahn et al. 2017) that extends an improved implementation of BART-BMA (Hernandez et al. 2018) to treatment effect estimation.
- *Applying Bayesian Model Averaging to Characterise Urban Residential Stock Turnover Dynamics* with Wei Zhou, Alice Moncaster, David Reiner, and Peter Guthrie.
 - *A study of the effectiveness of the reform of China's power system: A dynamic network slacks-based measure data envelopment analysis approach* with Zhen-Yu She, Gang Meng, and Bai-Chen Xie.

Work in Progress

- *Analysis of a unique time-of-use electricity pricing trial with gamification.*
- Variations of BART-BMA, BCF-BMA, and BART-IS .

Presentations

- 2019 Predictive Analytics Workshop (Cambridge), Maynooth University Hamilton Institute, EDGE Jamboree, Cambridge econometrics workshop
- 2018 BIEE Annual Conference Oxford, Cambridge econometrics workshop, Ofgem, Loop-SMAP Energy

Academic Awards and Funding

2018-Present	Economics Faculty Trust Funding
2015-2019	Christ's College Studentship
2015-2016	Cambridge Trust European Scholarship
2015-2016	Economics Faculty Bursary

Other Information

Software	L ^A T _E X, R, Stata, C++
R Packages	https://github.com/EoghanONeill
Languages	English, French (Basic), Irish (Basic)
Nationality	Irish