SZYMON K. SACHER

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SUMMARY

Research economist working at the intersection of causal inference, structural estimation, and AI/ML, with applications to labor markets, health, and platform economics. At Meta, I lead economic impact measurement at scale, build production data systems, and conduct business model research for AI products. My academic work develops econometric methods for analyzing data generated by AI and machine learning, using Bayesian inference and probabilistic programming. 500+ Google Scholar citations.

EMPLOYMENT

Meta, Inc — Research Scientist, Economics and Policy Research Team — Oct 2023–Present

- Led economic impact estimation for the EU and UK markets, including employment effects, using methodology published with NBER. Designed and executed causal inference studies at petabyte scale to optimize advertiser support delivery. Built production-quality data pipelines and classifiers.
- Single-handedly led business model research, pricing strategy, and rollout planning for Business AI, Meta's AI agent product for SMBs. Research adopted and now being implemented at the highest levels of the company.
- Co-organized the Meta-Kellogg Initiative on Advertising: reviewed 35+ research proposals, selected 10+ teams, and collaborating with them to refine research strategies and deliver data access.

Stanford University, GSB — Postdoctoral Scholar, Golub Capital Social Impact Lab — Jul 2023–Sep 2024

- Designed and implemented field experiments on combating misinformation on social media, deployed on Meta platforms and evaluated using on-platform data and surveys
- Mentored and supervised research assistants

EDUCATION

Columbia University — Ph.D. Economics — Sep 2017–May 2023
Fields: Industrial organization, public finance, labor economics, econometrics, machine learning
Dissertation: Estimating Structural Models with Bayesian Econometrics
Proposed novel structural models and adopted modern Bayesian methods—variational inference, Hamiltonian Monte Carlo, and MCMC—for economic applications in health (nursing home quality measurement), organizational economics (CEO behavior and firm productivity via topic models), and labor markets (wage determination using matched employer-employee microdata). Implemented in NumPyro and JAX.
Advisors: Andrea Prat, Stephen Hansen, David Blei
Degrees: MA 2018, MPhil 2019, PhD 2023

University of Edinburgh — MA (Hons) Economics and Mathematics — Sep 2013–Jun 2017
Graduated overall 1st in the class

PEER-REVIEWED PUBLICATIONS

2. **Estimating Nursing Home Quality with Selection** (with A. Olenski)
   Review of Economics and Statistics • Forthcoming
   Proposes a structural Bayesian model of nursing home quality accounting for patient selection, estimated using variational inference. Finds that public report cards have near-zero correlation with true quality, that higher-quality facilities fared better during COVID-19, and that increasing Medicaid reimbursement rates would raise quality cost-effectively.

1. **The Persuasive Effect of Fox News: Noncompliance with Social Distancing During the COVID-19 Pandemic** (with A. Simonov, J.P. Dubé, S. Biswas)
   Marketing Science • 2022
   Uses mobile phone location data and quasi-experimental variation in cable channel positions to estimate the causal effect of Fox News viewership on social distancing compliance.
   Coverage: *VoxEU*, *Washington Post*, *The New Yorker*, *New York Times Magazine*, *Hollywood Reporter*, *ProMarket*

WORKING PAPERS

Inference for Regression with Variables Generated by AI or Machine Learning (with L. Battaglia, T. Christensen, S. Hansen) 2025
Establishes that using AI/ML-generated variables as regression covariates produces biased estimates and invalid inference. Proposes joint estimation via Hamiltonian Monte Carlo for valid inference. Applications to CEO behavior and firm productivity using topic models.

Two Way Fixed Effects Estimation with Selection: A Bayesian Approach 2023
Extends the AKM framework to account for endogenous worker selection into firms and locations using a structural discrete-choice model estimated via MCMC. Applied to matched employer-employee data from Brazil (RAIS) to study wage determination and worker mobility across labor markets.

Combating Misinformation on Social Media (with R. Appel, S. Athey, D. Karlan, K. Koutout, M. Luca, U. Manjeer, N. Wernerfelt) *In progress*
Designed and delivered a digital media literacy intervention to 50,000+ participants. Measured impact on knowledge using surveys and on behavior using observational data from Meta's platforms.

AWARDS

Vickrey Prize for Best Third Year Paper, Runner-up, Columbia (2020) • Dean's Fellowship, Columbia (2017) • School of Economics Class Prize, Edinburgh (2017) • Balmoral Asset Management First Prize, Edinburgh (2016)

INVITED PRESENTATIONS

2025: ASSA (chair, *ML-Enabled Econometrics with Unstructured Data*) • 2024: Bates College, IIOC, ESEM, ESIF-AIML • 2023: RES Annual Conference • 2022: Text-As-Data Workshop, Asia-Pacific IO Conference, European Winter Meeting of Econometric Society • 2020: DSCC-19

SERVICE & OTHER POSITIONS

Referee: *Economic Journal*, *Journal of Econometrics*, *Economic Letters*, *International Review of Economics*, *Political Research Exchange*

Other: Visiting Researcher, Imperial College Business School (2021); Research Fellow to Andrea Prat, Columbia University (2019–2022)

SKILLS & TOOLS

Methods: Causal inference, structural estimation, Bayesian inference, probabilistic programming, unstructured data analysis (text, images, survey responses), large-scale data engineering

Programming: Python (Pandas, Polars, PyTorch, JAX, NumPyro), R (Stan), SQL, Stata, MATLAB

Open source: Contributed to NumPyro tutorials and pyfixest