Johanna Rayl

Northwestern
Economics

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Fields

Research: Energy and Environmental Economics, Public Economics, Industrial Organization
Teaching: Energy and Environmental Economics, Public Economics, Industrial Organization

Education

Ph.D., Economics, Northwestern University, 2026 (Anticipated)
Committee: Mar Reguant (Chair), Piotr Dworczak, Chris Udry, Silvia Vannutelli
M.A., Economics, University of Chicago, 2019
B.A., Environmental Analysis, *cum laude*, Pomona College, 2016

Fellowships & Awards

Vising Scholar, Federal Reserve Bank of Chicago, Microeconomic and Regional Teams, 2024
University Fellowship, Northwestern University, 2022-2023 & 2025-2026
National Science Foundation Graduate Research Fellowship, 2018-2024

Teaching Experience

Teaching Assistant, Northwestern University, 2025
MMSS Senior Seminar (Gastón Illanes)
Curriculum Development, University of Chicago, 2016-2017
Global Energy and Climate Challenge (Michael Greenstone and John Deutch)

Research Experience

Research Specialist, Climate Impact Lab, 2018-2019
Research Assistant, Michael Greenstone, Energy Policy Institute of the University of Chicago, 2016-2018
Summer Research Intern, Yusuke Kuwayama, Resources for the Future, 2015

External Talks

Federal Reserve Bank of Chicago, Brown Bag in Microeconomics, 2025
Group for Research in Applied Economics (GRAPE) Inequality-aware Market Design (IMD) Seminar, 2024

Professional Experience

Referee for *JAERE*
U.S. Census Bureau Special Sworn Status, 2025-present
Sloan/Berkeley EEE Summer School, 2023
Creator and Organizer, Energy and Climate Lunch & Learn, University of Chicago, 2017-2018

Job Market Paper

"Redistribution with Limited Information: Fuel Subsidies and Cash Transfers in Indonesia" with Budy Resosudarmo

Energy subsidies are one of the most common forms of in-kind transfer worldwide, but they are inefficient and often regressive. Yet, when governments have limited data with which to identify poor households, in-kind transfers can outperform cash as a means of progressive redistribution. We formulate a model of redistribution with limited information to evaluate fuel subsidy and cash policies

in Indonesia. In our model, a planner with progressive redistributional goals and limited information about household income chooses among cash transfers, nonlinear fuel subsidies, and combinations. The optimality of a nonlinear fuel subsidy versus a targeted cash transfer is determined by the joint distribution of household income, observable characteristics, and household fuel demand. We estimate the primitives of this model for the Indonesian population using rich administrative survey data and variation generated by large fuel policy reforms and quantify optimal interventions. Combinations of cash and in-kind programs, involving self-financing fuel pricing policies, generate double the welfare gain of pure targeted cash or fuel policy approaches.

Works in progress

"The Effects and Effectiveness of Emergency Price Controls during Natural Disasters" with Michael Dinerstein, Nadia Lucas, Ishan Nath

Anti-price gouging laws, present in most US states, penalize retailers if they make large price increases to disaster supplies during states of emergency. Price caps during periods of high and inelastic demand may worsen or alleviate shortages of essential supplies – they can decrease the incentive to restock supplies by reducing the resale price at which the new inventory sells, or they can increase the incentive to restock supplies by generating more unmet demand at initial inventory levels. We use retailer scanner data and novel trucking data to estimate the effects of US natural disasters on quantities transacted and prices. We estimate that disasters increase demand for a set of 20 essential goods, with increases in mean quantities transacted but also in the probability of having a stockout. Prices increase, with the largest changes concentrated in a minority of retailers, but we see no effects of anti-price gouging laws on the probability of price hikes. On the supply-side, we see limited evidence of marginal cost increases and we estimate a shift in restocking from the disaster period to the week proceeding it. Motivated by this evidence, we specify a structural model that will evaluate how stringent enforcement of price caps would affect shortages and consumer surplus during disasters. We construct a non-parametric identification argument that combines an instrument for restocking costs with the observed joint distribution of restocking and quantities transacted to recover latent demand and initial inventory levels.

"Paid Maternity Leave and Childrens' Outcomes in the Long Run" with Tessa Bonomo

Approved US Census Bureau Project

The US is one of few countries worldwide without a national mandate for paid maternity leave, and as such, we know little about the effects of paid leave in this context. The first cases of statewide maternity leave in the U.S. came about somewhat unintentionally through changes in state Temporary Disability Insurance (TDI) in the 1960s and 1970s. Six to seven decades later, we have the opportunity to explore the long run effects of access to paid maternity leave on children, later in their lives. We do so employing a differences-in-discontinuities design around changes in state TDI policies which made disability insurance available for pregnancy. In "first stage" results, we provide new estimates of the effects of paid maternity leave availability on infant birth weights, improving upon existing methodologies estimating the same effect in the literature, and finding much larger positive effects. In a "second stage" exercise, we will link measures of the education and earnings of children with their birthdate records using Census and Numident data to provide the first estimates of the long run impacts of paid maternity leave on children for the US.

"Income Downscaling with Nightlights" with Tamma Carleton, James Rising

Working papers

"Does the Value of Reliability Capitalize in Water Markets" with Yusuke Kuwayama, Tyler Treakle

Published papers

"Private Markets and Public Assistance for Natural Disaster Supplies" with Michael Dinerstein, Nadia Lucas, Ishan Nath, *AEA Papers and Proceedings*, 2025

Languages

English (fluent), Spanish (limited working proficiency)

References

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