

Johanna Rayl

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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, Microecononic 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 (scheduled)

Group for Research in APplied Economics (GRAPE) Inequality-aware Market Design (IMD) Seminar,

2024

Professional Experience

Referee for JAERE

Experience

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

In-kind transfers may outperform cash as a means of progressive redistribution when a government has limited data with which to identify poor households. We develop a model of redistribution with limited information to examine the grounds for one of the most common types of in-kind transfers worldwide: energy subsidies. In our model, a planner with progressive redistributional goals and

limited information chooses between cash transfers and nonlinear fuel subsidies. The optimality of a nonlinear fuel subsidy over 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. We quantify optimal interventions among nonlinear fuel prices, targeted cash transfers, and combinations of the two. Combinations of cash and in-kind programs, involving self-financing fuel pricing policies, outperform single interventions.

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 nonparametric 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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