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Education

Arizona State University, Ph.D. in Economics	2025 (Expected)
Bogazici University, M.A. in Economics	2020
Bogazici University, B.A. in Economics	2017

Research Fields

Environmental and Energy Economics, Urban Economics, and Labor Economics

Publications

Energy-Efficient Investments in Housing, (with Kelly C. Bishop), *Regional Science and Urban Economics*, Vol.107, July 2024. [Link](#)

Working Papers

Place-Based Environmental Regulations and Labor Market Dynamics ([Job Market Paper](#))

Abstract: Place-based environmental regulations target pollution-intensive sectors in polluted areas. These regulations can improve local quality of life by reducing air pollution, while simultaneously reducing labor demand. I develop a framework to study the heterogeneous effects on worker welfare, considering changes in pollution exposure, sectoral and spatial labor distribution, and unemployment. I focus on the U.S. Environmental Protection Agency's regulation of ozone and fine particulate air pollution during the 2000's. First, I develop a triple-difference estimator to measure the employment effects on college-educated and non-college-educated workers. I find that, on average, regulation decreased employment by 7.6% among non-college-educated workers and by 3.6% among college-educated workers. However, these average treatment effects vary substantially depending on the intensity and type of regulation. I use this causal evidence to develop empirical moments that serve to identify key parameters of a new general equilibrium search-and-matching model with endogenous worker location choice and pollution exposure. I use the model to evaluate the welfare effects of regulation in North Carolina. I find the effects differ by worker skill level and geographic location. Low-skill workers in regulated areas experience notable welfare losses. I show these losses can be mitigated by improving labor mobility across sectors and areas.

Distributional Effects of Residential Solar Subsidies (with Yueming Lucy Qiu, [Link](#))

Abstract: The residential solar market has grown significantly in the past decade due partly to falling prices and government subsidies. However, this growth has been driven by high-income households, leading to inequality in the distribution of subsidies. In this paper, we investigate how household income affects demand for residential solar systems and the distributional effects of renewable energy tax credit policies. We estimate a dynamic model of solar adoption using novel household-level data on hourly energy consumption, prices, household income, and solar panel installation for utility company customers in the Phoenix, AZ, metropolitan area from 2013 to 2017. We find that the household's sensitivity to the system cost decreases as income increases. While low-income households are more sensitive to reductions in the system cost, high-income households are more likely to receive the full benefit of a non-refundable tax credit due to their higher tax liability. Specifically, making the tax credit refundable would increase the take-up rate among low-income households by 16%, with no effect on high-income households. Finally, our counterfactual analysis demonstrates that targeted policies designed to allocate 40% of total benefits to lower-income groups can enhance equity in solar adoption while increasing total solar production by 2% compared to nonrefundable policies. Our findings highlight the importance of designing subsidy programs that effectively balance distributional equity and overall efficiency.

Work in Progress

The Mortality Effects of Long-Term Exposure to Air Pollution, (with Kelly C. Bishop, Jonathan Ketcham, and Nicolai V. Kuminoff)

Abstract: We examine the impact of long-term cumulative exposure to fine particulate air pollution (PM_{2.5}) on mortality among individuals aged 65 and older. Developing causal evidence on the long-term effects of PM_{2.5} exposure is challenging due to residential sorting, latent health, and measurement error in pollution exposure. We address these challenges by developing an instrumental variable analog to the Cox proportional hazards model. The IV leverages quasi-random variation in long-term PM_{2.5} exposure caused by the expansion of Clean Air Act regulations. We are currently estimating the model using longitudinal data on millions of senior citizens from the US Centers for Medicare and Medicaid Services.

Grant Participation

Predicting Residential Price Plan Enrollment and Energy Use. PhD Student Investigator. 2023-2024. Salt River Project, \$50,042 (PI: Nicolai V. Kuminoff, Co-PI: Nicholas Vreugdenhil)

Workshop and Conference Presentations

2024 AERE Summer Conference, WEAI Annual Conference - Graduate Student Workshop

2023 Arizona Environmental Economics Workshop, AERE Summer Conference, WEAI Annual Conference

2022 Camp Resources XXVIII, Sloan Summer School in Environmental and Energy Economics

Teaching Experience

Instructor

Microeconomic Principles

Summer 2023 & 2024

Undergraduate Teaching Assistant

Public Economics, Environmental Economics

Macroeconomic Principles, Intermediate Microeconomic Theory

Research Assistance

Department of Economics, Arizona State University

2022-2023

R.A. to Kelly C. Bishop, Jonathan Ketcham, and Nicolai V. Kuminoff, funded by the National Science Foundation

Department of Economics, Arizona State University

Summer 2022 & 2023

R.A. to Nicolai V. Kuminoff

Awards and Fellowships

University Fellowship Award, Department of Economics, ASU

2019, 2020

Performance Award, Department of Economics, ASU

2020, 2022

Travel Grant, Graduate and Professional Student Association, ASU

2023, 2024

Other Academic Activities

Referee: Journal of the Association of Environmental and Resource Economists

Research Fellow: ASU Center for Environmental Economics and Sustainability Policy

Programming

Stata, MATLAB, R, LaTeX

References

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