Xianru Han

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Agricultural and Resource Economics
2200 Symons Hall
University of Maryland
College Park, MD 20742

571-574-3772
xhan1236@umd.edu
https://xianru-han.netlify.app/

EDUCATION

Ph.D. Agricultural and Resource Economics, University of Maryland, College Park, MD (expected Spring 2026)
M.S. Agricultural and Resource Economics, University of Maryland, College Park, MD, 2024
M.A. Statistics, Columbia University, New York, NY, 2020
B.S. Agricultural and Resource Economics & Statistics, University of Maryland, College Park, MD, 2018
B.A. Economics, China Agricultural University, Beijing, China, 2018

DISSERTATION

Title: "Essays on Environmental Economics"
Committee: Drs. Anna Alberini (Chair), Cinzia Cirillo, Maureen Cropper, Colin Vance, Roberton Williams.

RESEARCH FIELDS

Environmental and energy economics, applied microeconomics

PUBLICATIONS

Fu, Xiao, Kang Wentao, Wang Haoluan, and **Han Xianru** (2025). Eliciting Consumer Preferences for Used Vehicle E-Commerce Platforms: A Discrete Choice Experiment Approach. *Research in Transportation Economics*, *113*, 101641.

Han, Xianru, Li Wenying, and Wang Haoluan (2024). A Burning Issue: Wildfire Smoke Exposure, Retail Sales, and Demand for Adaptation in Healthcare. *Environmental and Resource Economics, 87(11), 3011-3039.*

Han, Xianru, Wang Haoluan, and Yu Jiaao (2024). Navigate Through the Haze: Wildfire Smoke Exposure and Metrorail Ridership. *Transportation Research Part D: Transport and Environment*, *133*, 104309.

PAPERS

Han, Xianru (2025), "Diesel Bans and Environmental Trade-Offs: The Car Market and Emissions in Germany," University of Maryland, College Park, August (Job Market Paper).

Epanchin-Niell, Rebecca, Thompson Alexandra, **Han Xianru**, Post Jessica, Miller Jarrod, Newburn David, Gedan Keryn, and Tully Kate (2024), "Coastal Agricultural Land Use Adaptation to Sea Level Rise and Saltwater Intrusion," University of Maryland, College Park, July.

Han, Xianru (2024), "The Distributional Effects of Tighter Regulations: New Evidence From the Sugarcane Burning in Florida," University of Maryland, College Park, April.

WORK IN PROGRESS

Lou, Jiehong, Shen Xingchi, Lamprea Tania, and **Han Xianru**, "Powering Equity: Government Incentives and Access to EV Charging in the San Joaquin Valley," University of Maryland, College Park.

Han, Xianru, Alberini Anna, and Vance Colin, "What Are the Effects of Local Driving Regulations? Evidence from Germany," University of Maryland, College Park.

PRESENTATIONS

"Diesel Bans and Environmental Trade-Offs: The Car Market and Emissions in Germany," presented at:

- the 1th International Alpine Workshop on Energy Economics and Policy (AWEEP), Airolo, Switzerland, September 2025;
- the 26th CU Environmental and Resource Economics Workshop, Vail, CO, September 2025;
- the Ethics and Governance of Markets and Innovation Graduate Workshop, hosted by the Institute for Humane Studies, Virtual, July 2025;
- the 2025 Summer Graduate Conference, hosted by the Institute for Humane Studies, Virtual, May 2025;
- the RWI – Leibniz Institute for Economics Research Brown Bag Seminar, Essen, Germany, April 2025;
- the Institute for Humane Studies Graduate Workshop on "Giving an Effective Job Talk," Louisville, KY, March 2025;
- the 16th Empirical Methods in Energy Economics Workshop (EMEE), Washington, D.C., January 2025;
- the Nordic Annual Environmental and Resource Economics (NAERE) Workshop, Bergen, Norway, June 2024.

"A Burning Issue: Wildfire Smoke Exposure, Retail Sales, and Demand for Adaptation in Healthcare," presented at:

- the Harvard Climate Economics Pipeline Workshop, Cambridge, MA, June 2024;
- Heartland Environmental and Resource Economics Workshop, Champaign, IL, October 2023;
- the Race, Ethnicity and Place Conference, Washington, D.C., October 2023;
- the 24th CU Environmental and Resource Economics Workshop, Vail, CO, September 2023.

"The Distributional Effects of Tighter Regulations: New Evidence From the Sugarcane Burning in Florida," presented at:

- the Agricultural & Applied Economics Association (AAEA) Annual Meeting, Washington, D.C., July 2023;
- the Association of Environmental and Resource Economists (AERE) Summer Conference, Portland, ME, May 2023;
- Interdisciplinary PhD Workshop in Sustainable Development (IPWSD) at Columbia University, New York, NY, March 2023.

RESEARCH EXPERIENCE:

Visiting Researcher, Environmental and Resources, RWI – Leibniz Institute for Economics Research, Essen, Germany, March 2025-April 2025

Research Assistant to:

Dr. Jiehong Lou, University of Maryland**,** May 2024-present

Dr. Anna Alberini, University of Maryland**,** June 2024-present

Dr. Rebecca Epanchin-Niell, University of Maryland**,** June 2022-Jan 2024

Dr. Kenneth L. Leonard**,** University of Maryland, Jan 2021-Aug 2021

Dr. Jack Willis, Columbia University**,** May 2019-Dec 2019

Dr. Martin Rotemberg, New York University, May 2019-Dec 2019

TEACHING EXPERIENCE:

Teaching Assistant to:

Dr. Jorge Holzer, University of Maryland, College Park, MD, AREC610: Microeconomic Applications in Agricultural and Resource Markets (Ph.D. core course), Spring 2024, Spring 2022

Dr. Kenneth L. Leonard, University of Maryland, College Park, MD, AREC260: The Science of Gender in Economics and Development, Fall 2021

Dr. Michel Leonard, Columbia University, New York, NY, GR5293: Topics in Data Science: Applied Machine Learning for Financial Modeling (Graduate), Spring 2020

AWARDS:

- Academic Mentorship Award, Institute for Humane Studies, 2025 ($8000)
- Humane Studies Fellowship, Institute for Humane Studies, 2025 ($5000)
- Residency Funding, Institute for Humane Studies, 2025 ($5000)
- Humane Studies Fellowship, Institute for Humane Studies, 2024 ($2500)
- Dean's Fellowship, University of Maryland, 2020 ($5000), 2023 ($2500), 2024 ($5000)
- International Conference Student Support Award, University of Maryland, 2024
- Jacob K. Goldhaber Travel Grant, University of Maryland, 2023, 2024
- Magna Cum Laude Honor Graduate, University of Maryland, 2018
- Ray A. Murray Scholarship, University of Maryland, 2016–2018
- China Merited Undergraduate Student Scholarship, China Agricultural University, 2014–2016
- China National Scholarship, China Agricultural University, 2014–2015

PROFESSIONAL SERVICE:

Referee: Energy Economics, 2024, 2025
Discussant: Nordic Annual Environmental and Resource Economics (NAERE) Workshop, Bergen, Norway, June 2024
Mentor: AREC First Year Ph.D. Student Mentor, University of Maryland, 2024
Committee: AREC Search Committee for Assistant Director for the Ph.D. Program, University of Maryland, 2023

ACADEMIC ORGANIZATIONS:

- Association of Environmental and Resource Economists
- European Association of Environmental and Resource Economists
- Agricultural and Applied Economics Association

MEDIA COVERAGE:

Invited Contributor, Uncommon Econ Curriculum Project: Featured in an educational video on Production, Costs, and Regulation in the Sugarcane Industry, Spring 2024. https://www.uncommonecon.com/episode2

SKILLS:

R, Stata, MATLAB, Python, SQL, JavaScript

LANGUAGES:

English (fluent), Chinese (native)

REFERENCES:

Dr. Anna Alberini (primary advisor), Department of Agricultural and Resource Economics, 2210 Symons Hall, University of Maryland, College Park, MD, 20742; 301-405-1267; aalberin@umd.edu

Dr. Maureen Cropper, Department of Economics, University of Maryland, 4106A Tydings Hall, College Park, MD, 20742; 301-405-3483; mcropper@umd.edu

Dr. Colin Vance, Environment and Resources, RWI – Leibniz Institute for Economic Research; Constructor University Bremen, 45030 Essen, Germany; +49 201 8149 237; Colin.Vance@rwi-essen.de

PAPER ABSTRACTS:

Diesel Bans and Environmental Trade-Offs: The Car Market and Emissions in Germany

Abstract: In response to persistently high nitrogen dioxide concentrations exceeding EU air quality limits, several German cities have implemented driving bans on older, more polluting diesel vehicles, typically those meeting Euro 5 emission standards or earlier. While these localized bans targeting high-emitting diesel vehicles aim to reduce urban air pollution, they may also reshape vehicle markets through both behavioral expectations and policy enforcement. This paper examines how both regulatory signals and implemented diesel bans influence vehicle markets and local air quality in Germany. Exploiting variation in the staggered timing of legal and policy actions across cities and applying difference in differences and synthetic control methods, I find that regulatory signals led to sharp and sustained declines in used diesel registrations, approximately 10 percent across all emission categories, accompanied by increases in used gasoline registrations of 3.5 to 7.7 percent, particularly among mid-range emission categories. Turning to the new vehicle market, I document that private households respond by increasing gasoline registrations, while company purchases remain largely unchanged. These behavioral shifts are associated with statistically significant improvements in local air quality, including reductions in nitrogen dioxide concentrations and the composite Air Quality Index. To assess the realized effects of regulation, I then examine the market consequences of actual diesel ban implementation using detailed car level listing data from one of Europe's largest online marketplaces. I find that the bans reduced prices of restricted diesel vehicles by 3 to 5 percent, while prices of non-restricted diesel and gasoline vehicles remained largely unaffected. Moreover, the overall number of listings remained unchanged, suggesting that sellers adjust prices rather than withdraw from the market. These findings contribute to a growing body of literature on behavioral responses to climate and air quality policies, underscoring the need to evaluate regulation not only at the point of enforcement but also at the point of expectation.

The Distributional Effects of Tighter Regulations: New Evidence from the Sugarcane Burning in Florida

Abstract: Environmental regulations shape the spatial distribution of pollution, influencing the burden on different communities. In South Florida, wind-based sugarcane burning regulations have historically favored wealthier, densely populated areas by limiting burning during specific wind conditions. In 2019, additional restrictions were introduced to limit burning on days with low air quality. By using satellite fire data and Aerosol Optical Depth (AOD) data, I assess the impact

of these stringent restrictions on burning and air pollution. Results reveal a 41 percent decrease in burning on restricted days within the main cultivation area, potentially leading to increased burning on days without restrictions. This unintended consequence exacerbates air quality issues for the region's most vulnerable populations. The study reveals that regulatory enhancements can inadvertently exacerbate environmental inequities, underscoring the need for environmental justice policies that address historical and systemic discrimination in pollution distribution.

Coastal Agricultural Land Use Adaptation to Sea Level Rise and Saltwater Intrusion
Abstract: Coastal areas face increasing risks from sea level rise and storm surge, including agricultural lands susceptible to inundation and saltwater intrusion. This study examines how farmers adapt to these impacts in a low-lying, ecologically important region of the Mid-Atlantic USA. Using fine-scale land use data, we analyze shifts in agricultural lands, such as transitions away from salt-sensitive crops (e.g., corn) and conversion to wetlands. We relate field-level crop rotation and land cover to local sea level and soil conditions using multinomial logit models with bootstrapped sampling of fields across years. We find that lower elevation fields – likely to be affected by more frequent inundation and coastal influences – are more likely to have transitioned out of agriculture to woody or herbaceous wetlands and, if remaining in agriculture, are less likely to be planted in corn than in other grain crops. Our predictions suggest that by 2050, 10.5% of fields will convert to wetlands, with a decline in agricultural area. Understanding these land use changes aids in climate adaptation planning and resource management to support regional goals.