Xianru Han

E-mail: xhan1236@umd.edu **Website**: https://xianru-han.netlify.app

EDUCATION

University of Maryland, College Park, MD **08/2020 – expected 05/2025**

Ph.D. in Agricultural and Resource Economics

Columbia University, New York, NY **09/2018 - 02/2020**

M.A. in Statistics

University of Maryland, College Park, MD **08/2016 - 05/2018**

B.S. in Agricultural and Resource Economics & Statistics

China Agricultural University, Beijing, China **09/2014 - 06/2016**

B.A. in Economics

FIELDS OF SPECIALIZATION

Environmental & Energy Economics, Applied Econometrics

RESEARCH EXPERIENCE

Research Assistant for Rebecca Epanchin-Niell, University of Maryland **07/2022 - 01/2024**
Research Assistant for Kenneth L. Leonard, University of Maryland **01/2021 - 08/2021**
Research Assistant for Jack Willis, Columbia University **05/2019 - 12/2019**
Research Assistant for Martin Rotemberg, New York University **05/2019 - 12/2019**

WORKING PAPERS

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, we assess the impact of these stringent restrictions on burning and air pollution. Results reveal a 41% 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 regulatory enhancements inadvertently worsen environmental inequities, highlighting the need for environmental justice policies that address historical and systemic discrimination affecting pollution distribution.

A Burning Issue: The Effects of Wildfire Smoke Exposure on Consumer Behavior and Sales of Medical Supplies (joint with Wenying Li and Haoluan Wang)
Abstract: Wildfire events have increased in frequency and severity across the United States in recent decades. While a growing literature has documented the effects of wildfire smoke exposure on a wide range of health and socioeconomic outcomes, little is known about its impact on consumer behavior and household demand for adaptation in healthcare. We combine a newly developed and digitized dataset on daily wildfire smoke PM2.5 concentrations across the contiguous United States during 2006-2019 with weekly Nielsen retail scanner data to quantify how wildfire smoke exposure affects retail sales of air purifiers, bottled water, cold remedies, nasal products, cough products, and nutritional products. We find a positive and statistically significant impact of wildfire smoke exposure on the retail sales of these products. Dynamic effects are evident as wildfire smoke exposure in previous weeks also increases current sales. Nonlinear effects arising from the varying intensity of wildfire smoke exposure also reveal distinct patterns of demand for adaptation. We further explore how the effects of wildfire smoke exposure vary with socio-demographic characteristics, focusing on social vulnerability and highlighting the implications of environmental justice. Our results underscore the need for proactive policies to address the increased demand for medical and healthcare products as household adaptive measures during the wildfire season,

particularly targeting socioeconomically vulnerable populations who may be prone to limited access to other preventive measures against wildfire.

Coastal agricultural land use adaptation to sea level rise and saltwater intrusion (joint with Rebecca Epanchin-Niell, Alexandra Thompson, Jessica Post, Jarrod Miller, Dave Newburn, Keryn Gedan and Kate Tully)
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.

WORKS IN PROGRESS

- Movements of CO_2-intensive goods across more and less regulated jurisdictions

CONFERENCE & SEMINAR PRESENTATION

- 2023: Heartland Environmental & Resource Economics Workshop, 24th CU Environmental & Resource Economics Workshop, AAEA Annual Meeting, AERE Summer Conference, Interdisciplinary Ph.D. Workshop in Sustainable Development (IPWSD)
- 2022: UMD AREC Egg Timer
- 2021: Berkeley/Sloan Summer School in Environmental and Energy Economics

TEACHING EXPERIENCE

- Teaching Assistant, Applied Microeconomics (graduate), University of Maryland, Spring 2022, Spring 2024
- Teaching Assistant, Gender in Economics and Development (undergraduate), University of Maryland, Fall 2021
- Teaching Assistant, Applied Machine Learning for Financial Modeling (graduate), Columbia University, Spring 2020
- Academic Math Tutor, ASCDU, University of Maryland, Spring 2017, Fall 2017, Spring 2018

PROFESSIONAL SERVICE

- UMD AREC First Year PhD Student Mentor (2023-2024)
- UMD AREC Search Committee for Assistant Director for the PhD Program (2023)

HONORS & SCHOLARSHIPS

University of Maryland, College Park

- Dean's fellowship **2020, 2023**
- Jacob K. Goldhaber Travel Grant **2023**
- Magna Cum Laude Honor Graduate **2018**
- Ray A. Murray Scholarship **2016 - 2018**

China Agricultural University

- China Merited Undergraduate Student Scholarship **2014 - 2016**
- China National Scholarship awarded by Chinese government **2014 - 2015**

SKILLS

R, Stata, Matlab, Python, SQL, JavaScript