Mingzhou Shen

Pennsylvania State University

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Education

Ph.D. Energy, Environmental, and Food Economics, Pennsylvania State University	2025 (Expected)
M.S. Civil Engineering, Zhejiang University	Dec. 2019
B.E. Civil Engineering, Zhejiang University	Jun. 2016

Research Interests

Environmental and Energy Economics, Urban Economics, Labor Economics, Empirical Industrial Organization, Causal Inference

Teaching Fields

Microeconomics, Econometrics, Environmental and Energy Economics, Urban Economics, Geographic Information Systems, Applied Computational Economics, Empirical Industrial Organization, Supervised Machine Learning

Job Market Paper

Drought responses in the Western United States: Household location choice and housing market feedback.

Abstract: The Western U.S. is grappling a paradoxical challenge: rapid population growth amidst increasingly severe droughts, resulting in a severe water crisis. This study uses a residential sorting model to analyze household location decisions and the welfare implications in response to drought risk from 2000 to 2020. A key innovation is the use of novel unmet water demand data that, for the first time, integrates the legal dimension of water allocation—water rights—with water availability. Our findings show that households require significant compensation to move to areas with greater water scarcity. On average, they expect a 0.06% increase in annual wages to tolerate an additional cubic meter of unmet water demand. Notably, households over 40 and homeowners demand even higher compensation. This welfare impact is primarily driven by the direct disutility of water shortages rather than by housing cost shocks. These insights can help guide policies addressing adaptation and equity concerns in the face of climate change.

Publications

Journal Article in Economics

[1] Shen, M., Fisher-Vanden, K. and Wrenn, D. 2024. "Impacts of water-related building moratoria on California's housing crisis." (forthcoming at *Land Economics*) [link]

Journal Articles in Engineering (Published prior to my transition to Economics)

[1] Yi, N., Shen, M., Erdely, D. and Cheng, H. 2020. "Stretchable gas sensors for detecting biomarkers from humans and exposed environments." *TrAC Trends in Analytical Chemistry*, 133, 116085. [link]

[2] Lü, C., Zhang, Y., Zhang, H., Zhang, Z., Shen, M. and Chen, Y. 2019. "Generalized optimization method for energy conversion and storage efficiency of nanoscale flexible piezoelectric energy harvesters." *Energy Conversion and Management*, 182, 34-40. [link]

[3] Zhang, H., Shen, M., Zhang, Y., Chen, Y. and Lü, C. 2018. "Identification of static loading conditions using piezoelectric sensor arrays." *Journal of Applied Mechanics*, 85(1), 011008. [link]

Book

[1] FAO and CAAS. 2021. Carbon neutral tea production in China – Three pilot case studies. *FAO*. (Contributor). [link]

Working Papers and Work in Progress

[1] Shen, M. "How does drought shape land-use regulations? Evidence from the Wharton regulation survey."

[2] Shen, M. "Evaluating the impact of California statewide lawn watering ban on water conservation using remotely sensed data."

[3] Ma, Z. and Shen, M. "The impact of non-GMO labeling on consumer demand for wine: Evidence from a choice experiment."

Presentations

2024 AERE Summer Conference; WEAI Annual Conference; AAEA Annual Meeting; CU Environmental and Resource Economics Workshop; Penn State Water Conference; Penn State Energy and Environmental Economics and Policy Initiative Seminar

2023 AERE Summer Conference; WEAI Annual Conference; Cornell Northeast Workshop on Energy Policy and Environmental Economics

2022 Environmental Politics and Governance Conference

Research Experience

Pennsylvania State University, Research Assistant for Karen Fisher-Vanden   2021-Present

o Conducted interdisciplinary research with the Program on Coupled Human and Earth Systems, focusing on the effects of drought on labor and housing markets in the Western U.S.

Teaching Experience

CED 201: Introductory Environmental and Resource Economics. Douglas H. Wrenn.   Spring 2024
Teaching Assistant and Guest Lecturer

EMCH 210: Statics and Strength of Materials. Samia Suliman.   Spring 2021
Teaching Assistant

EMCH 212: Dynamics. Christopher Kube.   Fall 2020
Teaching Assistant

EMCH 212: Dynamics. Gary Gray.   Spring 2020

Teaching Assistant

Professional Experience

Food and Agriculture Organization of the United Nations HQs   Feb. 2019-Nov. 2019
Intern

o Contributed to a carbon-neutral tea project in collaboration with the German Federal Ministry for Economic Cooperation and Development and the Chinese Academy of Agricultural Sciences, assisting in the transfer of tea planting technology to Kenya.

o Supported a rural community project in Honduras focused on enhancing farmers' climate resilience.

Scholarships and Awards

Graduate Student Travel Award, Pennsylvania State University	2024
Longenecker Award, Pennsylvania State University	2020
Outstanding Graduates, Zhejiang University	2016
Corporate Scholarships for Outstanding Students, Enterprises	2015/2017/2018

Service

Penn State Energy, Environmental, and Food Economics Graduate Student Association	2022-present
Penn State Water Council	2023-present
Penn State Alumni Association - Blue & White Society	2020-2023

Skills

Software: Python, R, MATLAB, Stata, ArcGIS, GAMS, Java

Languages: English (fluent), Mandarin (native)

References

Dr. Karen Fisher-Vanden (advisor)
Distinguished Professor of Environmental and
Resource Economics and Public Policy
Pennsylvania State University
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Dr. Qin Fan
Professor of Economics
California State University, Fresno
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Dr. Douglas H. Wrenn
Associate Professor of Environmental and
Resource Economics
Pennsylvania State University
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