QIFAN SHAO

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EDUCATION

University of Southern California, Los Angeles, August 2022 – Present
Ph.D. Candidate (Expected graduation: 2027 Spring), Urban Planning and Development
Committee: Dr. Marlon Boarnet (Chair), Dr. Genevieve Giuliano, Dr. Geoff Boeing
Sol Price School of Public Policy

Peking University, China 2022
Master of Science, Urban and Regional Planning
School of Urban Planning & Design

Northwest A&F University, China 2019
Bachelor of Science, Human Geography and Urban Planning
School of Natural Resources and Environment

JOURNAL ARTICLES

Boarnet, M., **Shao, Q.**, and Pilgram, C., 2024. Monetary Cost, Time Cost, and Mode Choice: Transit and Ridehailing in California. Transportation Research Part D: Transport and Environment, 130, 104149. [Link]

Shao, Q., Zhang, W., Cao, X., and Yang, J., 2023. Built Environment Interventions for Emission Mitigation: A Machine Learning Analysis of Travel-related CO_2 in a Developing City. *Journal of Transport Geography*, 110, 103632. [Link]

Shao, Q., Zhang, W., Cao, X., and Yang, J., 2022. Nonlinear and interaction effects of land use and motorcycles/E-bikes on car ownership. *Transportation Research Part D: Transport and Environment*, 102, 103115. [Link]

Shao, Q., Zhang, W., Cao, X., Yang, J., and Yin, J., 2020. Threshold and moderating effects of land use on metro ridership in Shenzhen: Implications for TOD planning. *Journal of Transport Geography*, 89, 102878. [Link]

OTHER PUBLICATIONS

Boarnet, M. G., Giuliano, G., Pilgram, C., Chen, R., and **Shao, Q.**, 2024. Navigating California's Transition to Zero-Emission Drayage Trucks. [Link]

Comandon, A., Boarnet, M. G., Gross, J., and **Shao, Q.**, 2024. The Environmental Impact and Policy Implications of Supercommuting in the Northern California Megaregion. [Link]

WORKING PAPERS AND WORK IN PROGRESS

Shao, Q., 2026. Disentangling Self-Selection from the Impact of Electric Vehicle Ownership on Household Travel. Submitted to the *2027 Transportation Research Board Annual Meeting*, under review.

Shao, Q., Giuliano, G., Zhang, J., Hu, H., Liu, S., Boarnet, M., 2026. Social and Environmental Life Cycle Assessment of Heavy-Duty Electric Truck Battery Manufacturing in China and the US. Submitted to the *2027 Transportation Research Board Annual Meeting*, under review.

Liu, S., Hu, H., **Shao, Q.**, Giuliano, G., Zhang, J., Boarnet, M., 2026. Comparative Social Life Cycle Assessment of Lithium-Ion Battery and Hydrogen Fuel Cell Systems for Heavy-Duty Transportation. Submitted to the *2026 American Geophysical Union (AGU) Annual Meeting*, under review.

Shao, Q., 2026. Re-examine the rebound effect of fuel efficiency on vehicle travel in an updated context (in progress).

TEACHING EXPERIENCE

Lab Instructor

- Survey Design Lab for Master of Public Policy and Master of Public Affairs, University of Southern California, 2026 Spring (in-person).
  - Lab Session: Interpreting Survey Data for Policy and Program Management.

Teaching Assistant

- Data, Evidence, and Communication for the Public Good, University of Southern California, 2024 Fall (in-person), instructor: Prof. Geoff Boeing.

Guest Lecturer:

- Big Data, Machine Learning, Planning & Design: Theories, Methods, and Visualization, Peking University, 2022 Spring (online), 2023 Spring (online).
  - Lecture Topic: Application of decision trees in transportation planning.

RESEARCH EXPERIENCE

Research Assistant at University of Southern California, Los Angeles. 2022 - Present

Supervisor: Prof. Genevieve Giuliano, Prof. Marlon Boarnet, and Prof. Jiachen Zhang, University of Southern California

- **Assessing opportunities for onshoring new truck engine technologies**
  Using the Social Hotspot Database (SHDB) and the Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) model to explore how social and

environmental impact changes if restructuring the supply chain by onshoring parts for the battery production process for Class 8 heavy-duty electric trucks from China to the US.

Supervisor: Prof. Genevieve Giuliano, Prof. Marlon Boarnet, and Prof. Jiachen Zhang, University of Southern California

- **Comparative Social Life Cycle Assessment of Lithium-Ion Battery and Hydrogen Fuel Cell Systems for Heavy Duty Transportation**
  Applying the Social Hotspot Database (SHDB) to compare the potential societal impacts of battery electric and fuel cell electric power systems for Class 8 heavy-duty trucks. This research evaluates cradle-to-gate supply chains for a lithium-ion battery pack and a Proton Exchange Membrane Fuel Cell (PEMFC) system, including raw material production, component manufacturing, and final assembly.

Supervisor: Prof. Genevieve Giuliano, Prof. Marlon Boarnet, and Prof. Jiachen Zhang, University of Southern California

- **Social Life Cycle Analysis of Zero Emission Heavy-Duty Trucks**
  Conducting an in-depth social life cycle assessment (S-LCA) for heavy-duty truck electric batteries and fuel cell batteries to assess the social and socio-economic aspects of various truck powertrains and their positive and negative impacts from cradle to gate.

Supervisor: Prof. Marlon Boarnet and Prof. Andre Comandon, University of Southern California

- **The Environmental Impact and Policy Implications of Supercommuting in the Northern California Megaregion**
  Assessing the environmental impacts of supercommuting in the Northern California Megaregion. The purpose of the research is to assess the prevalence of and trends in very long-distance commuting, and how supercommuting contributes to transportation-linked greenhouse gas (GHG) emissions.

Supervisor: Prof. Marlon Boarnet, University of Southern California; Prof. Seva Rodnyansky, Occidental College

- **Affordable Housing and Sustainable Communities**
  Using the American Housing Survey (AHS), the project estimates the vehicle miles traveled (VMT) by unit square feet and number of bedrooms per unit while controlling for demographics relevant to VMT.

Supervisor: Prof. Genevieve Giuliano, University of Southern California

- **Supply Chain Integration, Resilience, and Trust** [Link]
  Using life cycle assessment (LCA) to estimate the size and spatial distribution of the environmental, social, and economic impacts of a supply chain on each life cycle stage to understand the policy effects involved. Improve the understanding of the policy environment in ways that support a more integrated, resilient, and trusted supply chain.

Supervisor: Prof. Marlon Boarnet and Prof. Genevieve Giuliano, University of Southern California

- **Zero Emission Heavy Duty Trucks and California's Advanced Clean Fleet Rules**
  The California Air Resources Board (CARB) approved a first-of-its-kind rule that requires a phased-in transition toward zero-emission for medium- and heavy-duty vehicles, which is known as the Advanced Clean Fleet (ACF) Regulation. Understand and summarize the ACF Regulation, the technologies that can meet the zero-emission requirements, and factors that will influence the pace of adoption of zero-emission trucks and estimate growth in demand for trucking services.

Supervisor: Prof. Marlon Boarnet, University of Southern California

- **Exploring the Effects of Monetary and Time Cost on Travel Mode Choice**
  Applied a discrete choice model to explore traveler's mode choices and estimate cross-price and cross-time elasticities for TNC services and transit versus other modes, using the travel diary survey data collected by Metropolitan Transportation Commission (MTC) targeting TNC users.

Research Assistant at Peking University, China 2019 - 2022

Supervisor: Prof. Wenjia Zhang, Peking University
Minor advisors: Prof. Jason Cao, University of Minnesota; Prof. Jiawen Yang, Peking University

- **Effects of Built Environment on Travel-related CO_2 Emissions in Zhongshan**
  Quantified the impact of the built environment on travel-related CO_2 emissions to inform planners of built environment interventions for low-carbon transportation, using the 2019 data from Zhongshan.

- **Nonlinear and interaction effects of land use and motorcycles/E-bikes on car ownership**
  Used the Zhongshan data to estimate the nonlinear and interaction effects of the built environment and motorcycles/E-bikes on car ownership, and inferred implications for mitigating the growth of car ownership.

- **Threshold and Moderating Effects of Land Use on Metro Ridership in Shenzhen**
  Applied a machine learning algorithm to examine the influential factors of metro ridership in Shenzhen, identified their threshold and moderating effects, and proposed land use planning guidelines adaptive to the network position of stations.

ACADEMIC CONFERENCE PRESENTATIONS

Shao, Q., Giuliano, G., Zhang, J., Hu, H., Liu, S., Boarnet, M., 2026. Social and Environmental Life Cycle Assessment of Heavy-Duty Electric Truck Battery Manufacturing in China and the US. In: 2026 Association of Sustainable Transportation Researchers (ASTR) Annual Conference, University of California, Davis, October 27-29, 2026.

Shao, Q., 2026. Disentangling Self-Selection from the Impact of Electric Vehicle Ownership on Household Travel. In: 2026 Association of Collegiate Schools of Planning (ACSP) Annual Conference, Pittsburgh, October 8-10, 2026.

Shao, Q., 2026. Examining the Impact of Electric Vehicle Adoption on Household Vehicle Miles Traveled. In: The 6th World Symposium on Transport and Land Use Research (WSTLUR), Beijing, China, June 7-11, 2026.

Shao, Q., 2026. Examining the Impact of Electric Vehicle Adoption on Household Vehicle Miles Traveled. In: Pacific Coast Transportation Workshop, University of California, Los Angeles (UCLA), Los Angeles, February 20-21, 2026.

Boarnet, M., **Shao, Q.**, and Pilgram, C., 2024. Monetary Cost, Time Cost, and Mode Choice: Transit and Ridehailing in California. In: 103rd Transportation Research Board (TRB) Annual Meeting, Washington, DC, January7-11, 2024.

Boarnet, M., **Shao, Q.**, and Pilgram, C., 2023. Monetary Cost, Time Cost, and Mode Choice: Transit and Ridehailing in California. In: 2023 Association of Collegiate Schools of Planning (ACSP) Annual Conference, Chicago, October 19-21, 2023.

Boarnet, M., **Shao, Q.**, and Pilgram, C., 2023. Exploring the Effects of Monetary and Time Cost on Travel Mode Choice: A Study of Transit and Ridehailing in California. In: Pacific Southwest Region (PSR) Annual Congress, University of Southern California, Los Angeles, March 17, 2023.

Shao, Q., Zhang, W., Cao, X., and Yang, J., 2023. Effects of Built Environment on Travel-related CO2 Emissions in Zhongshan. In: 102nd Transportation Research Board (TRB) Annual Meeting, Washington, DC, January 8-12, 2023.

Shao, Q., Zhang, W., Cao, X., and Yang, J., 2021. Nonlinear and interaction effects of land use and motorcycles/E-bikes on car ownership. In: 15th International Association for China Planning (IACP) Annual Conference, Virtual, September 10-12, 2021.

Shao, Q., Zhang, W., Cao, X., Yang, J., and Yin, J., 2021. Threshold and moderating effects of land use on metro ridership in Shenzhen: Implications for TOD planning. In: 100th Transportation Research Board (TRB) Annual Meeting, Virtual, January 5-29, 2021.

Shao, Q., Zhang, W., Cao, X., Yang, J., and Yin, J., 2020. Threshold and moderating effects of land use on metro ridership in Shenzhen: Implications for TOD planning. In: 16th Symposium on Spatial Behaviour and Planning, Virtual, 2020.

Shao, Q., Zhang, W., Cao, X., Yang, J., and Yin, J., 2020. Threshold and moderating effects of land use on metro ridership in Shenzhen: Implications for TOD planning. In: Chinese Urban Geography Annual Conference, Virtual, 2020.

PROFESSIONAL SERVICE

Completed peer reviews for *Transportation Research Part B: Methodological; Transportation Research Part D: Transport and Environment; Transportation Research Board; Travel Behaviour and Society; Journal of Transport Geography; Transport Policy; Sustainable Cities and Society;*

Transportation Planning and Technology; npj Sustainable Mobility and Transport; Research in Transportation Economics; Case Studies on Transport Policy; Frontiers in Future Transportation; and COTA International Conference of Transportation Professionals.

HONOR AND AWARD

TRB Annual Meeting Committee AMS50 Best Paper Award, 2021 – for "Nonlinear Effects of Land Use on Metro Ridership in Shenzhen: Implications for TOD Planning"

Outstanding Graduate of Beijing, 2022

Peking University Outstanding Graduate, 2022

Peking University Academic Excellence Award, 2021

Peking University Academic Innovation Award, 2021

Peking University Techand Scholarship, 2021

President Scholarship of NWAFU, 2017

Academic Scholarship of NWAFU, 2016, 2017, 2018

SKILLS

Computer: Python, R, ArcGIS, Stata, Access, AutoCAD, Photoshop, etc.

Statistics: Applied Econometrics, Machine Learning, Spatial Analysis