

Simon Greenhill

Ph.D. Candidate, Agricultural and Resource Economics, University of California, Berkeley

sgreenhill@berkeley.edu ◇ +1 (650) 799-6574 ◇ simondgreenhill.github.io

Citizenship: France, United Kingdom, United States

Education

University of California, Berkeley

Ph.D. in Agricultural and Resource Economics

Expected 2026

Visiting student, Stanford Doerr School of Sustainability, 2024-present

Committee: Solomon Hsiang (co-chair), Joseph S. Shapiro (co-chair), Maximilian Auffhammer, W. Reed Walker

M.S. in Agricultural and Resource Economics

2022

B.A. in Economics and Arabic

2018

High Distinction in General Scholarship

High Honors in Economics

Fields

Environmental economics, urban economics, data science, remote sensing

References

Associate Professor Joseph S. Shapiro

Department of Agricultural and Resource Economics and
Department of Economics
University of California, Berkeley
joseph.shapiro@berkeley.edu

Professor Solomon Hsiang

Global Environmental Policy
Doerr School of Sustainability
Stanford University
solhsiang@stanford.edu

Professor Maximilian Auffhammer

Department of Agricultural and Resource Economics and
Political Economy
University of California, Berkeley
auffhammer@berkeley.edu

Professor W. Reed Walker

Haas School of Business and
Department of Economics
University of California, Berkeley
rwalker@berkeley.edu

Job market paper

S. Greenhill, “Noise Pollution and Infant Health.” Available [here](#).

Abstract: Noise, or unwanted sound, is ubiquitous in urban environments. I introduce a new approach to measuring noise at scale using seismometers and compile the largest publicly available database of ambient noise. Using a research design leveraging idiosyncratic variation in electric passenger rail noise exposure, I estimate the impact of noise pollution on infant health. In utero noise pollution exposure harms health at birth. A 5% increase in average noise levels during pregnancy lowers an overall index measure of infant health by 4 percent of a standard deviation, equivalent to one-third of the Black-White gap in the index. This effect is driven by nighttime noise, suggesting disruptions to maternal sleep as a main mechanism. Overnight rail services, which account for under 10 percent of overall ridership, generate an average externality of \$14 per trip. In per passenger-mile terms, overnight rail noise externalities are comparable to rush hour traffic congestion externalities from private vehicles. Using seismic data and machine learning, I produce a novel map of noise for the contiguous United States and use this map to assess noise exposure and costs nationally. Eighty percent of urban residents are exposed to potentially harmful levels of nighttime noise. I estimate that the cost of noise pollution due to harms to health at birth is \$8.4 billion per year. Urban, Black, and Hispanic Americans disproportionately bear these costs.

Peer-reviewed papers

Authors ordered according to contribution, with senior author last. * denotes equal contribution.

S. Greenhill, S. Hsiang, C. Balboni, L. Barrage, I. Bolliger, J. Boomhower, D. Diaz, H. Druckenmiller, T. Garg, M. Hino, H. Hong, C. Kousky, J. Martinich, I. Nath, K. Oremus, R. J. Park, T. Phan, J. Proctor, W. Rafey, M. Sarofim, W. Schlenker, and B. Simon, “Using Markets to Adapt to Climate Change” *Science* 391 (2026). DOI: [10.1126/science.aea7431](https://doi.org/10.1126/science.aea7431)

S. Greenhill, H. Druckenmiller, S. Wang, D. A. Keiser, M. Girotto, J. K. Moore, N. Yamaguchi, A. Todeschini, and J. S. Shapiro, “Machine Learning Predicts Which Rivers, Streams, and Wetlands the Clean Water Act Regulates” *Science* 383 (2024). DOI: [10.1126/science.adl3794](https://doi.org/10.1126/science.adl3794)

S. Hsiang*, **S. Greenhill***, J. Martinich, M. Grasso, R. M. Schuster, L. Barrage, D. B. Diaz, H. Hong, C. Kousky, T. Phan, M. C. Sarofim, W. Schlenker, B. Simon, and S. E. Sneeringer, “Ch. 19. Economics.” In: *The Fifth National Climate Assessment* (2023). DOI: [10.7930/NCA5.2023.CH19](https://doi.org/10.7930/NCA5.2023.CH19)

Working papers

S. Greenhill*, B. J. Walker*, and J. S. Shapiro, “Deep Learning Projects Jurisdiction of New and Proposed Clean Water Act Regulation” (Submitted; available [here](#).)

J. Proctor, T. Carleton, T. Chong, T. Fransen, **S. Greenhill**, J. Katz, H. Murayama, L. Sherman, J. Tseng, H. Druckenmiller, and S. Hsiang, “What Can Satellite Imagery and Machine Learning Measure?” (Submitted; available [here](#).)

Selected works in progress

S. Greenhill, N. Nordfors, E. Noda, H. Druckenmiller, J. Ferguson, S. Hsiang, A. Madestam, H. Murayama, C. Paulik, A. Tompsett, and S. Wang, “Combining Aerial Photography and Machine Learning to Map 20th Century African Urban Change” (In prep.)

S. Greenhill and G. Schlauch, “The Local Economic Effects of Data Centers” (In prep.)

S. Greenhill, “The Efficiency of Payments for Species Conservation: Evidence from California Rice Farming” (In prep.)

Teaching experience

Graduate Student Instructor Goldman School of Public Policy, UC Berkeley Fall 2022
Course: *Spatial Data and Analysis (second year MPP)*; Average student evaluation score: 4.9/5.0

Professional experience

Doctoral Fellow, Global Policy Laboratory	2021-present
Graduate Student Researcher for Joseph S. Shapiro, UC Berkeley	2022-present
Graduate Student Researcher for Solomon Hsiang, UC Berkeley	2021-2023
Graduate Student Researcher for Maximilian Auffhammer, UC Berkeley	2020-2021
Pre-Doctoral Fellow, Energy Policy Institute at Chicago and Climate Impact Lab	2018-2020

Honors and awards

Philomathia Graduate Fellowship in the Environmental Sciences	2025
Bakar Innovation Fellowship	2024
Giannini Foundation for Agricultural Economics Mini-grant	2024
Science Protostar	2024
Giannini Foundation for Agricultural Economics Fellowship	2024

California Policy Lab Graduate Fellowship	2023
Sidney Hoos Award for best second year paper, UC Berkeley ARE	2022
M.J. Vlamis Graduate Student Support Fund awardee, UC Berkeley RCNR	2022
Initiative on Equity in Energy and Environmental Economics mentorship grant	2022
Phi Beta Kappa, UC Berkeley	2018

Service

Student member, UC Berkeley ARE faculty search committee	2024-2025
Economics Chapter, Fifth National Climate Assessment	
<i>Lead Chapter Author</i>	2023
<i>Chapter Author</i>	2022-2023
<i>Technical Contributor</i>	2021-2022
Mentor, Initiative on Equity in Energy and Environmental Economics	2022-2023
Student Representative, UC Berkeley ARE Committee on Diversity, Equity, and Inclusion	2021-2022

Referee Service

Journal of Public Economics, Nature Scientific Data, Urban Analytics and City Science

Conference and external seminar presentations

2025	9th Urbanization and Development Conference; O-Lab Applied Micro Conference; U.S. EPA (Office of Water/National Center for Environmental Economics); UCSB Occasional Workshop
2024	Association of Clean Water Administrators; Columbia IPWSD; Environmental Law Institute Post-Sackett Conference; Morgan Stanley; Trout Unlimited; U.S. EPA (Region 9)
2023	AGU; U.S. EPA (Office of Water); U.S. Treasury (Office of Financial Research)
2022	<i>Land Economics</i> ZTRAX Workshop; TWEEDS

Skills

Programming languages	Python, R, Stata (advanced); Bash (basic)
World languages	French (bilingual), Spanish (advanced), Arabic (proficient)
Software	L ^A T _E X(advanced); QGIS/ArcGIS (intermediate)