Matthew Spitzer Brooks

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Education

Ph.D. Agricultural and Resource Economics, University of California, Davis — Expected June 2026
M.S. Agricultural and Resource Economics, University of California, Davis — 2024
B.A. Economics and Religion, *summa cum laude*, Middlebury College — 2017

References

Katrina Jessoe **(Chair)**
Associate Professor
Department of Agricultural and Resource Economics
University of California, Davis
kkjessoe@ucdavis.edu

Travis Lybbert
Professor
Department of Agricultural and Resource Economics
University of California, Davis
tlybbert@ucdavis.edu

Jamie Hansen-Lewis
Assistant Professor
Department of Agricultural and Resource Economics
University of California, Davis
jhansenlewis@ucdavis.edu

Research Fields

Environmental Economics, Development Economics, Health Economics

Research and Work In Progress

The Pollution–Productivity Curve:
Non-Linear Effects and Adaptation in High-Pollution Environments
with Faraz Usmani, Global Energy Alliance for People and Planet
Abstract. Air pollution harms labor productivity, yet little is known about whether workers adapt to chronic exposure. We address this question using 14 years of individual-level performance data from India's premier cricket league, a setting characterized by some of the highest levels of particulate matter air pollution (PM2.5) and whose schedule and geography result in variation in both acute and chronic exposure histories. We pair these granular performance metrics with an India-specific machine learning data product that incorporates remotely sensed and ground monitor measures of PM2.5. Our findings suggest that both chronic and acute exposure to pollution are costly, but in different ways. A 10 microgram per cubic meter increase in same-day PM2.5 concentration (half a standard deviation in our sample) reduces productivity by about 1 percent, with effects concentrated at the highest pollution levels, indicating a nonlinear dose-response. The dose-response also exhibits surprising heterogeneity: same-day shocks harm those chronically exposed at the highest levels approximately 40 percent less than those with median exposure histories, indicating adaptation. Nevertheless, chronic exposure itself results in performance declines which, though smaller in magnitude than the declines resulting from same-day shocks, far outweigh any protective effect from adaptation. Our findings suggest that standard estimates from low-pollution environments do not capture the dynamics between acute and chronic exposure in high-pollution settings.

Got Goat? The Effects of a Digital Inventory Tool on Livestock Market Outcomes in Rural Nepal
with Travis Lybbert (UC Davis), Conner Mullally (U Florida), Nick Magnan (Colorado State U)

Environmental Justice and the Costs of Accessing Clean Air: Experimental Evidence from California
with Shotaro Nakamura (Pennsylvania State U) and Collin Weigel (California Air Resources Board)

Global Spillovers in Agricultural Technology Development
with Ashish Shenoy (UC Davis)

Publications

Peer-reviewed:

- "A Taste for Taxes: Minimizing Distortions Using Political Preferences." 2019. *Journal of Public Economics*, vol. 180, p. 104055. With Andrea Robbett and Emiliano Huet-Vaughn. Link.

Policy Publications:

- "Does An Innovation's Reach Reveal Anything About Its Impact? Under The Right Conditions: Possibly." 2025. Rome, Italy: Standing Panel on Impact Assessment. With Travis Lybbert and Madeleine Walker. Link to PDF.
- "Evaluation of the Liberia Compact's Mt. Coffee Hydropower Plant Rehabilitation and Capacity Building and Sector Reform: Findings from the Final Round." 2024. Washington, DC: Mathematica. With Candace Miller, et al. Link to PDF.
- "Maternal Health Care Quality Improvement in Rajasthan, India: Insights from a Development Impact Bond Verification Agent." 2021. Washington, DC: Mathematica. With So O'Neil, Divya Vohra, Shveta Kalyanwala, and Dana Rotz. Link to PDF.
- "Jordan Refugee Livelihoods Development Impact Bond Evaluation Framework." 2021. Washington, DC: Mathematica. With Evan Borkum, Paolo Abarcar, and Laura Meyer. Link to PDF.
- "Maternal Health Care Quality and Outcomes Under the Utkrisht Impact Bond: Midline Findings and Insights." 2020. Washington, DC: Mathematica. With So O'Neil, Divya Vohra, Dana Rotz, and Shveta Kalyanwala. Link to PDF.
- "Evaluation of the Liberia Power Compact's Mt. Coffee Hydropower Plant Rehabilitation and Capacity Building and Sector Reform: Baseline and Interim Findings." 2020. Washington, DC: Mathematica. With Candace Miller, et al. Link to PDF.

Research Experience

Graduate Student Researcher
University of California, Davis
with Dr. Travis Lybbert — 2024–present
with Dr. Ashish Shenoy — 2023–2024

Research Analyst
Mathematica Policy Research, Cambridge, MA — 2018–2022

Policy and Communications Associate
Innovations for Poverty Action, New Haven, CT — 2017–2018

Research Assistant
Princeton University, Princeton, NJ and
Busara Center for Behavioral Economics, Nairobi, Kenya
with Dr. Jeremy P. Shapiro — 2016–2017

Fellowships, Honors, and Awards

Henry A. Jastro Graduate Research Award, $3,000, UC Davis	2025
ARE Graduate Travel Award, UC Davis	2025
SurveyCTO Primary Data Collection Research Grant Honorable Mention	2024
J-PAL Full-RCT grant (collaborator), $375,000	2024
Henry A. Jastro Graduate Research Award, $3,000, UC Davis	2024
ARE Graduate Summer Research Fellowship, $4,000, UC Davis	2024
Provost's Fellowship in the Arts, Humanities and Social Sciences, $\approx \$59,000$, UC Davis	2022
Phi Beta Kappa, Middlebury College	2017
Highest Honors in Economics, Middlebury College	2017
Highest Honors in Religion, Middlebury College	2017
Religion Departmental Prize, Middlebury College	2017
Dirks Award (Economics senior of high promise), Nominee, Middlebury College	2017
Fulbright Study/Research Grant Nepal, Semi-Finalist	2017
Thomas J. Watson Fellowship, Semi-Finalist	2017
Kellogg Fellow, $5,000 grant for senior thesis, Middlebury College	2016
College Scholar, Middlebury College	2013-2017

Professional Activities

Conference Presentations & Invited Seminars

Occasional Workshop in Environmental & Resource Economics at UC Santa Barbara	Oct. 2025
University of Massachusetts - Amherst, Resource Economics	Sep. 2025
Agricultural and Applied Economics Association Annual Meeting	Jul. 2025
Indian Statistical Institute, Delhi	Jul. 2025
Association of Environmental and Resource Economists Annual Conference	May 2025
Giannini Foundation of Agricultural and Resource Economics Student Conference	May 2025
University of Colorado Boulder Environmental & Resource Economics Workshop	Sep. 2024

Referee Service

American Journal of Agricultural Economics
Energy Economics

Departmental Service

Member of Principals of the Community Committee	2025–
Teaching Assistant Coordinator	2025–
Graduate Student Association Representative (Alternate)	2024–
Graduate Student Association Representative	2023-2024

Teaching Experience

Teaching Assistant

TA for ARE 100B Intermediate Microeconomics (UC Davis, undegraduate): Imperfect Competition, Markets & Welfare Economics	Winter 2025

Mentoring

Diversity and Inclusion in Research, Education, and Career Training Program (UC Davis) Graduate Inclusive Education and Mentoring Training (GET) Workshop	2025
Middlebury College Alumni Admissions Program Interviewer	2018–
Tutor for Undergraduates in Department of Agricultural and Resource Economics Courses	2025–

Additional

Technical skills:
R, Stata, Python, MATLAB, Julia, Google Earth Engine; LaTeX
In-person fieldwork:
Nepal, Kenya, Liberia
Citizenship
U.S. Citizen

Last updated: November 15, 2025