

# The Gravity of Smoke: Wildfire Smoke Avoidance Costs Revealed by Mobility Data

Clara Berestycki\*  
*Job Market Paper*

[Click here for the most recent version](#)

October 14, 2026

## Abstract

This paper estimates the welfare cost of avoiding wildfire smoke in California in 2018. Using smartphone movement data and a discrete-choice model, I show that people substitute away from smoky destinations and activities, and that air quality alerts increase avoidance behavior. Outdoor trips are reduced the most, but trips to work and other destinations also decline. Based on estimated willingness to travel, these avoidance costs are about \$500M, adding 24% to the mortality burden of the same smoke.

---

\*Columbia University, School of International and Public Affairs, New York, NY, 10027. [csb2196@columbia.edu](mailto:csb2196@columbia.edu). The author thanks Keith Chen for access to anonymized smartphone data. Thanks to Doug Almond, Keith Chen, Jonathan Dingel, Hannah Farkas, Clément Herman, Jessie Lu, Nicolas Longuet-Marx, Robert Metcalfe, Suresh Naidu, Matthew Neidell, Maya Norman, Anna Papp, Jeffrey Shrader, and Stephan Thies for their helpful comments and suggestions. I also thank participants in the Camp Resources workshop, the AECCE workshop, Columbia Sustainable Development and Columbia Trade and Spatial colloquia, and Stanford Global Environment Policy student seminar for their input. The author acknowledges research support from the Center for Political Economy at Columbia University. All errors are my own.