

1. Title: The COVID-19 Pandemic: Government vs. Community Action Across the United States

2. Authors:

- David Van Dijke.
 - Affiliations: 1. Department of Economics, University of Oxford. 2. Institute for New Economic Thinking at the Oxford Martin School, University of Oxford.
 - Email: david.vandijke@economics.ox.ac.uk
- Adam Brzezinski
 - Affiliations: 1. Department of Economics, University of Oxford.
 - Email: adam.brzezinski@economics.ox.ac.uk
- Valentin Kecht
 - Affiliations: 1. Department of Economics, Bocconi University.
 - Email: valentin.kecht@studbocconi.it
- Austin L Wright
 - Affiliations: 1. Harris School of Public Policy, University of Chicago
 - Email: austinwright@uchicago.edu

3. Abstract

Physical distancing reduces transmission risks and slows the spread of COVID-19. Local and regional governments in the United States have issued shelter-in-place policies to mandate physical distancing. Yet compliance with these policies is uneven and may be influenced by beliefs about science and topics of scientific consensus. We theorize that individuals skeptical about the human causes of climate change are less likely to comply with physical distancing orders. Using county-day measures of physical distancing derived from cellphone location data, we demonstrate that the proportion of people who stay at home after lockdown policies go into effect is significantly lower in counties with a high concentration of climate change skeptics. These results are consistent when we study how belief in science influences physical distancing across as well as within Democratic and Republican counties. Our findings suggest public health interventions and messaging about risks associated with COVID-19 that take into account local attitudes towards science may be more effective.

4. Data Description

We analyze differential changes in county-level movement patterns and physical distancing after the implementation of shelter-in-place policies in the United States. Daily panel data aggregated to the county-level from GPS pings of more than 40 million mobile devices, obtained from SafeGraph, allow us to track the percentage of devices that stayed home all day. The latter is defined as the ratio of the number of devices that remained home all day in a given county over the total number of devices observed. A device's home is determined as the common night-time over a 6-week period. The underlying data was collected from various secondary sources by SafeGraph and subjected to an exhaustive 6-step process designed to guarantee reliability, granularity, anonymity and accuracy. The panel of devices in the sample is designed to be geographically and demographically representative, with a 97% correlation between the panel's population density and the American Census's population density at the county level.

To mitigate the spread of COVID-19, county and state governments implemented lockdown policies during the second half of March 2020. We collect implementation dates of state- and county-level school and business closures, and shelter-in-place policies, from various sources. When a policy goes into effect after 12pm on a given day, we assign it an implementation date one day later. We measure beliefs about science using data assembled by \cite{howe2015nature} at the county-level. We focus specifically on local attitudes about the anthropogenic (human) causes of climate change. Despite scientific consensus that humans are the primary cause of present and projected climate change dynamics, there is substantial variability in local \emph{beliefs} about this topic in the United States. We leverage this variation to study how patterns of physical distancing differ across counties with stronger beliefs in science (lower levels of scientific skepticism).

5. JEL Codes

I12, I18, H12, H75, D04

6. Keywords

COVID-19, physical distancing, belief in science, political partisanship