

The Effects of Increased Pollution on COVID-19 Cases and Deaths

Claudia L. Persico

American University and IZA

(with Kathryn Johnson, American University)

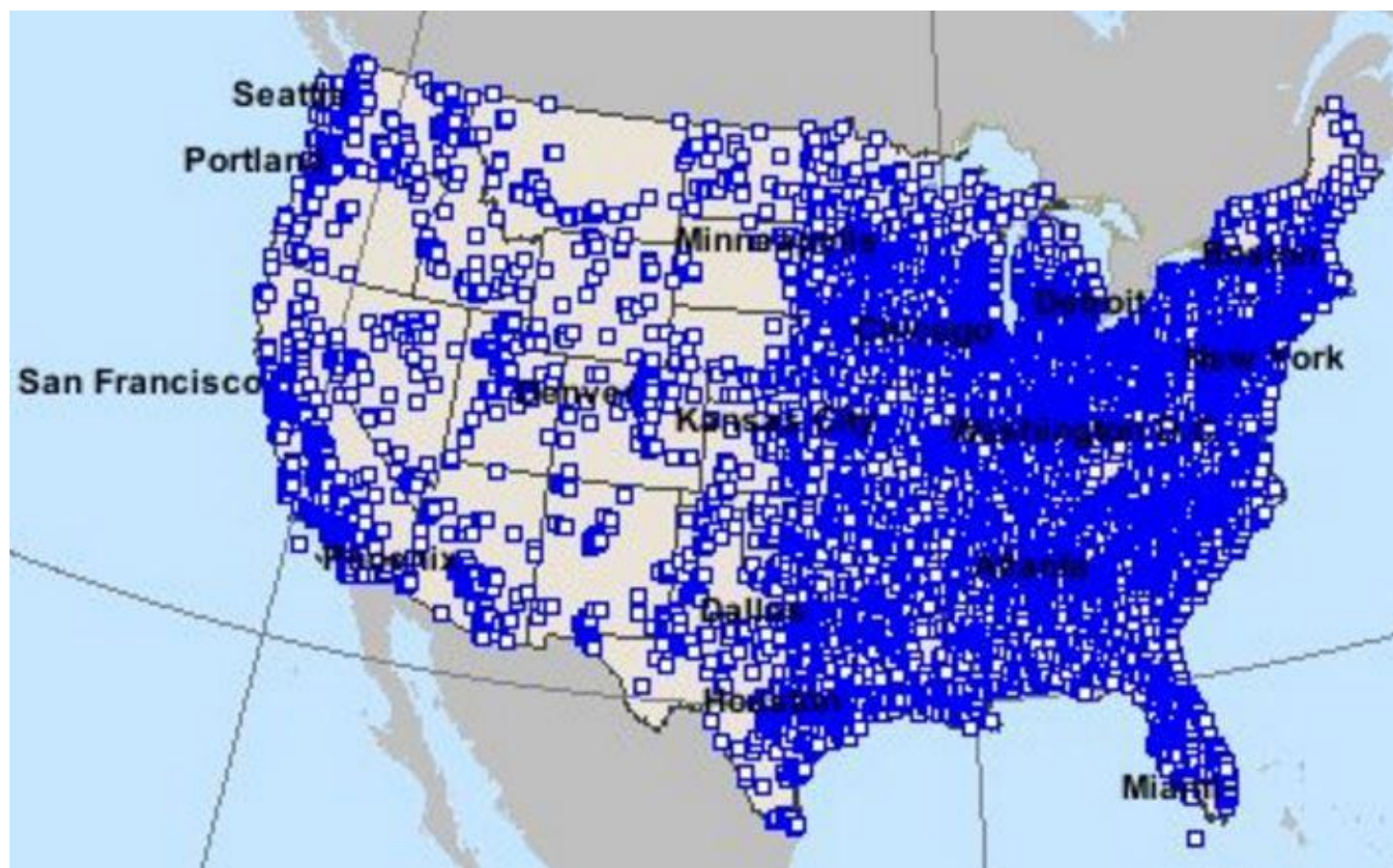
**Air Quality and COVID-19: Connections,
Health Impacts, and Racial Disparities**

American Lung Association Webinar

July 15, 2020

Toxic Release Inventory (TRI) Sites often release numerous developmental neurotoxins and exist in large population centers

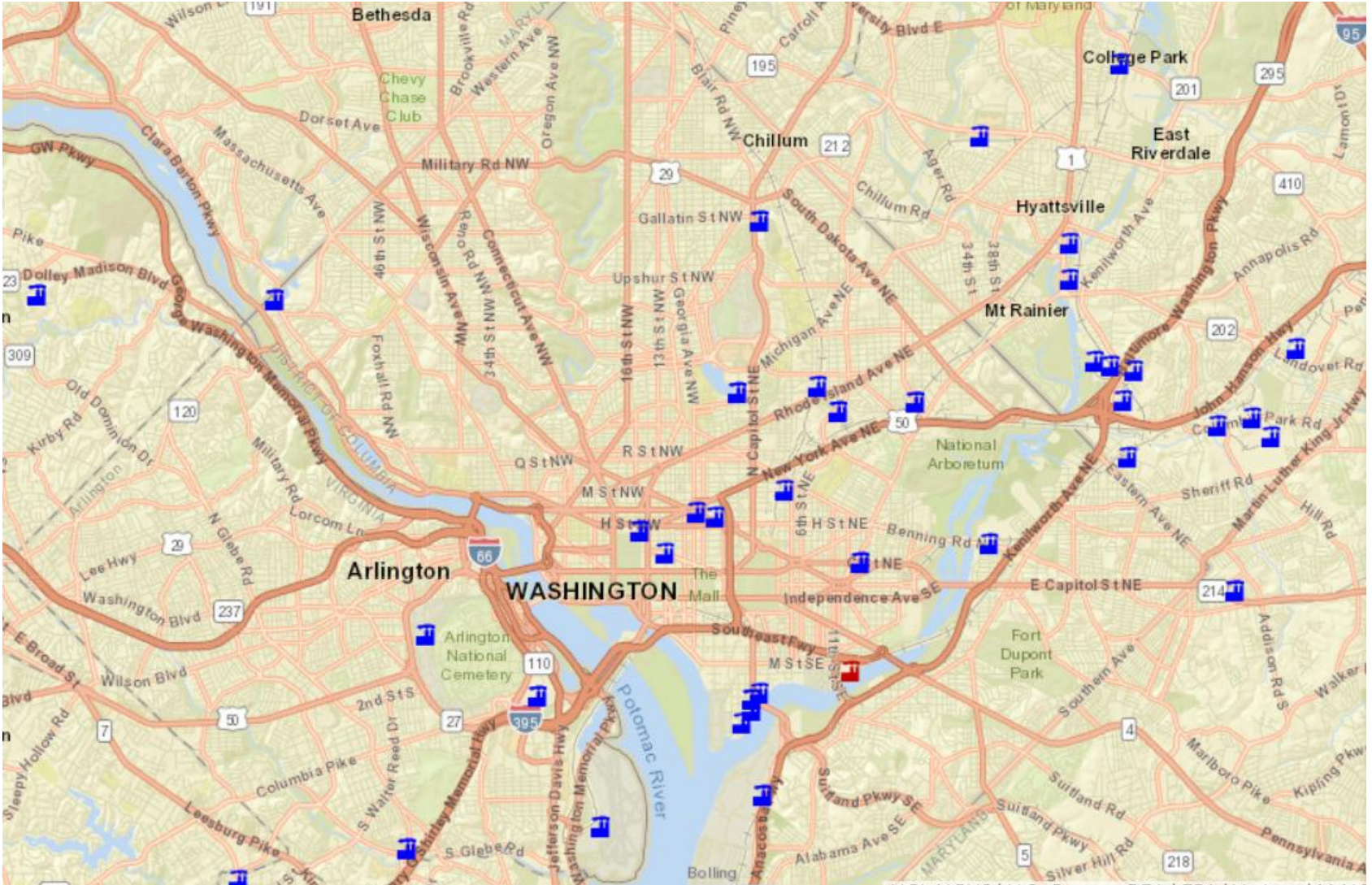
- Toxic Release Inventory (TRI) sites are industrial and federal facilities that release pollution.
- 2/3 of Americans live within 3 miles of a TRI site (200 million people)
- >60 million people live within 1 mile of a TRI site



What do TRI sites look like?



DC Area TRI Sites





Research Questions

- Did the EPA's rollback of environmental enforcement lead to increases in pollution?
- Does exposure to local industrial pollution affect COVID-19 cases and deaths?
- Does pollution exposure affect outcomes differentially by race and socioeconomic status?

On March 26, 2020, the United States Environmental Protection Agency (EPA) announced a freeze in civil enforcement of environmental regulations due to the coronavirus pandemic.



9 states sue EPA for suspending pollution monitoring requirements during coronavirus

BY REBECCA BEITSCH - 05/13/20 04:28 PM EDT

14 COMMENTS

Just In...

1,417 SHARES



Biden seeks to supplant Trump in Georgia

CAMPAIGN — 3M 8S AGO

Swalwell: Trump 'makes us look like geniuses every day for impeaching him'

HOUSE — 27M 46S AGO

With US sidelined, Macron's hubris and hypocrisy are on full display

OPINION — 30M 1S AGO

California bill would force companies like Amazon to guarantee



© Getty Images

Most Popular

- 1 Trump's Mount Rushmore stunt will...**
1,198 SHARES
- 2 The solution to COVID-19 spread...**
1,090 SHARES
- 3 Infectious disease expert: Trump...**
540 SHARES
- 4 Fauci warns new**

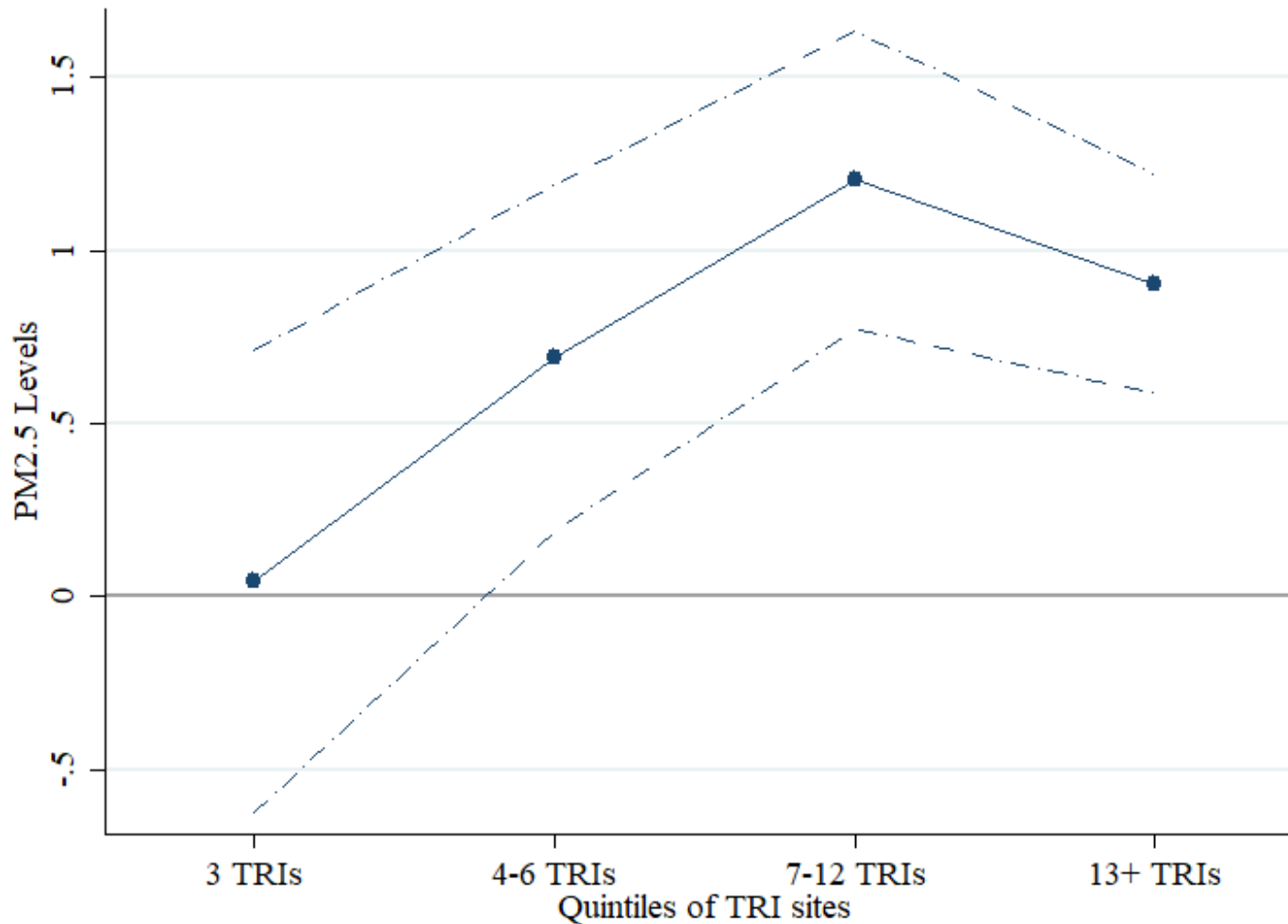
Research Design

- We use daily, county-level data from the Johns Hopkins University on COVID-19 outcomes matched to data from the Environmental Protection agency on air pollution and TRI sites, data from the NOAA on weather, and data from Unacast on daily social distancing. We also control for stay at home orders, reopenings, the days since the first COVID-19 death, day of the week, cumulative cases, and month fixed effects.
- We employ a within-county difference in differences design to estimate whether counties with 6 or more TRI sites experienced increased pollution because of the rollback of environmental regulations and see increases in COVID-19 deaths and cases, compared to counties that had fewer TRI sites (before versus after the rollback on March 26th).

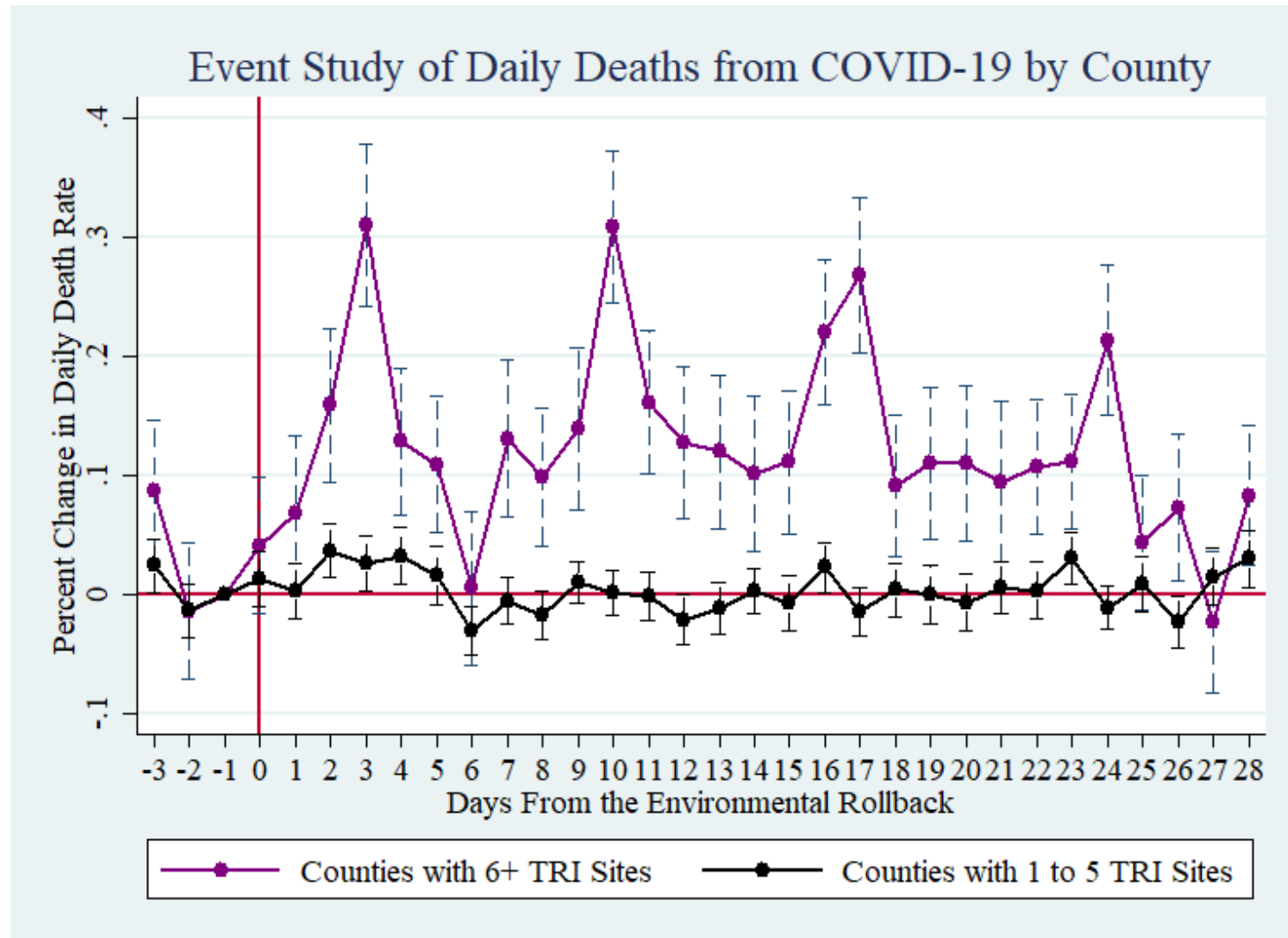
Preview of Results

- Being in a county with 6 or more TRI sites after the EPA's rollback (compared to counties with 1 to 5 TRI sites) results in:
 - 13 percent more PM_{2.5} pollution (about 0.8 ug/m³)
 - Increases in ozone (5% increase) and PM₁₀ (15% increase) as well
 - A 38.8 percent increase in daily cases of COVID-19
 - A 19.1 percent increase in deaths from COVID-19
 - The effects of air pollution on COVID-19 cases and deaths are worse in counties with a higher percentage of Black individuals (a 26.1 percent increase in daily deaths vs a 4.4 percent increase).
 - This suggests that the burden of pollution exposure is unequal and might underly the racial disparities in COVID outcomes.

Counties with more TRI sites saw bigger increases in pollution after the EPA's rollback



Counties with 6 or more TRI sites saw bigger increases in deaths than counties with fewer TRI sites after the rollback



Counties with more TRI sites saw bigger increases in Deaths after the EPA's rollback

