Introduction - A turn in the road? Mobility trends and air quality

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Timeline of COVID-19 policy interventions in the US

Wellenius et al. Nat Comm, 2021
Impacts of social distancing policies on mobility

New York County, New York

Comparing start and end of March

Wellenius et al. Nat Comm, 2021
Timeline of COVID-19 policy interventions in Europe
Impacts of social distancing policies on mobility

Woskie et al. PLOS One, 2021
India Savors a Rare Upside to Coronavirus: Clean Air

Delhi residents are stunned by how blue the sky really is as a strict lockdown cuts back drastically on air pollution.
COVID-19 lockdowns cause global air pollution declines

Zander S. Venter\textsuperscript{a,1}, Kristin Aunan\textsuperscript{b}, Sourangsu Chowdhury\textsuperscript{c}, and Jos Lelieveld\textsuperscript{c,d}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1}
\caption{Changes in air pollution levels during lockdowns.}
\end{figure}

A. NO\textsubscript{2} (\text{\mu g/m}\textsuperscript{3})
B. O\textsubscript{3} (\text{\mu g/m}\textsuperscript{3})
C. PM\textsubscript{2.5} (\text{\mu g/m}\textsuperscript{3})

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\footnotesize{Venter et al. PNAS 2020}
Mobility changes and air pollution anomalies

A

B

Relative pollutant change (%)

100  50  0  -50

-65 -60 -55 -50 -45 -40 -35 -30 -25 -20

Google reports: change in movement to/at workplace (%)

Apple reports: change in driving direction requests (%)

Venter et al. PNAS 2020
COVID-19 pandemic reveals persistent disparities in nitrogen dioxide pollution

Gaige Hunter Kerr, Daniel L. Goldberg, and Susan C. Anenberg

Authors Info & Affiliations

A New York

B Atlanta

C Detroit

$\left( \delta NO_2 \text{ local} - \delta NO_2 \text{ city-average} \right) \times 10^{-15}$

[ mole/ cm$^2$]
“The least White communities experienced the largest NO$_2$ reductions during lockdowns; however, disparities between the least and most White communities are so large that the least White communities still faced higher NO$_2$ levels during lockdowns than the most White communities experienced prior to lockdowns, despite a $\sim 50\%$ reduction in passenger vehicle traffic.”
This Session’s Speakers

- Sara Adar, University of Michigan
- Gloria Jeff, Minnesota DOT
- Travis Fried, University of Washington
- Benjamin Leard, University of Tennessee
- Bill Eisele, Texas A&M