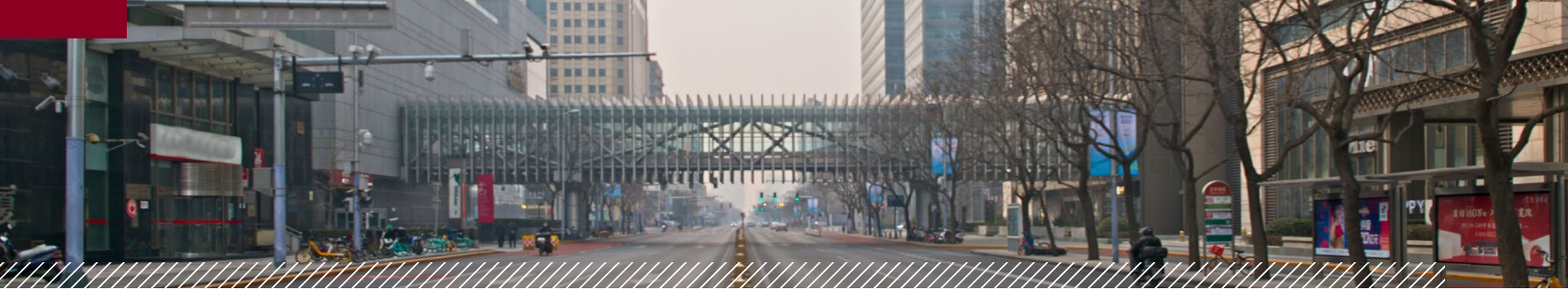


RESEARCH HIGHLIGHT

The Short-term Impacts of COVID 19 Lockdown on Urban Air Pollution in China

by Guojun He, Yuhang Pan, and Takanao Tanaka

Did COVID-19 lockdowns lead to reduced levels of air pollution?

Context

COVID-19, the disease caused by a novel coronavirus that emerged in late 2019, reshaped daily life all over the world. Public officials took dramatic steps to protect public health. In China, the central government locked down one third of its cities, strictly restricting personal mobility and economic activities.

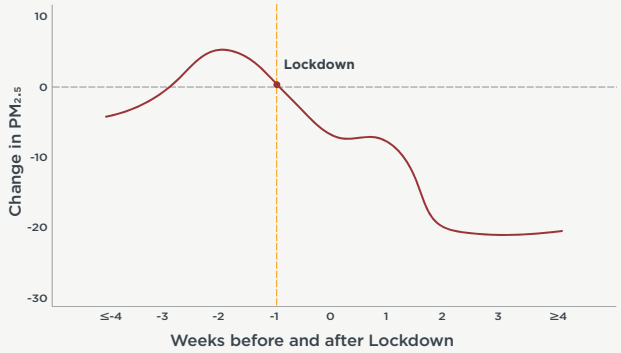
Methods

The researchers collected air quality data from 1,600 monitoring stations from January 1-March 3, 2020. They first evaluated the air quality in cities that were locked down compared to cities not locked down. The cities were considered locked down if unnecessary commercial activities, gatherings of any type, and driving and public transportation were prohibited. The researchers then looked at cities not locked down and compared the air quality in those cities to just before COVID-19 hit, as well as compared to trends in the previous years to see whether national disease preventive measures (extending the Spring Festival holiday, requiring social distancing, and urging people to stay at home) impacted pollution. Further, they evaluated what impact lockdowns may have had across different types of cities in order to shed light on different sources of air pollution in China.

Key Findings

- Overall, the Air Quality Index (AQI) improved by 22 percent and particulate pollution (PM2.5) improved by 24 percent.
- Compared to cities without formal lockdown policies, locked down cities saw their AQI and particulate pollution levels both decline by 17 percent.
- Compared to the previous year, cities not locked down saw a 7 percent decrease in particulate pollution and a 5 percent decrease in the AQI, suggesting that the disease preventive measures matter for air quality in cities even without formal lockdown.
- The effects of the lockdowns on air pollution were greater in cities with a larger economy, greater industrial activities and traffic, and higher demand for coal heating.

The Effects of Lockdown on Air Quality



CLOSING TAKE-AWAY

Even with significant restrictions on daily life and commerce, pollution levels in China were still four times greater than what the World Health Organization considers safe. The study confirms that traffic, industrial and coal heating systems are important sources of air pollution and highlights the necessity to better control emissions from these sources moving forward.