

# What Caused Racial Disparities in Particulate Exposure to Fall? New Evidence from the Clean Air Act and Satellite-Based Measures of Air Quality

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December 15th, 2022

Ohtake-Sasaki Seminar

# Abstract

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- This paper examines the underlying structure that causes racial differences in exposure to ambient air pollution in the United States.
  - The difference have declined significantly over the past 20 years.
- Clean Air Act (CAA) explains the excess convergence in Black-White pollution exposure
  - Areas with larger Black populations saw greater CAA-related declines in PM2.5 exposure
  - Over 60% of the reduction in the racial convergence in PM2.5 pollution exposure since 2000

Introduction

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Decomposing Differences in Pollution Exposure

The Clean Air Act and Relative Changes in Pollution Exposure

Conclusion

- The existing evidence about racial disparities in pollution exposure is largely piecemeal and indirect.
  - Low income and/or racial minorities in the U.S. have been exposed to environmental burdens (Office, 1983; Chavis and Lee, 1987)
  - Lack of monitoring device to track small particulates (Fowlie, Rubin, and Walker, 2019)
  - Alternative measurement: distance to a polluting facility
- Moreover, we know very little about why racial gaps in pollution exposure may have changed over time.

Figure 1: Trends in Pollution Exposure by Race

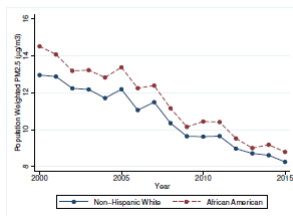
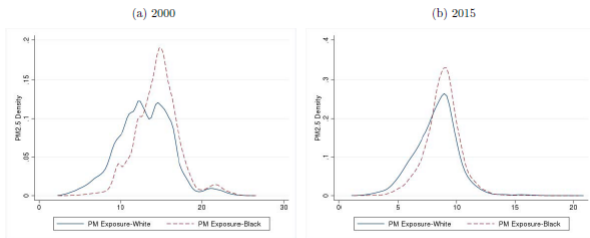


Figure 2: Distributions of Pollution Exposure, 2000 and 2015



NOTES: This figure plots the PM<sub>2.5</sub> density, separately for African-Americans and the non-Hispanic White population in both 2000 and 2015. Due to Census disclosure avoidance review, we were forced to trim the upper 97th and lower 3rd percentiles of each density. Source: Decennial Census, American Community Survey, and Di et al. (2016).

## Section 2

# Data



## Section 3

# Decomposing Differences in Pollution Exposure





## Section 4

# **The Clean Air Act and Relative Changes in Pollution Exposure**



## Section 5

# Conclusion

