

What Caused Racial Disparities in Particulate Exposure to Fall?

New Evidence from the Clean Air Act
and Satellite-Based Measures of Air Quality

**Currie, Voorheis, and Walker (AER,
Forthcoming): Reviewed by R. TANJI**

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Abstract

- 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

Data

Decomposing Differences in Pollution Exposure

The Clean Air Act and Relative Changes in Pollution Exposure

Conclusion

Section 1

Introduction

Motivation

- 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.

Procedure

- Data: newly available national data on PM2.5 exposure from 2000 to 2015
 - 1km-grid measures of ambient air pollution levels for the entire United States

Contributions

Figure 1: Trends in Pollution Exposure by Race

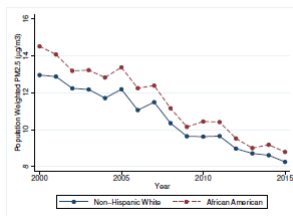
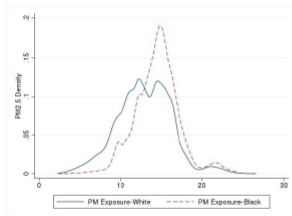
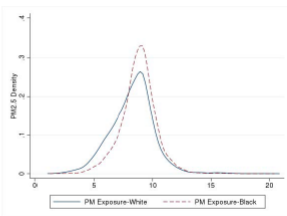


Figure 2: Distributions of Pollution Exposure, 2000 and 2015

(a) 2000



(b) 2015



NOTES: This figure plots the PM2.5 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

