

MEASURING THE EFFECTS OF THE CLEAN AIR ACT
AMENDMENTS ON AMBIENT PM₁₀ CONCENTRATIONS: THE
CRITICAL IMPORTANCE OF A SPATIALLY DISAGGREGATED
ANALYSIS*

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OCTOBER 13, 2008

Abstract

We examine the effects of the 1990 Clean Air Act Amendments (CAAAAs) on ambient concentrations of PM₁₀ in the United States between 1990 and 2005. We find that non-attainment designation has no effect on the ‘average monitor’ in non-attainment counties, after controlling for weather and socioeconomic characteristics at the county level. In sharp contrast, if we allow for heterogeneous treatment by type of monitor and county, we do find that the 1990 CAAAs produced substantial effects. Our best estimate suggests that PM₁₀ concentrations at monitors with concentrations above the national annual standard dropped by between $7\mu\text{g}/\text{m}^3$ and $9\mu\text{g}/\text{m}^3$, which is roughly equivalent to a 11-14% drop. We also show that monitors which were in violation of the daily standard experience two fewer days in violation of the daily standard the following year. Empirical results suggest that this treatment effect is independent of whether the EPA has finalized the non-attainment designation.

Keywords: Air Pollution, Clean Air Act, Spatial Modeling
JEL Codes: Q53, Q58

*We thank Calanit Saenger and Ravissa Suchato for excellent research assistance. We thank the editor, two anonymous referees, Peter Berck, Michael Greenstone, Wolfram Schlenker, Rob Valletta and seminar participants at Oregon State University, UBC Vancouver, UC Berkeley and the 2006 ASSA meetings for valuable comments. All errors are ours. For correspondence, contact Maximilian Auffhammer; Phone: (510) 643-5472; Email: auffhammer@berkeley.edu or Antonio Bento, Phone: (607) 255-0626; E-mail: amb396@cornell.edu