Federally mandated but locally administered: Political differences in air pollution abatement under the Clean Air Act

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Abstract

In the US, much of the authority to administer the Clean Air Act (CAA) is delegated to individual states. States are responsible primarily for the administration of the National Ambient Air Quality Standards (NAAQS), which impose technological and other requirements on stationary emission sources in areas in “nonattainment” with the standards. However, the requirements are largely heterogeneous. Existing stationary emission sources are required to install Reasonably Available Control Technology, which includes many types of abatement technology with varying effectiveness. In this paper, we examine the differential state level implementation of the CAA across political regimes. Our theoretical framework first suggests that political leadership influences abatement expenditures through the nonattainment requirements established by state environmental protection agencies. Conversely, technological uptake in attainment areas is left to the cost minimizing firm manager, so political leadership does not affect technology use. We then empirically test these hypotheses by using a regression discontinuity design to estimate the effect of the political leadership of each state via its governor’s political affiliation on the air pollution abatement technology installed at electric utilities, for areas that meet the NAAQS and those that do not. First, we find that the political affiliation of the governor has no effect on new air pollution abatement capital expenditures by utilities in attainment areas. However, utilities in nonattainment areas under Republican governor control expend 87% less on air pollution abatement capital than utilities in states with a Democratic governor. Second, we find that Republican gubernatorial control leads to an eight percentage point decrease in the probability that utilities adopt more expensive, first-best NOx abatement technologies in nonattainment areas, relative to Democrat gubernatorial control in nonattainment areas; these effects move to zero in attainment areas. Finally, we present evidence that the additional costs of first-best technological abatement at utilities in nonattainment areas with a Democratic governor exceed the additional health benefits of decreased NOx emissions in these areas.

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