

Abstract: Ambient air pollution is tracked through a network of in situ monitors, and these data are used extensively in regulatory settings, research, and determining air quality indices to protect human health. Although the locations are typically treated as exogenous by researchers, we argue that there may be incentives for the local regulator to avoid siting monitors near pollution hotspots. In the United States, the design and maintenance of monitoring networks is delegated to state or sub-state agencies. A state's monitors then determine compliance with federal National Ambient Air Quality Standards (NAAQS). We develop an analytical model to study the local regulator's incentives in this federalist arrangement. For marginal counties (i.e. those still designated as attainment, but potentially "close" to the NAAQS threshold), the regulator has an incentive to avoid siting new pollution monitors near pollution hotspots. On the other hand, for counties already in nonattainment, the local regulator's ability to avoid pollution may be diminished due to increased federal scrutiny. To test for strategic behavior in monitor siting, we employ monitoring data and satellite-derived pollution estimates to characterize pollution at non-monitored locations. We find that, on average, local regulators in marginal counties avoid pollution relative to nonattainment counties; moreover, this result is especially pronounced for monitors specifically designated to target areas of high pollution concentrations. Our results suggest that monitoring data in marginal counties may systematically understate pollution, and the resulting regulatory targeting may be less efficient than previously believed.