

How states make their own air pollution somebody else's problem

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For now, one of the unfortunate byproducts of an industrial economy is air pollution, but states can often reap the benefits of industry and production while forcing other states to bear the costs. In a new study of tens of thousands of air polluters in the US, [James E. Monogan III](#), [David M. Konisky](#), and [Neal D. Woods](#) find that air polluters are more likely to be located near a downwind border compared to solid waste polluters; in effect, making air pollution another state's problem.



American states have long accused their neighbors of dumping their pollution onto them. These accusations date at least as far back as 1907's *Georgia v. Tennessee Copper Co.* case, when the state of Georgia successfully argued before the US Supreme Court that copper smelters in Tennessee were located in a position such that pollution would pose problems for forests, orchards, and residents' health in the Peach State. Contemporary evidence suggests that there is merit to these kinds of claims: *Major air polluters in the continental United States tend to be disproportionately close to individual states' downwind borders.*



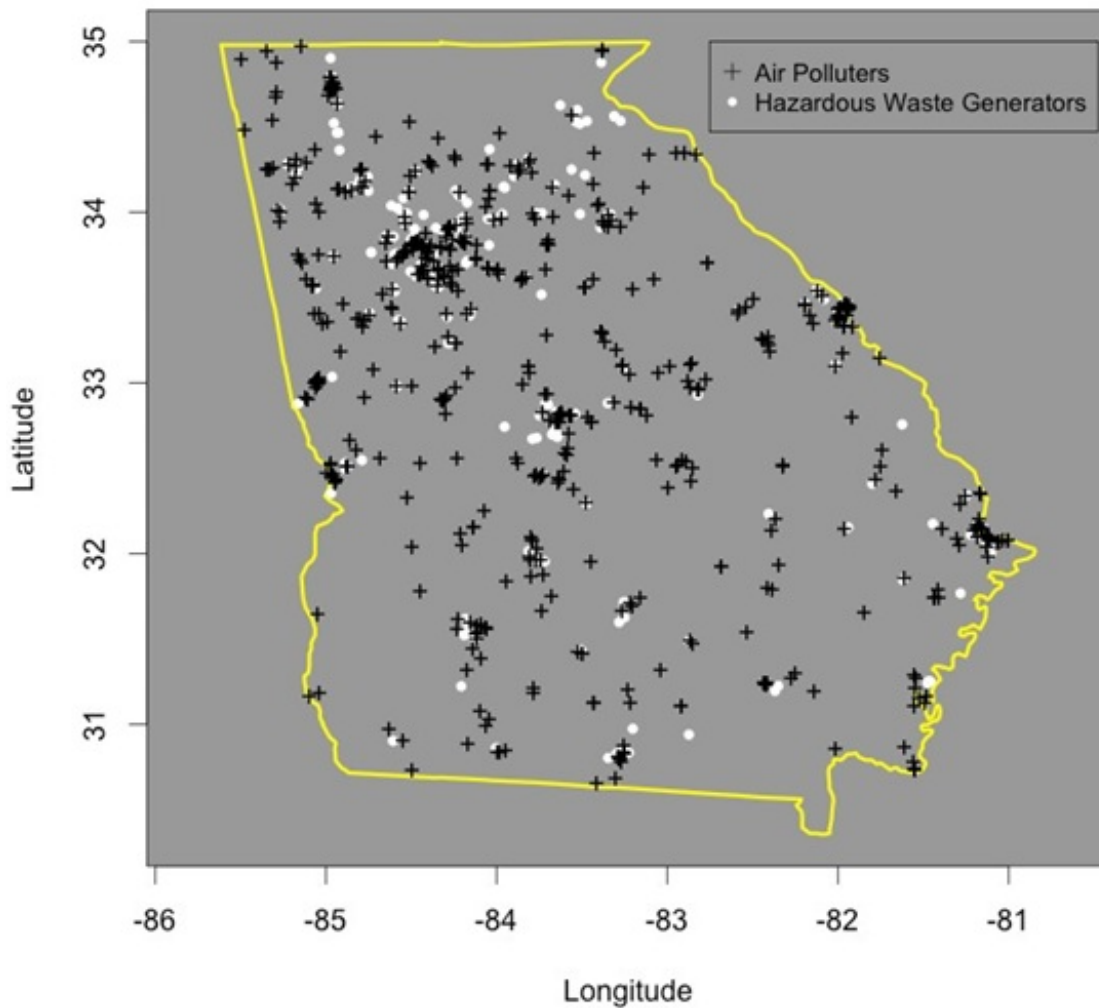
Major air polluters such as power plants, airports, hospitals, and factories generate economic and fiscal benefits for the state in which they are located. However, the pollution that these sites emit—substances like sulfur dioxide, nitrogen oxides, and particulate matter—pose hazards to the environment and health risks for the downwind residents who breathe polluted air. Given the prevailing wind direction at a certain location, then, there is a strategy by which the state can reap the economic benefits of production without incurring the costs of pollution: If the sites of these air polluters are located near downwind borders, then the wind carries the pollution and all of its associated problems into downwind states. In other words, states have strong incentives to engage in *free-riding* behavior that is helpful to the individual state itself, but possibly harmful to the nation as a whole.



Prior studies on air pollution have found conflicting results on whether states engage in this free riding behavior. On one hand, there is evidence that levels of pollution tend to be higher near state borders, but on the other there is little evidence that states are lax in their regulatory oversight of polluters near these borders. Our study suggests that states may engage in free riding behavior earlier in the process by encouraging polluters to locate near downwind borders. A disproportionate number of air polluters near a border would lead to added pollution, even if regulations were enforced evenly throughout the state. In addition, firms themselves have incentives to locate near downwind borders. By locating in places where the pollution primarily affects residents of other states, companies reduce the risk of effective organized political opposition, because out-of-state residents lack legislative representation and face other administrative and legal barriers.

To determine whether air polluters are particularly likely to be near downwind borders, we [studied](#) the location of 16,211 major air polluters and 20,536 generators of hazardous solid waste across the continental United States. These two types of facilities are similar in terms of their locational needs (proximity to population centers, transportation infrastructure, bodies of water, and so on) and the fact that the pollution they produce can pose environmental and health risks. The major difference is that the wind will carry away air pollution, but it will not carry away solid waste pollution. Hence, this is an ideal comparison that allows us to assess whether air polluters are more likely to be located near a state's downwind border than a group of similar industrial facilities. As an example of what these data look like in a single state, the figure below shows a map of the state of Georgia, distinguishing hazardous waste generators as white dots and major air polluters as black crosses.

Figure 1 – Air polluters and hazardous waste generators in Georgia



Using a technique called point pattern analysis, we find that air polluters in the continental United States are indeed more likely to be located near a downwind border than hazardous waste generators. On average, moving from a downwind border to the location farthest from the state's downwind border diminishes the odds of an air polluter relative to a solid waste polluter by 22.4 percent. Even moving from the downwind border to a site that is only one-tenth as far away will produce a 2.5 percent drop in the odds of an air polluter relative to a solid waste polluter. Therefore, air polluters are more likely to emerge near downwind borders than they are to emerge in the interior of a state. Additional analysis indicates that this effect is even more pronounced for facilities with highly toxic air emissions.

Our results are strong evidence that air polluters are strategically located at more downwind sites. They cannot tell us, however, whether this is primarily the result of state government decisions (to encourage air polluting facilities to locate near downwind borders) or firm decisions (to locate near downwind borders (in order to minimize the effectiveness of "Not-in-My-Back Yard" political opposition)). Our supplementary analyses indicate that the extent of free riding behavior that we observe within a state is correlated with a variety of state-level factors in ways that suggest that both of these processes may be at work. These factors include the number of organized interest groups within the state, the strength of its environmental policy, and its degree of reliance on "smokestack chasing" economic development strategies.

These findings are important to consider as the federal government debates policies such as the Environmental Protection Agency's Cross-State Air Pollution Rule. That rule was designed in recognition that pollutants from upwind states can blow into downwind states and sought to impose limits on upwind states. Considering this rule in

the case of *EPA v. EME Homer City Generation* in 2014, Justice Ruth Bader Ginsburg [upheld](#) the EPA's provision, arguing that "the emitting or upwind State reaps the benefits of the economic activity causing the pollution without bearing all the costs". Our results suggest that this issue may pose a substantial problem for current and future efforts at environmental protection in the United States.

This article is based on the paper, 'Gone with the Wind: Federalism and the Strategic Location of Air Polluters' in the American Journal of Political Science.

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About the authors

James E. Monogan III – *University of Georgia*

James E. Monogan III is an assistant professor at the University of Georgia, where he studies political methodology.



David M. Konisky – *Indiana University*

David M. Konisky is an associate professor at Indiana University. His research focuses on American politics and public policy, with particular emphasis on regulation, environmental politics and policy, state politics, and public opinion.



Neal D. Woods – *University of South Carolina*

Neal D. Woods is an associate professor at the University of South Carolina. His research focuses on public administration and public policy.



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