

# Clean Air Federalism: Do States Race to the Bottom?\*

*Proponents of federal environmental standards argue that competition for industrial development creates a “race to the bottom” in which states relax their own environmental standards to avoid losing businesses to states with more “business-friendly” regulations. This article presents results from a unique survey of state clean air programs that show—contrary to the race to the bottom—a substantial number of states exceed federal EPA standards in a broad variety of clean air programs. Multivariate analyses of these state policies indicate that states strengthen their environmental programs in response to citizen demands rather than weaken their programs in deference to economic pressures.*

From the lofty heights of Capitol Hill, it may appear the federal government makes all the important decisions about clean air policy. After all, United States Environmental Protection Agency (USEPA) regulations and the detailed provisions of the 1990 Clean Air Act regulate the amount of pollutants floating in the air (ambient air quality), the amount of pollutants released by industrial and mobile sources (emissions standards), and the types of fines and sanctions levied against pollution violators. From the Capitol Hill perspective, these national standards and regulations are absolutely necessary. According to the cynics, if left to their own devices, states would adopt weaker and weaker clean air protection laws, creating a “race to the bottom” in which states compete for economic growth by enticing industry with less stringent—and less costly—regulations.

Do states always adopt the lowest possible environmental standards, as critics charge? Or can the states in fact develop policies that fit their particular political and environmental contexts? If states were involved in overwhelming competition for economic growth, no state would choose to exceed USEPA standards. A second, weaker interpretation of the race-to-the-bottom hypothesis posits that economic pressures to lower clean air standards most severely affect states that rely on heavily polluting industries. This article

investigates these questions, drawing on results from the State Air Pollution Control Survey (SAPCS) conducted in 1998 by the Council of State Governments. Overall, the results show that many states have adopted clean air standards and programs that are more stringent than the USEPA requirements. Multivariate analyses of states’ standards in three clean air policies indicate that states with “greener” political climates—those with stronger environmental interest groups and public opinion favoring environmental protection—are significantly more likely to develop air pollution standards that exceed USEPA requirements.

The next section of this article discusses the importance of environmental policy federalism for both policy makers and academic scholars. The third section summarizes clean air policy in the United States. The fourth section presents SAPCS data on the number of states choosing to exceed USEPA standards in criteria pollutant clean air policy.<sup>1</sup> The fifth section presents multivariate analyses of states’ decisions to exceed USEPA standards. The final section concludes that there is little evidence of a race to the bottom among states in clean air policy.

## The Importance of Environmental Federalism

How do states handle policy authority that is delegated from the federal government? In an era of increasing devo-

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lution of policy authority from central to local governments, this question has become increasingly important for scholars and for policy professionals. For scholars, the states have been a valuable laboratory for understanding environmental policies. In the early to mid-1980s, scholars of state environmental policy investigated how states responded to Ronald Reagan's New Federalism (Crotty 1987; Davis and Lester 1987; Lester 1986). Lester (1986), for example, categorizes states by their capacity to assume responsibility for environmental programs and the extent to which they did so during the 1980s. As states assumed responsibility for environmental programs, the relevance of this question declined, and scholarly focus shifted to how state (see Ringquist 1993) and local (see Weiland 1998) governments shape environmental policies to fit their own political and policy contexts.

The division of policy authority between a national government (such as the federal government) and lower-level governments is an important factor in policy development. Proponents of stronger central-government authority argue that competition for industrial development creates a "race to the bottom" in which states relax their environmental standards to avoid losing businesses to states with more "business-friendly" regulations (Duerksen 1983). In this context, the race to the bottom occurs because each state can "export" the cost of its more lenient clean air standards—more pollution in the air—to states beyond its borders, while the economic growth attracted by the lower standards occurs exclusively within each state's borders. Despite considerable research, the degree to which states relax environmental standards for economic gain remains unclear (for a review of race-to-the-bottom studies in environmental policy, see Engel 1997). If such a race to the bottom does not occur, it is important to understand how states resist economic pressures for lower standards and how they are responding to new environmental federalism challenges, such as unfunded mandates (Cimitile et al. 1997).

This article informs these issues by investigating two simple but important questions. First, do any states choose to exceed the USEPA's minimum criteria in clean air policies? Second, if some states do choose to exceed USEPA criteria, what factors help them to escape the race to the bottom? The analyses that follow investigate these questions in the area of criteria-pollutant air policy.

## **Regulating Air Pollution: USEPA Criteria-Pollutant Standards**

The USEPA and the states share responsibility for regulating stationary-source air pollution. Stationary sources are factories and power plants (mobile sources of air pollution, including cars and trucks, constitute a different

class of air pollution policy). For each major stationary-source policy area—setting ambient air quality and emissions standards, monitoring emissions and ambient air quality, enforcement, and issuing permits—the USEPA sets minimum criteria for state programs. Each state's clean air agency submits to the USEPA a state implementation plan (SIP) that details how the state will meet USEPA standards. If the USEPA determines that the SIP is inadequate, it can "preempt" all or part of the state's clean air program and administer the failing portions in that state. Preemption has proven a powerful deterrent to states relaxing their clean air standards below USEPA criteria: Nearly every state has received USEPA authority to administer all clean air programs. However, in virtually all clean air policy areas, states can choose to match or exceed USEPA standards, and the preemption threat does not explain why states might choose to adopt standards more stringent than the USEPA requirements.

This article focuses on states' policies in three core areas of stationary-source regulation: ambient air standards, emissions standards, and ambient air monitoring. Ambient air standards govern the amount of dangerous pollutants that are allowed in the air people breathe. The USEPA sets National Ambient Air Quality Standards (NAAQS) for six "criteria pollutants" that the USEPA has determined pose significant public health risks: sulfur dioxide, particulate matter, carbon monoxide, ozone, nitrogen dioxide, and lead. States can exceed the NAAQS by creating more stringent standards for criteria pollutants, thus setting cleaner air-quality targets. Emissions standards regulate the amount of pollutants that sources are allowed to emit into the air. The USEPA's New Source Performance Standards (NSPS) govern criteria-pollutant emissions for new and renovated sources. States can exceed the NSPS by requiring sources to restrict their pollution emissions beyond what the EPA's NSPS requires.

Ambient monitoring is the process of determining whether the air in an area is as clean as the ambient air standards require. The USEPA requires states to establish ambient air monitoring programs based on the amount and distribution of local air pollution emissions. States can exceed USEPA ambient air monitoring requirements by establishing additional monitoring stations. For more thorough reviews of the technical and legal issues surrounding all areas of stationary-source regulations, see Erbes (1996), Hamel and O'Hara (1993), and Nicewander (1995).

Together, these three clean air programs are an appropriate arena for investigating the race-to-the-bottom hypotheses. Ambient air and emissions standards are high-level regulations with a very public profile. Consequently, they signal to potential economic development the regulatory climate within the state, with higher standards reflecting a more stringent regulatory context. Ambient monitor-

ing is a lower-profile program, but stronger monitoring programs still signal states' willingness to take on air pollution costs beyond what the USEPA requires.

## Do States Exceed USEPA Criteria-Pollutant Standards?

Have any states adopted policies that exceed USEPA standards for these stationary-source policies? The SAPCS results for the 38 responding states (table 1) indicate that many states have chosen to adopt policies that exceed the USEPA's NAAQS, NSPS, and ambient monitoring standards. State-by-state results can be found in the appendix A. The wording of questions for these items is reported in the method section; the full survey report is available from the Council of State Governments (Potoski 1999). As table 1 shows, five states (13 percent) reported that their standard for one of the NAAQS pollutants exceeds the USEPA's minimum criteria, and six states (16 percent) reported standards exceeding NAAQS criteria for two or more pollutants. Thus, nearly one-third (29 percent) of the responding states have one or more ambient air standards that exceed USEPA requirements.

The story is similar for states' emissions standards and ambient monitoring programs: Eight states (21 percent) have adopted new source performance standards that are more stringent than the NSPS. Eighteen states (49 percent) indicate that their ambient air monitoring program is "somewhat more extensive than USEPA requirements," and seven (19 percent) indicated that their ambient air monitoring program is "much more extensive than USEPA requirements." Results from the SAPCS also indicate that by 1998, USEPA preemption of state clean air programs had become very rare—nearly every state had full authority to administer their clean air programs. Only three states (Illinois and Michigan for NAAQS and Alaska for NSPS) reported the USEPA had not granted full authority for all three programs, and all states expected to receive full authority in the near future.

The SAPC survey results suggest that the race to the bottom has not prevented states from developing clean air policies that exceed USEPA standards. In a strong race to the bottom, one in which the risk of losing economic growth overwhelms states' policy-making capacity, no state would exceed USEPA standards—doing so would risk losing economic growth to states with more lenient standards. However, in a weaker interpretation of the race-to-the-bottom hypothesis, economic pressures affect only states that are most reliant on polluting industries. Consequently, states may choose to exceed USEPA

standards only because they can afford to, while economic exigencies push the remaining states to relax their air pollution standards to the USEPA's minimum criteria. An important question then becomes, why do states choose to exceed USEPA standards? Do they respond to economic pressures only, or do they fit their program to meet the demands of their citizens?

## Why Do States Exceed USEPA Criteria-Pollutant Standards?

To better understand why states choose to exceed USEPA standards, multivariate analyses of each criteria-pollutant policy area are shown below. The dependent variables in these analyses are whether states' standards exceed the USEPA's minimum criteria in three areas: ambient air standards (NAAQS), new source performance standards, and ambient monitoring standards, as reported state by state in appendix A. The three dependent variables are calibrated so that higher values indicate the state has chosen to exceed USEPA clean air policy standards. The variable *Ambient Air Standards* indicates the number of each state's criteria-pollutant ambient standards that exceed the USEPA's NAAQS standards (range 0–6). *Emissions Standards* is scored one if a state's emissions standards are more stringent than the USEPA's NSPS; otherwise it is scored zero. Finally, *Ambient Monitoring* is scored one if a state's ambient monitoring program is "somewhat more extensive" than USEPA requirements, two if a state's ambient monitoring program is "much more extensive" than USEPA requirements, and scored zero otherwise.

Two independent variables, *Industry Groups* and *Total Emissions*, measure the degree to which states' economies

**Table 1 States' Criteria-Pollutant Policies versus USEPA Standards**

Criteria-pollutant ambient air standards	New source performance standards	Ambient monitoring policies
Percentage of states exceeding USEPA NAAQS for only one criteria pollutant	Percentage of states exceeding USEPA NSPS	Percentage of states with ambient monitoring programs "somewhat more extensive" than USEPA requirements
13 (5)	21 (8)	49 (18)
Percentage of states exceeding USEPA standards for two or more criteria pollutants		Percentage of states with ambient monitoring programs "much more extensive" than USEPA requirements
16 (6)		19 (7)
Total exceeding USEPA standards for at least one criteria pollutant		Total exceeding USEPA ambient monitoring standards
29 (11)		68 (25)

Note: Numbers in parentheses represent the number of states in each category.

rely on heavily polluting industries. If these variables are statistically significant and negative, the analyses support the weak race-to-the-bottom hypothesis. Such a result would indicate that states most reliant on air polluting industries are less likely to exceed USEPA clean air policy requirements. Three additional independent variables—green groups, public environmentalism, and legislative professionalism—measure the degree to which states’ political climates favor environmental protection. These results indicate whether states that exceed USEPA requirements have “greener” political contexts. Appendix B reports descriptive statistics for the independent variables. The independent variables were selected from previous research examining states’ environmental policies and are discussed in more detail below.<sup>2</sup>

The first measure of states’ economic reliance on industries responsible for criteria-pollutant emissions, *Industry Groups*, replicates a proxy measure developed by Ringquist (1993). Specifically, the measure is the “value added by manufacturing by those industries most responsible for air pollution as a percentage of a state’s gross product” (112) as reported in the 1992 economic census. The second measure of states’ economic conditions is the amount of criteria pollutants released into each state’s atmosphere. *Total Emissions* is the sum of each state’s criteria-pollutant emissions (in tons) in 1995, as reported by the USEPA (1996). States with more criteria-pollutant emissions may have more difficult air pollution problems and, therefore, may be less likely to adopt more stringent clean air standards. In a race to the bottom, states with stronger industry groups and more pollutant emissions should be less likely to adopt more stringent air pollution standards.

States may base their clean air policies on the preferences of their citizenry, so that states with “greener” political contexts adopt more stringent air pollution policies. In clean air policy, states may adopt more stringent regulations in response to pressures from environmental-interest (“green”) groups or public opinion. The variable *Green Groups* represents the number of Sierra Club, Greenpeace, and National Wildlife Federation members per 1,000 residents, as reported in Hall and Kerr (1991). The measure of states’ public opinion environmentalism, *Public Environmentalism*, is calculated from the 1988–92 NES Senate Election Study. The measure represents the state-aggregated response to the following question: “Should federal spending on the environment be increased, decreased or kept the same?” Individual responses are coded three for “increase,” two for “same” and one for “decrease.”<sup>3</sup> Finally, developing clean air policies that exceed USEPA standards may require more institutional capacity, as several scholars have noted (see Ringquist 1993). *Legislative Staff* measures the strength

of staff and committees in state legislatures, as reported by Bowman and Kearney (1988). Exceeding USEPA standards may be technically difficult and require the expertise of professional policy experts on staff.

Multivariate analyses of the three dependent variables, *Ambient Air Standards*, *Emissions Standards*, and *Ambient Monitoring*, identify which independent variables are associated with different values of the dependent variables, holding constant the effects of the other independent variables. In other words, a statistically significant and positive coefficient indicates that states scoring higher on that independent variable have higher (more stringent) levels of the dependent variable, holding the other variables constant. The specific statistical technique used in each analysis reflects the nature of the dependent variables: ambient air standards (ordinary least squares), emissions standards (logit), and ambient monitoring (ordered logit).<sup>4</sup> To aid interpretation, the logit and ordered logit results are discussed with an “effect” for each significant independent variable. The effect of an independent variable is the change in probability (positive or negative) associated with a two-standard-deviation change in the independent variable (from one standard deviation below the mean to one standard deviation above), holding all other independent variables at their mean. Thus, for a logit model, a positive effect of .20 indicates that a two-standard-deviation increase in the independent variable raises the probability that the value of the dependent variable is in the one category rather than the zero category by .20, holding the effects of other

**Table 2 States Decisions to Exceed USEPA Criteria-Pollutant Standards, Multivariate Analyses**

Variables	Ambient air standards <sup>a</sup>	Emissions standards <sup>b</sup>	Ambient monitoring <sup>c</sup>
Green Groups	.147** (.073)	.865* (0.498)	.206* (.121)
Public Environmentalism	7.04** (2.72)	-13.1 (8.43)	-.062 (4.33)
Industry Groups	-5.25 (4.21)	-5.64 (15.6)	-1.07 (7.06)
Legislative Staff	.773** (.259)	-.801 (.911)	.179 (.427)
Total Emissions	-3.07E-07 (3.36E-07)	9.51E-07 (1.60E-06)	6.42E-07 (5.20E-07)
Constant(s)	17.6** (6.30)	-43.0 (22.9)	1.32 (3.79)
Adjusted R <sup>2</sup> / Chi <sup>2</sup>	0.35	18.3	5.86
F-stat / Loglikelihood	4.83	-8.55	33.3
N	36	36	35

Notes: Standard errors in parentheses  
<sup>a</sup> OLS  
<sup>b</sup> Logit  
<sup>c</sup> Ordered logit  
\* p < .10, two-tailed test  
\*\* p < .05, two-tailed test

variables constant. The effects for ordered logit represent the change in probability of a state being in each category of the dependent variable associated with a two-standard-deviation change in the independent variable, holding the effects of other variables at their mean.

Results of the multivariate analyses of states' criteria-pollutant policies are reported in table 2. Overall, the results indicate that citizen demands—particularly the strength of green groups in each state—play the most important role in states' decisions about criteria-pollutant policies. Across all three criteria-pollutant policy areas, states with higher green-group membership are more likely to adopt air pollution standards that exceed USEPA requirements. In the ambient air standards model, each additional green-group member per 1,000 population increases the number of state criteria-pollutant standards that exceed USEPA standards by .147, holding the effect of other variables constant. Other factors are also significant in the ambient standards model. In particular, states with greener public opinion adopt significantly more criteria-pollutant standards that exceed the USEPA's NAAQS. Likewise, states with more professional legislative staff have more stringent ambient air standards, consistent with previous research.

In the emissions standards analysis, states with stronger green groups are more likely to exceed the NSPS; a two-standard-deviation increase in the green-group strength raises the probability by .37 that a state will adopt more stringent NSPS standards, holding constant the effects of other variables. Finally, in the ambient monitoring analysis, a two-standard-deviation increase in green-group strength reduces the probability that a state's ambient air monitoring program is identical to USEPA standards by  $-.34$  and increases the probability that the state's program is somewhat (.16) or much (.17) more extensive than the USEPA standards, holding constant the effects of other variables.

Insignificant variables in these analyses cast doubt on the race-to-the-bottom theory. Across all three analyses, neither the strength of industry groups nor states' pollution contexts displayed any significant influence on whether states choose to exceed USEPA standards. If states were engaged in a race to the bottom, heavy reliance on polluting industries would create direct economic pressures and indirect political pressures through stronger industry-interest groups, pushing states away from adopting standards exceeding the USEPA's. In other words, in a race to the bottom, the *Industry Group* and *Total Emissions* variables should be statistically significant and negative, but in fact they are not.

Maine and California provide useful examples of green political dynamics and race-to-the-bottom resistance. Despite heavy reliance on industries that produce air pollu-

tion—Maine ranks ninth out of 38 states in the *Industry Group* variable, due in large part to paper production industries—Maine's clean air standards consistently exceed USEPA requirements. Maine's NSPS standards and ambient monitoring standards are more stringent than USEPA requirements, as are four of the six ambient air standards (all criteria pollutants except ozone and carbon monoxide). Likewise, California's standards exceed the USEPA's NAAQS for all six criteria pollutants and for its ambient air monitoring program, despite its strong reliance on air polluting industries. Both Maine and California rank high in green-group membership, and both exhibit stronger-than-average public opinion favoring environmental protection.

Overall, these results suggest that states' clean air policies are more responsive to pressures from their citizens than to economic concerns. States most economically reliant on polluting industries are no more or less likely to exceed USEPA standards. According to the weaker interpretation of the race to the bottom, these states should be significantly *less* likely to exceed USEPA standards. States with greener political contexts and those with stronger environmental groups and public opinion favoring environmental protection are more likely to exceed USEPA standards.<sup>5</sup>

## Conclusion

This article has presented results and analyses of the Council of State Government's State Air Pollution Control Survey. The core conclusion is simple: In clean air policy, economic pressures have not overwhelmed the states' ability to set their own environmental standards. There is no evidence of a race to the bottom. In fact, in a variety of policy areas—from setting pollution standards to ambient monitoring—a significant number of states have chosen to exceed USEPA minimum criteria. Multivariate analyses of state clean air policies indicate that states with stronger pro-environment political climates (greener politics) are more likely to choose to exceed USEPA standards. Neither of the measures representing the economic pressures of the race to the bottom achieved statistical significance in these analyses.

This research has important implications for both scholars and public policy practitioners. For practitioners, it informs debates about the degree to which states can be "trusted" to develop context-appropriate environmental policies. For scholars, it updates and extends research on federalism, states' environmental policies, and the race to the bottom. Decentralizing policy authority allows local governments room to respond to their citizens' preferences. Of course, this analysis does not complete the study of these topics, nor does it finally resolve all questions about the race to the bottom. Economic pressures still may sup-

press states' environmental policies in other areas, particularly where industries have relatively mobile capital investments that can more easily move in response to changing government policies. Also, it is possible that in the absence of national minimum standards, some states might still lower their clean air policies below what the USEPA currently requires.

This suggests directions for future research: How do environmental groups influence the policy process to achieve their objectives? Do specific institutional arrangements in clean air policy favor environmental groups over industry groups? More broadly, questions remain about the

extent to which the conclusions presented here apply to other policy areas, such as mobile-source air pollution and water- and hazardous-waste regulation. Does the race to the bottom occur in other policy contexts—for example, in policy areas where industry can more adroitly shift future capital investment in response to government policy? Likewise, would states be more likely to engage in a race to the bottom during an economic recession? Answers to such questions will help scholars and policy makers understand how the division of authority among levels of government influences policy making in the federal government and the states.

## Method

The State Air Pollution Control Survey (SAPCS) was conducted during the spring and summer of 1998. The SAPCS survey consisted of a 30-question, 16-page booklet sent to the chief or assistant air pollution control administrator in each state. The Council of State Governments, the University of Kentucky's Martin School of Public Policy and Administration, and Indiana University cosponsored the survey. The survey contained questions on a variety of topics, including several that were not discussed in this article (such as budgets and finances). The primary objective of the SAPCS was to gauge states' clean air policies and agencies in a manner that would allow comparisons among states. One approach adopted in the SAPCS was to use USEPA standards as a policy baseline. Thus, questions asked respondents to evaluate their state's program relative to USEPA standards (indicating whether their state's program matches or exceeds USEPA standards). Mailings were sent to respondents in the following order:

1. Advance notification letter
2. Survey instrument
3. Follow-up reminder letter (if necessary)
4. Second mailing of survey instrument (if necessary)
5. Second follow-up reminder letter (if necessary)

All 50 state clean air agencies received the first two mailings. Responding states did not receive subsequent mailings. In all, 38 states responded for a healthy 76 percent response rate. Checks for selection bias did not reveal any differences between responding and nonresponding states. Although the surveys were overwhelmingly complete, a small number of states were unable to answer a few of the questions. In some cases, states sent more detailed explanations of their survey responses. The complete SAPCS results are available from the Council of State Governments in Lexington, Kentucky.

For the ambient standards analysis, the SAPCS asked respondents to indicate whether their state's ambient air standards for each criteria pollutant are "identical to the USEPA's," "more stringent than the USEPA's," or whether "USEPA regulates (no state authority)." The wording of the question evaluating states' new source standards was similar. The SAPCS asked respondents whether their state's standards were "identical to the USEPA's," "more stringent than the USEPA's," or whether "USEPA regulates (no state authority)." Finally, for states' ambient monitoring programs, the SAPCS survey asked respondents if their state's program was "identical to USEPA requirements," "somewhat more extensive than USEPA requirement," or "much more extensive than USEPA requirements."<sup>6</sup>

## Notes

1. Criteria pollutants are those listed in the USEPA's National Ambient Air Quality Standards.
2. The literature on states' environmental policy is well established. For examples, see Crotty (1987); Davis and Lester (1987); Hays, Elser, and Hays (1996); Jones (1976); Lester, Franke, Bowman, and Kramer (1983); Lester and Lombard (1990); Lowry (1992); Ringquist (1993); and Wood (1992).
3. Most state environmental policy research has used the state opinion/liberalism measure developed by Erikson, Wright, and McIver (1993). While those authors' measure has been a valuable addition to state politics and policy research, I prefer the National Election Study-based measure because it more directly taps environmental-policy attitudes. The weaknesses of the NES measure are that it is based on fewer respondents per state than the Erikson, Wright, and McIver measure, and the question focuses on federal rather than state environmental spending.
4. Logit is a statistical technique similar to ordinary least squares regression that evaluates the effects of independent variables on a dichotomous (two-category) dependent variable. Ordered logit is applied in cases in which the dependent variable has more than two categories. For a full discussion of these techniques, see Long (1997).
5. It is possible that some states may adopt stringent standards but may not enforce them, thus allowing air quality to deteriorate while spurring economic growth. Although this could occur, it is unlikely to change the basic conclusions in this article. First, the high profile of more stringent ambient air and emissions standards may limit economic growth by dissuading economic development because it may indicate a more stringent regulatory environment. Regardless of how the laws are enforced, the logic of the race-to-the-bottom hypotheses should apply to these standards. Second, while differences among states' enforcement practices no doubt

remain, citizen suits limit the degree to which states and the USEPA can neglect enforcing standards. Title VII of the 1990 Clean Air Act broadened the legal standing of private groups to sue pollution sources and clean air agencies for lax enforcement of clean air standards (see, for example, Axline 1991). Nonetheless, the enforcement issue is important and merits future scrutiny.

6. The SAPCS updates and improves the measurement of states' environmental programs. Two commonly cited studies—the FREE (1987) rankings, developed by the Fund for Renewable Energy and the Environment (and used in Ringquist 1993 and Lowry 1992), and the Green Index, developed by Bob Hall and Mary Lee Kerr (1991) of the Institute for Southern Studies (and used in Hays, Esler, and Hays 1996)—are by now dated and contain some flawed measures. The FREE rankings combine 10 diverse indicators including the num-

ber of monitoring stations in a state, the number of enforcement actions initiated by the state EPA, and so on, and the Green Index contains 179 measures of “green conditions” and “green policies.” Neither index squarely measures the states' environmental decisions within the current federalism context. For example, the FREE index gauges the number of monitoring stations each state operates, even though the USEPA requires a minimum for each state based on the amount of pollution in the state. Thus, at least part of states' ambient monitoring policies are driven by federal standards and not by the states' own decisions. Likewise, in its attempt to be comprehensive, the Green Index seems to lose sight of what “green” is. For example, the Green Index measures states' maximum disability and employment benefits, which are clearly not related to environmental policy.

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## Appendix A States' Clean Air Policies versus USEPA Standards

State	Criteria-pollutant ambient standards						NSPS standards	Ambient monitoring
	Part. matter	Sulfur dioxide	Nitrogen dioxide	Ozone	Carbon monoxide	Lead		
Alabama	1	1	1	1	1	1	1	1
Alaska	1	1	1	1	1	1	0/1	2
Arizona	1	1	1	1	1	1	1	2
Arkansas	1	1	1	1	1	1	1	1
California	2	2	2	2	2	2	1	3
Colorado	1	1	1	1	1	1	1	3
Connecticut	1	1	1	1	1	1	—	2
Delaware	1	1	1	1	1	1	1	2
Florida	1	2	1	1	1	1	1	2
Georgia	1	1	1	1	1	1	1	3
Hawaii	1	1	2	2	2	1	1	1
Idaho	1	1	1	1	1	1	1	1
Illinois	0	0	0	0	0	0	1	2
Iowa	1	1	1	1	1	1	1	2
Kansas	1	1	1	1	1	1	1	2
Louisiana	1	1	1	1	1	1	1	3
Maine	2	2	2	1	1	2	2	2
Maryland	1	1	1	1	1	1	1	1
Michigan	0	0	0	0	0	0	1	1
Minnesota	1	2	1	1	1	1	—	1
Mississippi	1	1	1	1	1	1	1	2
Missouri	1	1	1	1	1	1	1	1
Montana	1	2	2	2	2	2	1	2
Nebraska	1	1	1	1	1	1	1	—
Nevada	1	1	1	1	2	1	1	3
New York	1	1	1	1	1	1	2	2
North Dakota	1	2	1	1	1	1	1	1
Oregon	1	2	1	1	1	1	1	2
Pennsylvania	1	1	1	1	1	1	1	3
Rhode Island	1	1	1	1	1	1	2	1
South Carolina	1	1	1	1	1	1	1	2
South Dakota	1	1	1	1	1	1	1	1
Texas	1	1	1	1	1	1	1	2
Utah	1	1	1	1	1	1	1	2
Vermont	1	1	1	1	1	1	2	3
Virginia	1	1	1	1	1	1	1	2
Washington	2	2	1	1	1	1	2	2
Wyoming	1	2	1	2	1	1	1	1

Key: For criteria standards and NSPS:

0 = EPA regulates (state awaiting USEPA authority)

1 = State standards identical to USEPA's

2 = State standards more restrictive than USEPA's

For ambient monitoring:

1 = State program identical to USEPA standards

2 = State program somewhat more extensive than USEPA standards

3 = State program much more extensive than USEPA standards

## Appendix B Explanatory Variables

Variable	Mean	Standard deviation	Minimum	Maximum
Green Groups	8.57	3.63	2.5	20.2
Industry Groups	.094	.055	.005	.226
Public Environmentalism	2.48	.092	2.31	2.68
Legislative Staff	-.031	.883	-1.11	3.76
Total emissions (in tons)	600,619	738,008	363,123	3,890,425