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Pollution, Politics, and Preferences for Environmental Spending in the States

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Abstract

While state environmental and natural resource spending is designed to address actual environmental problems, the budget process is also inherently political. Thus, in the following article we ask a simple question: to what extent does state environmental and natural resource spending respond to the scope of environmental problems in a state, versus the demands of the political process? Unlike the bulk of previous research, we consider both aggregate spending and program-specific spending. We also consider how the severity of environmental problems and the political environment may interact to determine spending. The findings show that politics, specifically the strength of the environmental movement, is a more important determinant of state environmental spending than pollution severity. However, for some program areas, it appears that strong environmental groups make state budgets more responsive to the severity of environmental problems.

Introduction

Intuitively, the scope and intensity of state environmental policies should be roughly proportional to the severity of environmental problems. However, because environmental policies are only partly determined by bureaucrats with technical expertise, the desires of political interests may be more important than actual environmental problems in determining state environmental spending. In the following article, we explore how the severity of environmental problems, the preferences of relevant political actors, and the interaction of the two shape state budget allocations toward spending on the environment and natural resources.

Scholars have examined the relationships among environmental problems, political actors, and state environmental spending at length (Bacot & Dawes, 1996, 1997). However, unlike previous work, we examine aggregate spending and spending in several environmental policy areas using multiple indicators of environmental problem severity. This allows us to examine how specific environmental problems affect spending in related areas. We also consider how political factors and the extent of environmental degradation interact to influence resource allocation toward environmental policy. The analysis adds to our understanding of how spending on environmental policies is shaped by politics and environmental problems. It also allows us to determine whether spending on certain environmental issue areas (e.g. water, pesticides) are more or less responsive to political or problem-related pressures. Although results vary across different models we find that environment and natural resource spending is consistently influenced by the strength of a state's environmental movement and that the severity of environmental problems are not generally a major determinant of spending. In some situations, environmental interests are able to influence environmental spending when there are greater environmental problems, indicating that saliency may help overcome collective action problems that may otherwise disadvantage these groups (Olson, 1965).

Environmental Politics, Problems and State Spending

A number of scholars have examined the determinants of environmental policy in the states, with studies focused on areas such as mining oversight (Hedge & Scicchitano, 1994), air pollution (Potoski & Woods, 2002), pollution control (Lowry, 1992), air and water quality regulations (Ringquist, 1993), groundwater policy adoption (Blomquist, 1991), and hazardous waste spending (Williams & Matheny, 1984). Others have examined broader indicators of state environmental "effort" (Bacot & Dawes, 1996, 1997; Hays, Esler, & Hays, 1996). To assess overall "effort," scholars have used either expenditures (Bacot & Dawes, 1996, 1997) or indexes of environmental regulations and enforcement (Hall & Kerr, 1991; Ridley, 1987).

Collectively, these studies show inconsistent influences of political actors such as organized interests and public opinion. For example, Bacot and Dawes (1996) find that interest group strength influences state environmental "effort." However, Ringquist (1993) finds that interest groups influence state water pollution programs, but not air

pollution control programs. Public opinion is also an inconsistent influence on policy, with some studies finding a relationship (Hays, Esler, & Hays, 1996; Hedge & Scicchitano, 1994) and others failing to observe one (Bacot & Dawes, 1997; Ringquist, 1993).

While the influence of environmental actors varies in these studies depending on the particular issue/policy in question, one might expect a more consistent relationship between environmental problems and the scope of environmental policies, or what some scholars have called "effort" (Bacot & Dawes, 1996, 1997). However, on balance, the literature shows that state policies do not always respond to the severity of environmental problems. Bacot and Dawes (1996, 1997) find that pollution severity (measured as toxic releases by industry) influences state environmental effort in the expected direction. However, Hays, Esler, and Hays (1996) find no such relationship looking at a composite measure of state effort (the Green Index).

Thus, while some studies do find a relationship between politics, environmental problems, and state environmental policies, the relationships are quite inconsistent. In a nuanced and sophisticated look at state air pollution control policy, Potoski and Woods (2002) point out that environmental policy is multidimensional, and the importance of political factors varies across these dimensions. They argue that programs, such as setting standards, which require the allocation of resources and thus distributes costs and benefits, will attract the attention of political actors more than other dimensions, such as monitoring, which will be primarily a function of nonpolitical factors (like pollution severity).

Political Factors Influencing Environmental Spending

As budgeting clearly involves the allocation of resources and as the budget process is highly political, politics should be expected to influence environmental spending decisions. Bacot and Dawes (1996, 1997) found support for this in an analysis of aggregate spending on the environment. Using one indicator of pollution severity, they also found that states with greater pollution problems spend more on the environment and natural resources. However, analyzing aggregate spending masks a great deal of variation in the politics of the environmental budget-allocation process and the different types of pollution problems that different states face. Some environmental spending

areas may be more or less responsive to political factors, while more salient environmental problems may be important on other types of spending. We reexamine the relationship between politics, problems, and environmental spending using a rich data source that includes spending in many program areas and measures of pollution severity relevant to these different programs.

The generally anticipated relationship between environmental problems and spending is quite straightforward. States with more severe environmental problems should spend more money addressing those problems. This, of course, assumes that sensitivities to pollution and willingness to institute programs to restrict pollution are constant across states. This contention is certainly debatable. In fact, the willingness to enact policies and devote resources to curb pollution seems clearly related to, if not largely determined by, the state's political context.

In the area of environmental policy, most scholars argue that liberal states enact liberal policies. For example, Hedge and Scicchitano (1994) find that liberal states have greener policies, and Hays, Esler, and Hays (1996) find that liberalism has an indirect effect on policy. Many studies, however, fail to observe any relationship between public opinion liberalism and state environmental policy. Ringquist (1993) finds that policy liberalism does not have a statistically significant influence on policy and notes that this may reflect that environmental issues do not fall neatly into the liberal–conservative continuum. This could also be attributed to the multidimensionality of the issue area (Potoski & Woods, 2002). We add that most of the public, regardless of ideology, is in favor of stricter environmental regulation (Dunlap & Scarce, 1991), even if, as Bosso and Guber (2006) note, there has been a decline in concern about the environment involving a lack of information, low salience, and ambivalence toward the issue. Still, conservative states as well as liberal ones may value their outdoors areas for agriculture, hunting, or fishing. Examining aggregate state spending, Bacot and Dawes (1997) also fail to observe a significant relationship between liberalism and spending. Bacot and Dawes (1996) also do not find a linkage between ideology and "effort". Although public opinion may influence spending, its influence is by no means taken as a given and warrants additional attention.

Furthermore, environmental policies are often highly technical, meaning that the public's knowledge and interest of specific environmental programs is probably eclipsed. On such issues, it is reasonable to assume that interest groups that are better organized (Olson, 1965) or those with specific technical expertise would influence policy

(Ringquist, 1993; Rosenbaum, 2004). Again, however, the findings related to interest group influence on environmental policy vary substantially. For example, examining several specific policy areas, Ringquist finds that environmental and industry groups influence state water pollution programs, but not air pollution control programs. Hedge and Scicchitano (1994) find that the strength of the coal industry in a state influences federal oversight of the mining industry. Bacot and Dawes (1997) find that environmental interest groups are a significant influence on expenditures, but not on the index of regulatory effort; notably, industry groups influence neither policy measure.

We expect that environmental interest groups should be a more important determinant of state spending than business interests. This stems from the different incentives facing each group. Environmental spending is largely, if not entirely, a collective good. Since environmental interests are organized to pursue collective goods, they will certainly have an interest in state environmental spending levels. Examples of this concern with budgets are common. A fairly recent example is a report entitled "All Dried Up: How Clean Water is Threatened by Budget Cuts," which was released by the group American Rivers in September 2004.2 Moreover, environmental interests should have a greater influence on salient issues because of heightened public awareness to environmental issues or problems.

Business will generally be less concerned with environmental spending because the political mobilization of business interests usually takes place at the firm level and is primarily intended to pursue private goods that will benefit a particular firm (Godwin & Seldon, 2002). Individual firms are less concerned with overall levels of effort and are more concerned with their individual firm's treatment. For example, a pesticide company is perfectly happy with rigorously enforced pollution regulations if they can receive an exemption from them or if the regulation only applies to other industries. Thus, it is not entirely surprising that Bacot and Dawes (1997) failed to observe a relationship between industry strength and environmental spending and effort. Vogel (1987) and Kamieniecki (2006) argue against the conclusions of Schattschneider (1960), Lindblom (1977), and others (Schlozman, 1984) who claimed systematic advantages in the policy process by businesses. Kamieniecki finds a lack of evidence of influence over regulatory rulemaking, and any business influence is dependent on the nature of the conflict over environmental issues. To the extent that industry does mobilize around broad policies, its influence should be most limited on salient issues given the advantages of environmental interests. As Smith (2000) notes, business often requires the backing of the public to get its way. Still, we do examine business interests in our analysis to

assess their influence relative to environmental interests and for comparability with earlier studies.

It is also possible that the state's political environment and the extent of pollution act together to influence state spending on environmental programs. Specifically, states with a strong environmental interest presence and severe pollution problems should demonstrate greater environmental expenditures. Environmental groups have the expertise and resources to pressure state decision makers to spend more on the environment. Thus, state decision makers may be more responsive to demands of environmental interests when these organizations can highlight legitimately severe pollution problems. This may help overcome the obstacles associated with the low salience of environmental issues and may help overcome collective action problems (Olson, 1965) or resource disadvantages (Schattschneider, 1960) of environmental interests.

Other Factors Influencing Environmental Spending

Several nonpolitical factors should also influence state spending on the environment. Potoski and Woods (2002) discuss the importance of capacity (to address environmental problems) and matching (solutions with scope of the problem). Certain states will have more resources with which to address environmental problems (Bacot & Dawes, 1996, 1997). Although Bacot and Dawes (1996) find no such relationship, we believe (as they did) that excess resources may be a precondition for higher levels of spending. Accordingly, a state's fiscal health should be an important indicator of its ability to pay for certain policies.

Population is another factor that must be examined in any analysis of environmental spending (Bacot & Dawes, 1997; Potoski & Woods, 2002). Aside from polluting industries, most pollution results from everyday human activities such as driving automobiles. States with larger populations will therefore produce more aggregate pollution and spend more to achieve the same level of environmental protection of an otherwise similar state.3 We also consider state size because of the potential relationship between spending on the environment and total land and water area (Potoski & Woods, 2002). Larger states with more wild lands should demonstrate greater expenditures on certain types of programs, such as the protection of natural resources and wildlife. Despite the fact that New York has 30 times the population of Alaska, the Empire state spends less than the geographically larger of the two states on these programs.

Finally, it is plausible that factors external to a given state influence spending patterns. States within the same geographic region may have similarities in spending patterns on environmental issues. For example, air pollution may flow from one state to another, resulting in one or more states having to increase environmental expenditures.4

Design and Analysis

We examine how the political factors discussed above (public opinion and environmental and business interests) and environmental problems influence spending on several state environmental programs while controlling for various other factors that may influence spending. We begin with an analysis of aggregate expenditures then examine the performance of the model across several different program areas. Given the nature of the dependent variable, Ordinary Least Squares (OLS) regression is the appropriate estimation procedure, and it has been used for all statistical analyses. As some of the models demonstrated heteroskedasticity, models are estimated using robust standard errors.

Dependent Variables

The dependent variables are spending data consisting of aggregate environmental expenditures and expenditures in five specific program areas. We examine spending rather than regulation because the latter is more difficult to compare across program areas given the variation in the agencies involved and enforcement; spending is more comparable across states and programs. Like previous studies (Bacot & Dawes, 1996, 1997), we examine total spending rather than per capita spending because total spending is a clearer indicator of overall state effort than per capita spending. Clearly, pollution is caused by human activity, but unlike many other state programs like education, healthcare, and welfare spending, it is not targeted at individuals.5 As we deal with spending as a collective good, it makes sense to focus on overall spending levels. However, per capita spending models were estimated and are found in the Appendix. The spending data were provided by the Environmental Council of the States, which is a nonpartisan and nonprofit association of state-level environmental commissioners; data refer to the FY2000 state budgets (descriptive statistics for these variables are available in Table 1). Ideally, we might examine multiple years of spending data; however, missing data in the disaggregated spending categories and the lack of data for key independent variables makes this problematic.6 Furthermore, the incremental nature of state budgets makes cross-sectional analysis useful (cf.

Blomquist, 1999; Hofferbert, 1990). For example, spending in 2000 correlates at 0.80 with spending in 1991 and year-to-year correlations are substantially higher. Although spending amounts change over time, most of the variation is cross-sectional rather than temporal. Aggregate environmental spending ranges from $39,780,217 (South Dakota) to $1,891,018,252 (California), with a mean of $271,161,171 and a standard deviation of 334,651,970. These data include all federal, state, and local money passing through the state budget (See Table 1).7

Table 1. Aggregate Spending and Spending by Program Area

Spending Variable	Mean	*SD*	Minimum	Maximum
Aggregate spending (millions)	271.16	334.65	39.78	1,891.02
Air quality	17,607,620	23,781,040	992,050	124,497,000
Water quality	46,609,298	77,275,998	78,611	382,976,000
Forestry	25,976,827	54,869,290	727,180	370,318,000
Fish and wildlife	44,742,022	40,184,364	965,193	221,265,000
Pesticide	4,787,982	11,735,166	281,000	62,872,067

Data provided by the Environmental Council of the States and are FY2000.

To more carefully consider the relationships in question, we also examine disaggregated program areas including air quality, water quality, pesticides, forestry, and fish and wildlife (see Table 1). As with any state-level study of policy and spending, we had to contend with several problems in comparing one state to the next. Where actual expenditures were not available, we use state budgetary estimates. Expenditures for air quality concern any funds used to support the Clean Air Act or any state law addressing clean air. Water quality expenditures include meeting standards of the Clean Water Act and any money for water pollution abatement and protecting and maintaining water quality. Pesticide expenditures include funds to regulate agricultural and commercial use and sale of pesticides. Forestry expenditures include those funds appropriated for the protection and management of forest resources. Fish and wildlife include funds to enforce fish and game laws in the state, as well as the protection, enhancement, and management of fish and wildlife.8

Independent Variables

We expect states with substantial pollution problems to spend more on the environment than states without such problems. Choosing a measure of the severity of the

environmental problems in a particular state presents some challenges, however. In their analysis of the determinants of state environmental spending, Bacot and Dawes (1997) use the per capita pounds of pollution released from the industrial/manufacturing sector. These authors recognize that a shortcoming of this measure is that it is biased toward a specific type of pollution—that caused by industrial and manufacturing firms. Thus, we have developed a more comprehensive pollution severity variable that measures several different types of pollution for use in the analysis of aggregate spending.

We created a pollution severity index by combining state rankings of pollution severity in the areas of air pollution, water pollution, superfund sites, animal waste, and the amount of pollution released by the manufacturing/industrial sector. The data used to construct the pollution severity index were collected from the Environmental Defense, http://www.scorecard.org web page, which presents summaries of data released by the Environmental Protection Agency (EPA). The data were published in 2002 but are derived from rankings up to three years prior to 2000. States are ranked by decile or quintile in each of the five areas described (air pollution, water pollution, superfund sites, animal waste, and industrial/manufacturing pollution). For example, the air pollution ranking was itself a cumulative measure of several types of air pollution rankings in 1999 (carbon monoxide, nitrogen oxides, PM-2.5, PM-10 emissions, sulfur dioxide, and volatile organic compounds emissions). The water pollution item was a ranking of the number of impaired water bodies according to the standards of the Clean Water Act in 1998. The superfund item was the state's ranking for the number of superfund sites located in the state. The animal waste item was the state's ranking for total animal waste in 1997. The toxic release from industry consisted of the state's ranking on total toxic releases from industrial activity.

The rankings were standardized and then summed to create the pollution severity index ranging from −5.95 to 5.77 with a mean of 0 and a standard deviation of 3.02. Higher cumulative scores indicate a more polluted environment. This method weighs each of the five types of pollution equally, the appropriateness of which is debatable. Determining which type of pollution is actually more damaging or serious and expensive to remedy is well beyond the scope of this project. However, it seems clear that an analysis of aggregate environmental spending should consider more than just the amount of toxic releases from industry. Empirically, all five of these pollution rankings are relatively highly correlated, with the exception of water pollution, which was not as highly correlated with either animal pollution or toxic release from industry. Nonetheless, confirmatory factor analysis revealed the presence of one significant factor (eigenvalue

= 2.11), and all variables loaded on the single factor at above 0.41. The scale reliability coefficient for the index was well within the acceptable range ($\alpha = 0.73$).

We used the disaggregated measures of pollution severity for the analysis of specific spending categories where there was a clear problem–spending link. Specifically in the analysis of air quality we use the air pollution component, and for water quality and pesticides, we use the water pollution component. As forests and wildlife can be affected by many different types of pollution, we use the aggregate pollution severity measure for the analysis of this spending area.

The political factors that may influence spending are environmental and business organized interests and public opinion liberalism, although we expect limited, if any, influence from business. Many studies use Hall and Kerr's (1991) measure of the numbers of Greenpeace, National Wildlife Federation, and the Sierra Club per 1,000 residents to estimate the strength of the environmental movement. This figure is outdated, however, so we use the number of Sierra Club members in 2000 per 1,000 population in each state, obtained from the Sierra Club. Although less inclusive than Hall and Kerr's measure, we believe that this measure is a sound indicator of the strength of the environmental movement in a given state and should increase spending. Alternative measures such as the number of registered environmental organizations were tested in models not shown; this variable was highly correlated with both population and business registrants, so it was not included in the final models. Obviously, other environmental groups influence policy, but membership in these groups is correlated with Sierra membership.9 The measure ranged from 0 to 6.22 (per 1,000) with a mean of 2.22 (SD = 1.4).

Unlike environmental groups, business is not generally well organized at the grassroots level. As a result, it makes sense to measure business' political activities at the elite, institutional level. Therefore, we use the number of registered business organizations per 1,000 population in 1997. Previous studies have used membership in industrial and manufacturing groups (Bacot & Dawes, 1997) or measures of the economic importance of a particular sector (like mining or manufacturing) to a state's economy (Hedge & Scicchitano, 1994). Given the broad categories of spending examined here, we think it makes sense to include a broader measure of business mobilization. For example, in largely rural states, the primary polluters should be agricultural interests, which are not reflected in industry and manufacturing trade groups. Furthermore, the importance of economic interests to a state's economy may actually assess constituency influence, or

the importance of the economy in pollution control decisions, rather than interest group influence. Therefore, we use total registered business organizations for our examination of aggregate environmental spending. The variable ranged from 0.03 to 0.38 (per 1,000) with a mean of 0.12 and a standard deviation of 0.08. In the disaggregated spending models, we use more precise sector-specific measures of registered organizations. Specifically, in the analysis of air quality, we use registered manufacturing organizations; for water quality and pesticide spending, we use registered agricultural interests. In spending categories where sectoral interests are not as specific (i.e. forestry and fish and wildlife), we use total business registrants.10

Environmental studies have been inconsistent in their inclusion of citizen and elite ideology measures. Bacot and Dawes (1997) include Erikson, Wright, and McIver's (1993) measure of state ideology but do not include elite ideology or legislative liberalism. Hedge and Scicchitano (1994) discuss the importance of public opinion but do not include it in their final model. Potoski and Woods (2002) do not include either a mass public or elite ideology measure. Hays, Esler, and Hays (1996) include both in their model of state environmental policy, but neither measure is statistically significant when both are included. For the reasons outlined earlier, we believe that opinion liberalism may influence environmental spending, and we have included Erikson, Wright, and McIver's 1999 update of their 1993 measure of public opinion liberalism.11 The opinion liberalism measure ranges from −0.43 to 0.17 with a mean of −0.12 (SD = 0.11). Higher values indicate greater liberalism.

Pollution severity and the environmental context may act independently to lead to more environmental spending, but they might also act in concert. To test whether the influence of pollution severity and the political environment conditionally influence state environmental spending, we use interaction terms between the relevant political variables and pollution severity. For the theoretical reasons stated above, we think that the strength of environmental interests is the most important political factor influencing state environmental spending. Moreover, the environmental movement likely has greater success when they can identify a severe pollution problem to the public. Therefore, we use an interaction of Sierra Club membership and pollution severity to test whether high levels of pollution and high levels of environmental activism lead to greater environmental spending. It is also possible that business mobilization and pollution severity interact to shape spending. For example, whereas business is generally less concerned with collective goods like spending, with severe pollution, business may become more active in fighting aggressive abatement measures. On the other hand, a severe problem may mitigate their ability to limit environmental spending.

We test these possibilities using an interaction term of business registrants and pollution severity.

Other variables are hypothesized to influence state spending in addition to problem severity and politics. As indicated, we expect larger and more populous states to spend more on the environment. The land and water area variable was collected from http://www.netstate.com and includes the square mileage of both land and water area in a state as both are under a state's jurisdiction. The land and water variable ranged from 1,545 to 656,424 square miles with a mean of 75,747 and a standard deviation of 96,226. The population data were collected from the 2000 census, available from the U.S. Census Bureau Web site (http://www.census.gov). In thousands, population ranged from 494 to 33,872 with a mean of 5,617 and a standard deviation of 6,186. Examining aggregate spending, Bacot and Dawes (1997) found that state fiscal health was not a significant determinant of environmental spending. Similarly, Hays, Esler, and Hays (1996) failed to observe a relationship between debt burden and policy commitment. Nonetheless, we include a measure of state fiscal health because it seems plausible that at least for some programs, a less fiscally stressed state may make the decision to allocate greater resources. We updated the measure used by Bacot and Dawes (1997) for 1999, which is a ratio of total state spending subtracted from total state revenue to total state spending. These data were obtained from the U.S. Census Bureau at http://www.census.gov and ranged from −0.10 to 1.85 (M = 0.26, SD = 0.29). We also categorized states into one of the four major Census regions (Northeast, South, West, Midwest) and created three dummy variables to assess any regional patterns. The Northeast dummy variable is not included in the model and is used as the baseline category.12

Findings

We begin our analysis by regressing total state environmental and natural resource spending on the political and nonpolitical variables discussed above (See Table 2). The first model accounts for 75% of the variance in total spending. The primary political variable, Sierra Club membership, is significant and is in the expected, positive direction using a one-tailed test. We can therefore expect an increase in environmental and natural resource spending as Sierra Club membership in a state increases. In dollar terms, for each unit increase in Sierra Club membership (per 1,000 population), we expect a $69.7-million increase in spending.

Table 2. Influences on State Environmental Spending by Program Area

Variable	Total spending	Air quality	Water quality	Pesticide	Forestry	Fish and wildlife
Opinion liberalism	−335.394	−20.461	−250.008^	−46.838	−106.510^	−56.078
	(369.646)	(24.068)	(133.194)	(28.401)	(62.722)	(42.045)
Sierra Club membership	69.678*	2.444^	26.529**	2.578*	23.873***	17.816***
	(33.627)	(1.568)	(9.757)	(1.488)	(5.495)	(2.991)
Business registrants	1,213.89	—	—	—	−59.852	−128.220
	(1,297.027)				(148.721)	(135.464)
Manufacturing registrants		−125.700	—	—	—	—
		(393.412)				
Agriculture registrants		—	1,824.042	247.615	—	—
			(1,964.735)	(232.861)		
Sierra Club × problem	4.070	−1.455	3.197	1.201	3.468*	2.893***
	(8.876)	(2.759)	(4.579)	(1.669)	(1.433)	(0.863)
Business × problem	142.330	−145.364	1,750.599	333.150	−19.233	−32.496
	(190.154)	(330.774)	(1,608.770)	(306.109)	(29.069)	(28.790)
Fiscal health	122.135	0.850	77.929^	1.605	−0.800	3.123
	(134.906)	(4.836)	(51.093)	(1.843)	(13.876)	(10.005)
Land and water area	−0.0004	0.00003^	−0.001**	−0.0001^	−0.0001	0.0001*
	(0.0004)	(0.00002)	(0.0002)	(0.0001)	(0.000)	(0.000)
Problem severity	−25.467	3.034	−18.688	−7.853	−8.996*	0.963
	(21.115)	(6.402)	(19.506)	(7.023)	(4.348)	(3.232)
Population	50.613***	36.468***	107.897***	14.5658***	65.493***	9.817
	(14.274)	(10.101)	(24.559)	(4.556)	(22.331)	(12.207)
South	230.809^	10.322	32.048	3.717	41.766**	15.000
	(134.216)	(6.591)	(39.467)	(4.065)	(14.413)	(12.762)
West	−102.392	10.680*	21.363	1.790	29.802*	16.739
	(72.900)	(4.311)	(29.364)	(4.307)	(12.513)	(10.220)
Midwest	120.477	12.954^	42.527	−0.836	26.787^	10.360
	(110.861)	(6.992)	(38.435)	(5.045)	(14.635)	(14.943)
Constant	−461.093	−20.944	−107.249*	−11.609	−94.077*	−11.167
	(261.057)	(17.221)	(43.285)	(7.614)	(s34.867)	(25.524)
R-square Root Mean Standard Error	0.747 193.8	0.831 11.256	0.605 56.743	0.392 10.774	0.854 24.365	0.754 22.983
N	50	50	46	44	47	49

OLS estimates, with robust standard errors. *p < 0.05, **p < 0.01, ***p < 0.001. We use one-tailed tests where they are appropriate theoretical expectations. The problem severity variable is disaggregated for program areas that are clearly related to one type of policy. The air quality equation uses the air pollution indicator, and the water quality and pesticide equations use the water pollution indicator. The business × problem variable uses the appropriate pollution indicator with the appropriate

business group. For example, the air quality equation uses the number of manufacturing registrants per capita multiplied by the air pollution severity indicator.

As expected, states with larger populations spend more on the environment than those states with smaller populations. Indeed, more populated states have greater environmental expenditures even controlling for the state's land and water area. This is not surprising because both pollution levels and resources to fight pollution are linked to population.

The coefficient for the Southern region is negative and marginally significant at the 0.10 level using a two-tailed test, indicating that the region may spend more on the environment than the Northeast, the baseline category. This is somewhat surprising given the expectation that the Northeast would favor greater environmental expenditures. It is possible, however, that some states in this region such as Maine and Vermont may have lesser need to spend money on the environment because they have lower levels of pollution. Larger or more urban states in the Northeast like New York or Massachusetts may be sympathetic to environmental concerns, but environmental programs may face a tougher competition from other programs. Southern states also typically have significant rural areas that may require greater spending.

Pollution severity was not a significant determinant of aggregate spending, contrasting with the findings of Bacot and Dawes (1996, 1997). This may stem from the different measure of pollution severity, but even using a measure of severity based on pollution from the manufacturing and industrial sector (i.e. Toxics Release Inventory), we did not find a significant relationship between severity and spending. We further speculate on this nonrelationship below.

The variable for land and water area has no apparent influence on total environmental spending, although the results may be attributed to several outliers. States with large land areas like Alaska and Montana have relatively moderate environmental expenditures given their sizes, but they also have lower population. Despite the null findings, problem severity and land area serve as necessary controls in the spending model. Fiscal health is not significant in this model, confirming the findings of Bacot and Dawes (1996, 1997) that states with greater fiscal health do not appear to spend more money on environmental protection.

Business interests did not have a significant influence on total spending. For the reasons explained above, we do not find this surprising. Businesses will not invest substantial effort in fighting for reduced expenditures for regulation and pollution control programs that might benefit the entire business community (or not affect the firm). Instead, they will focus on obtaining a preferential policy that resembles a purer private good. Further, business interests probably do not view these expenditures as a zero-sum exchange where spending money on the environment necessarily detracts from the benefits that they seek. The coefficient for public opinion liberalism was not significant either. This is not surprising given the imperfect translation of environmental issues to the left–right spectrum (Ringquist, 1993); in an analysis not shown, Norrander's (2001) measure of state environmental opinion yielded similar results. Finally, neither interaction term is significant, suggesting that organized interests, whether representing business or the environment, do not gain or lose leverage when there are significant environmental problems, at least in the aggregate.

Table 2 also presents the analysis of expenditures disaggregated by program area. It is likely that spending in each category is at least partly dependent on spending decision made in other program areas. This suggests using a seemingly unrelated estimation procedure, which would model this interdependence. Unfortunately, because various states are missing spending data in different categories, it would eliminate several states from the analysis. Thus, we estimate a separate model for each spending category. (As a diagnostic we did analyze these spending categories using a seemingly unrelated regression approach and found similar results.)

Each of these program areas affects the environment and industries in different ways, and we therefore include a more specific measure of pollution severity and business mobilization in each of the several different program areas where a specific economic interest was apparent, as discussed above.13 We can see in Table 2 that some political factors did influence spending decisions, with the major exception of air quality. The model for air quality spending accounts for 83% of the variance in the dependent variable, but only the population and the West dummy variables are statistically significant at the 0.05 level or better. Thus, more populated states are estimated to spend more on air quality, while the Western states spend more than the Northeast. The coefficient for the environmental mobilization measure was only significant at the 0.10 level, and these marginal findings suggest some possible influence where others have found limited influences on air quality spending (Ringquist, 1993). The land and water area and Midwest variables were also positive and marginally significant at the 0.10 level. Like the aggregate analysis, the relationship between pollution severity and

spending was not significant (nor was the interaction of Sierra Club membership and pollution severity significant).

For water quality spending, the model accounts for 61% of variance in this category, but both political and nonpolitical factors matter. Sierra Club membership is significant in the expected, positive direction, indicating that greater mobilization of environmental organizations increases spending. This amounts to an estimated $27 million increase in environmental expenditures for each unit increase in Sierra Club membership per 1,000 population. Public opinion liberalism has a marginal and negative influence on water quality spending (although only at the 0.10 level). Turning to the nonpolitical variables, population is also significant in the expected, positive direction. Yet as land and water area increases, there is a significant decrease in spending on water quality, controlling for other factors. This may be because of the initial costs for environmental management, regulation, and protection, and the cost decreases per square mile as the state's area increases. The fiscal health coefficient is in the expected, positive direction, although significance is only at the 0.10 level.

The pesticide model accounts for 39% of the variance in spending on that area. The Sierra Club membership coefficient is positive and significant, indicating that the organization is expected to increase pesticide spending. For each unit increase in Sierra Club membership per 1,000 people, we expect a near $2.6 million increase in environmental spending, which is a smaller effect than that in the water-spending model, but it is still notable because pesticide expenditures are on average approximately one-tenth of water spending. Thus, environmental interests play an active role in pesticide spending and in trying to influence policy in this area (cf. Bosso, 1987). Population also has an expected, positive influence on pesticide spending. A state's land and water area has a marginally significant and negative coefficient ($p = <0.10$).

The forestry model explains 85% of the variance in spending. As expected, Sierra Club membership has a positive and significant influence on forestry spending. We can expect a $23.9 million increase in spending for each unit increase in Sierra Club membership per 1,000 people. Turning to the nonpolitical variables, problem severity has a negative coefficient, indicating that spending decreases as forestry problems become more severe. However, when we interacted problem severity with Sierra Club membership we observed a positive and significant coefficient. Thus, states with severe pollution and a strong environmental movement do demonstrate higher spending on forestry. This is an indication of how problem salience can condition interest

organization influence, at least in some cases. The South and West regional dummies have positive and significant coefficients (the Midwest approaches significance), and the population coefficient is positive and significant.

Turning to fish and wildlife spending, the model explains 75% of the variance, and the results are similar to those of other models. Sierra Club membership is an expected positive and significant political determinant of fish and wildlife spending, resulting in an expected $17.8 million increase in spending for each unit increase in membership per 1,000 people. When we interact Sierra Club membership with problem severity, we observe a positive and significant effect. Thus, the organization's members can influence spending when problems are severe. Population is estimated as the only nonpolitical determinant of fish and wildlife spending.

Taken together, the models presented in Table 2 show that political factors, specifically the strength of the state's environmental movement, are important determinants of state spending on the environment. This was true for aggregate spending and across all spending areas with the exception of air quality spending, in which it was only marginally significant. Public opinion liberalism is generally not significantly related to state spending, although we did note a marginally significant and negative coefficient in water quality spending. Even using Norrander's (2001) data on public opinion instead of opinion liberalism did not alter the results substantively. There are several possible reasons for this lack of influence, but the relationship between state liberalism and environmental policy is in need of greater study.14 For the reasons above, we are not surprised that business interests did not influence environmental spending. Businesses likely prefer to lobby for more particularized benefits, and they are less concerned with general environmental expenditures even in specific areas like air or water quality.

The actual severity of pollution was not generally a significant determinant of spending on the environment. Even using more refined pollution measures in specific programs, this was the case. We did observe, however, that for two spending categories (forestry and fish and wildlife) the strength of the environmental interests and pollution severity interact to affect state spending. Thus, in states with well-organized environmental groups and severe pollution, spending is higher on these programs. While we did not anticipate this relationship on only these two spending categories (forestry and fish and wildlife), a reasonable explanation seems to involve the motivations for becoming involved in environmental groups. In many states, the environmental movement is motivated as much around conservation and outdoor recreation as it is around attempts

to limit more urban pollution problems (e.g. air pollution). This likely explains why the West spends significantly more than the Northeast in two of our models. Thus, environmental interests probably have a greater ability to mobilize grassroots support on these forestry and fish and wildlife programs across all states than on other types of environmental programs, heightening the responsiveness of the state budget to actual environmental problems.

The general lack of a relationship between pollution severity and spending deserves further comment, especially in light of prior research (Bacot & Dawes, 1996, 1997). Problem severity does not directly influence spending, but instead, the severity of environmental problems is filtered through the political process. Further, the salience of pollution is probably dependent to a large extent on the media. An analysis of state newspaper coverage during 1999 and 2000 indicated that there is actually a negative correlation between the number of environment- and pollution-related news stories and state pollution severity.15 Paradoxically, this may reflect that in the most polluted states, environmental issues receive less attention from the media (and thus the public) because pollution is simply seen as part of the status quo. In these cases, even groups like the Sierra Club may have a harder time raising the salience of pollution issues.

It is also necessary to consider the fiscal context of the states when considering the relationship between pollution severity and environmental spending. The period of time that Bacot and Dawes (1996, 1997) examine is the late 1980s, a time of relative fiscal distress in the states. In that fiscal context, one would expect a closer relationship between objective environmental needs and state spending. Simply put, with scarce resources, states will try to spend enough, but little more on environmental protection.16 The year we consider in this study (2000) represented very flush times for state budgets. In this fiscal context, states clearly had more flexibility, and thus those states with the loudest demand for more spending from environmental groups could afford to spend more whether it was strictly "needed" or not.

Finally, although we focus on total spending because we believe it is appropriate for a policy area that it targeted as a public good, we also estimated all of our models using per capita spending and per capita spending in each program area (See Appendix).17 Sierra Club membership is only estimated to increase per capita spending in the water quality and forestry model ($2.40 and $1.90 for every 1,000 members of the organization, respectively). The interaction between Sierra Club and problem severity is estimated to increase per capita fish and wildlife spending, and the variable approaches

significance in the overall per capita and air quality models. There is a marginally significant and positive influence of agricultural interests on per capita pesticide spending and on the business interaction term with problem severity for the water quality model. The negative coefficients on this interaction term for the air quality and fish and wildlife models may indicate that business is able to influence per capita spending reductions when environmental problems are severe ($p < 0.10$). Fiscal health has a positive and significant expected impact on fish and wildlife spending. Interestingly, there are mixed results for land and water area, as the variable is estimated to increase per capita overall, air quality, and fish and wildlife spending, but it is expected to decrease water quality, pesticide, and forestry spending. In sum, organized interests have little, if any, impact on per capita spending, even in states that have more severe environmental problems.

Conclusion

This research adds to our understanding of how environmental problems and politics shape state environmental policies. Unlike prior research, we examined the effects of different types of pollution across different policy areas.18 We found that in the period of time under review here, the strength of environmental interests was a more consistent influence on policy than the actual severity of environmental problems. In two spending areas, these factors interact to shape state spending on the environment. For those concerned with how political interests affect public policy, we believe that influence is contingent on context, which is consistent with recent work by a number of neopluralist scholars (Baumgartner & Leech, 1998; Kamieniecki, 2006; Smith, 2000).

The nonrelationship between problem severity and environmental spending may be counterintuitive, but it is routinely observed in other policy contexts, and therefore, it should not be very surprising. For example, in the United States, it is generally the poorest states that have traditionally focused fewer resources on antipoverty programs. While some of this can be explained by a simple lack of state resources, clearly it is also determined by the conservative ideology and weak labor unions that prevail in many of these states. Similarly, in the environmental policy realm, some state decision makers will be less sensitive to pollution and less willing to enact policies that are perceived as damaging to business and industry. Well-organized environmental interests can, with their mass base and potential electoral support or with the effective marshaling of information, convince state decision makers to spend more on the environment. From an environmental protection standpoint, the fact that state budgets do not appear

proportionate to the scope of environmental problems is perhaps somewhat troubling, but given the political nature of the budget process it could scarcely be different.

Many studies have noted the differences in environmental policy areas ranging from pesticides (Bosso, 1987) to water quality (Ringquist, 1993). Spending in these diverse areas are no different. While we find a consistent influence of the environmental movement across spending areas in aggregate terms, these interests are only influential determinants of per capita spending for water quality and forestry. At least in the water quality case, both per capita and overall water spending may be influenced by these interests because this area is to some extent targeted as both a collective good and at the individual level. Ultimately, it may be the case that different spending areas are influenced by a different set of factors, a further indication of the multidimensionality of the environmental issue area (Potoski & Woods, 2002). This is probably comforting to those worried about the dominance of one or two interests in the pressure system.

Notes

1 The authors would like to thank Jerry Emison, Anthony Dodson, Dennis O. Grady, and the anonymous reviewers for their comments on this manuscript.

2 For the New York press release see http://www.dec.state.ny.us/website/environmentdec/2005a/budgetincrease011805.html, and for the American Rivers report see http://www.americanrivers.org.

3 For example, consumption of and pollution by fossil fuels is far greater in states with larger states than smaller states according to the Energy Information Administration (see http://eia.doe.gov).

4 Berry and Berry (1990) discuss the likelihood of states emulating states in similar geographic areas and it is plausible that neighboring states may have similar spending patterns.

5 As a diagnostic, we also considered spending as a proportion of the total budget and per capita expenditures. The per capita spending models are found in the Appendix (and summary statistics) and are discussed later. As a percentage of the total budget, fiscal health is the key significant independent variable. Thus, fiscally healthy states invest a greater portion of funds, but not a greater amount, in environmental areas.

6 Comparable problem severity measures are difficult to construct for past-time points. Data on the number of registered businesses and the number of agricultural, manufacturing, and environmental registrants (in alternate specifications) simply do not exist at numerous time points for 50 states.

7 As federal program grants are partly determined by both the severity of state environmental problems and the preferences of state political actors (see Volden, 2005), this is not problematic for testing the hypotheses of concern. Additionally, the proportion of state environmental spending comprised of federal grants has decreased dramatically since the 1980s (Bacot & Dawes, 1996).

8 In an earlier version of this manuscript we considered nonsalient spending categories like geologic survey, land management, and solid waste. Neither political nor contextual factors explained spending in these areas.

9 In earlier specification, the number of environmental registrants (provided by David Lowery and Virginia Gray) had a similar impact on environmental spending as Sierra Club membership. Additionally, Witko and Newmark's (2005) examination of interest's influence on policy suggests that mass-based interests like unions appear to influence policy with their membership base as opposed to the use of tactics like campaign contributions. We believe that a similar pattern will emerge in the environmental realm and we therefore include Sierra Club membership.

10 The data were provided by David Lowery and Virginia Gray. In an analysis not reported here, we also used business campaign contribution data collected from the National Institute on Money in State Politics as an indicator of business group strength. We also examined the total number of business organizations registered in each state,

which is an absolute measure of business strength; given the high levels of collinearity with population, we use the measure discussed above. The results of these specifications were similar to the models included in this manuscript.

11 Data are available from Gerald C. Wright, Indiana University (http://php.indiana.edu/~wright1/).

12 We omit several variables from the final analysis that may be expected to influence spending. First, it has been argued that a mini-EPA structure is the most efficient for regulatory purposes, although how this would influence spending is not clear. Bacot and Dawes (1997) examined this variable and found that environmental agency structure did not influence state expenditures and additional unreported analysis confirmed this finding, and therefore the agency structure variable is omitted from the final models. We also considered that in many states, a substantial portion of the land is owned by the federal government (e.g. 83% in Nebraska, 64.5% in Utah; Rosenbaum, 2004). Estimating all models including the percentage of federally owned lands did not change results in any substantive way.

13 Each of these models was also examined using the total business registration values in 1997, the number of environmental registrants, and aggregate pollution severity. The results did not change substantively.

14 For example, Ringquist (1993) asserted that environmental policies do not fit neatly into the liberal–conservative continuum. Scholars have also speculated that conservative states may act more aggressively on the environment in an effort to fend off federal intervention in environmental affairs (Hays, Esler, & Hays, 1996). That is, rather than have the federal government issue sanctions for noncompliance with environmental regulations, conservative states would rather spend money to protect the environment themselves while maintaining maximum control over environmental policies.

15 We searched each state's newspapers using the key words "pollution" and "environment," omitting clearly unrelated references such as "noise pollution." We use per capita news stories to control for the fact that more populous states will naturally

have more newspapers and hence more total news stories. Pollution severity and per capita news stories were correlated at −0.27. Further analysis is necessary, but it seems that media coverage does not adequately reflect state environmental problems, and therefore much of the public may actually be quite unaware of the true scope of environmental problems in their state.

16 We also tested whether states engaged in a race to the bottom with environmental spending. We computed the average spending amounts (overall and per capita) for all spending categories for neighboring states to determine if increases/decreases among neighboring states influenced spending. There was no effect on spending or per capita spending in any of these models.

17 The models are identical to the earlier models for comparison purposes. Population is left in the models for this purpose and because of our earlier arguments that higher populations might result in greater expenditures (the evidence for this is mixed). We estimated the models without population, and the significance for the other variables did not change substantively.

18 Lowry (1992) does examine pollution controls in a number of program areas.

References

Bacot, H. A., & Dawes, R. A. (1996). Responses to federal devolution: Measuring state environmental efforts. State and Local Government Review, 28(2), 124–135.

Bacot, H. A., & Dawes, R. A. (1997). State expenditures and policy outcomes in environmental program management. Policy Studies Journal, 25(3), 355–370.

Baumgartner, F. R., & Leech, B. L. (1998). Basic interests: The importance of groups in politics and in political science. Princeton, NJ: Princeton University Press.

Berry, F. S., & Berry, W. D. (1990). State lottery adoptions as policy innovations: An event history analysis. American Political Science Review, 84(2), 395–415.

Blomquist, W. (1991). Exploring state differences in groundwater policy adoptions, 1980–1989. Publius: The Journal of Federalism, 21(2), 101–115.

Blomquist, W. (1999). The policy process and large-n comparative studies. In P. A. Sabatier (Ed.), Theories of the policy process (pp. 201–230). Boulder, CO: Westview Press.

Bosso, C. J. (1987). Pesticides and politics. Pittsburgh, PA: University of Pittsburgh Press.

Bosso, C. J., & Guber, D. L. (2006). Maintaining presence: Environmental advocacy and the permanent campaign. In N. I. Vig & M. E. Kraft (Eds.), Environmental policy: New directions for the twenty-first century (pp. 78–99). Washington, DC: CQ Press.

Dunlap, R. E., & Scarce, R. (1991). Poll trends: Environmental problems and protection. Public Opinion Quarterly, 55(4), 651–672.

Erikson, R. S., Wright, G. C., & McIver, J. P. (1993). Statehouse democracy: Public opinion and policy in the American states. New York: Cambridge University Press.

Godwin, R. K., & Seldon, B. J. (2002). What corporations really want from government: The public provision of private goods. In A. J. Cigler & B. A. Loomis (Eds.), Interest group politics (6th ed., pp. 205–224). Washington, DC: CQ Press.

Hall, B., & Kerr, M. K. (1991). The green index. Washington, DC: Institute for Southern Studies.

Hays, S. P., Esler, M., & Hays, C. E. (1996). Environmental commitment among the states: Integrating alternative approaches to state environmental policy. Publius, 26(2), 41–58.

Hedge, D. M., & Scicchitano, M. J. (1994). Regulating in space and time: The case of regulatory federalism. Journal of Politics, 56(1), 134–153.

Hofferbert, R. I. (1990). The reach and grasp of policy analysis: Comparative views of the craft. Tuscaloosa: University of Alabama Press.

Kamieniecki, S. (2006). Corporate America and environmental policy: How often does business get its way? Stanford, CA: Stanford University Press.

Lindblom, C. E. (1977). Politics and markets. New York: Basic Books.

Lowry, W. R. (1992). The dimensions of federalism: State governments and pollution control policies. Durham, NC: Duke University Press.

Norrander, B. (2001). Measuring state public opinion with the Senate national election study. State Politics and Policy quarterly, 1(1), 111–125.

Olson, M. (1965). The logic of collective action: Public goods and the theory of groups. Cambridge, MA: Harvard University Press.

Potoski, M., & Woods, N. D. (2002). Dimensions of state environmental policies: Air pollution regulation in the United States. Policy Studies Journal, 30(2), 208–226.

Ridley, S. (1987). The state of the states. Washington, DC: Fund for Renewable Energy and the Environment.

Ringquist, E. J. (1993). Environmental protection at the state level: Politics and progress in controlling pollution. Armonk, NY: M. E. Sharpe.

Rosenbaum, W. A. (2004). Environmental politics and policy. Washington, DC: CQ Press.

Schattschneider, E. E. (1960). The semi-sovereign people. New York: Harcourt Brace Publishers.

Schlozman, K. L. (1984). What accent the heavenly chorus? Political equality and the American pressure system. Journal of Politics, 46(4), 1006–1032.

Smith, M. A. (2000). American business and political power. Chicago: The Chicago University Press.

Vogel, D. (1987). Political science and the study of corporate power: A dissent from the new conventional wisdom. British Journal of Politics, 17(4), 385–408.

Volden, C. (2005). Intergovernmental political competition in American federalism. American Journal of Political Science, 49(2), 327–342.

Williams, B. A., & Matheny, A. R. (1984). Testing theories of social regulation: Hazardous waste regulation in the American states. The Journal of Politics, 46(2), 428–458.

Witko, C., & Newmark, A. J. (2005). Business mobilization and public policy in the U.S. states. Social Science Quarterly, 86(2), 356–367.

APPENDIX

Table A-1. Influences on Per Capita State Environmental Spending by Program Area

Variable	Overall Spending	Air Quality	Water Quality	Pesticide	Forestry	Fish & Wildlife
Opinion Liberalism	106.154	8.0503^	−5.680	−9.431	−0.065	1.249
	(92.068)	(5.308)	(27.386)	(5.808)	(9.958)	(22.955)
Sierra Club membership	−3.661	0.133	2.388*	0.201	1.885*	0.706
	(6.314)	(0.247)	(1.404)	(0.201)	(0.924)	(1.603)
Business registrants	324.590	—	—	—	4.944	−7.222
	(225.086)				(32.389)	(40.769)
Manufacturing registrants	—	−56.665	—	—	—	—
		(49.814)				
Agriculture registrants	—	—	232.441	75.253^	—	—
			(303.798)	(38.810)		
Sierra Club × Problem	2.878^	0.608^	0.929	0.276	0.152	0.850*
	(1.754)	(0.376)	(0.980)	(0.3656)	(0.171)	(0.430)
Business × Problem	5.706	−100.328^	417.085^	92.208	−2.073	−15.423^
	(37.190)	(52.525)	(304.422)	(66.614)	(5.611)	(8.294)
Fiscal Health	29.140	−0.650	9.982	0.013	0.633	17.974*
	(28.447)	(0.698)	(10.322)	(0.366)	(2.148)	(7.987)
Land and water area	0.0002**	0.00003***	−0.00008^	−0.0000178^	−0.000009^	0.00013***
	(0.0001)	(0.000004)	(0.00005)	(0.000010)	(0.000007)	(0.00002)
Problem severity	−4.945	0.884	−3.9135	−1.671	0.390	0.274
	(4.701)	(1.060)	(3.687)	(1.554)	(0.470)	(0.826)
Population	−0.003	−0.0003**	0.00003	0.0001*	−0.0004^	−0.0018***
	(0.002)	(0.00009)	(0.0002)	(0.000)	(0.0003)	(0.0004)
South	15.374	1.460	1.571	−0.224	3.941^	−4.167367
	(17.845)	(1.217)	(6.609)	(0.667)	(1.996)	(3.611)
West	7.936	0.820	0.992	−0.897	5.719*	−1.719
	(22.038)	(0.932)	(9.015)	(0.942)	(2.541)	(5.080)
Midwest	−13.400	0.468	4.925 7.541	−0.925	0.163	−8.050*
	(18.799)	(1.063)		(1.060)	(1.944)	(3.909)
Constant	44.602	3.975*	2.872	0.159	−1.188	12.268
	(36.093)	(1.713)	(5.912)	(1.134)	(3.789)	(8.959)
R-square Root Mean Standard Error	0.549 40.711	0.696 1.845	0.2627 10.405	0.206 2.248	0.568 4.028	0.846 8.981
N	50	50	46	44	47	49

OLS estimates, with robust standard errors. *p < 0.05, **p < 0.01, ***p < 0.001. Overall spending (M = 66.29, SD = 52.68); air (M = 3.61, SD = 2.91); water (M = 9.40, SD = 10.38); pesticide (M = 1.08, SD = 2.14); forest (M = 5.34, SD = 5.27); fish and wildlife (M = 15.22, SD = 19.84). We use one-tailed tests where they are appropriate due to theoretical expectations. The problem severity variable is disaggregated for program areas that are clearly related to one type of policy. The air quality equation uses the air pollution indicator, and the water quality and pesticide equations use the water pollution indicator. The Business × Problem variable uses the appropriate pollution indicator with the appropriate business group. For example, the air quality equation uses the number of manufacturing registrants per capita multiplied by the air pollution severity indicator.