

Movement Organizations, Synergistic Tactics and Environmental Public Policy

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This study builds on political mediation and movement infrastructure models to highlight contingent and synergistic ways in which social movements may impinge upon the U.S. national policy-making process. Analyses employ a variety of datasets to examine the role of environmental movement organizational capacity, protest and institutional activity in garnering Congressional attention to, and action on, salient issues from 1961 through 1990. We find all types of movement activity, but especially the development of national organizational infrastructures, to be positively associated with the convening of Congressional hearings on the environment. Only when there are high levels of *both* protest and institutional activity is there any evidence that the environmental movement directly influences the passage of environmental laws.

Research examining social movement outcomes has primarily focused on policy-related consequences of mobilization (for reviews see Amenta and Caren 2004; Andrews and Edwards 2004). Increasingly, this literature has sought to incorporate information on a wide variety of theoretically important covariates, including social movement organizations, movement activities, public opinion and elements of the political opportunity structure, as well as exploring the ways in which these factors interact and combine to affect policy change (Agnone 2007; Andrews 2001, 2004; Amenta, Carruthers and Zylan 1992; Amenta, Caren and Olasky 2005; Cress and Snow 2000; Soule and Olzak 2004). At the same time, there has been heightened interest in examining different stages in the policy-making process such as legislation and hearings (Burstein, Bauldry and Froese 2005; Johnson 2008; King, Bentele and Soule 2007; King, Cornwall and Dahlin 2005; Olzak and Soule 2009; Soule and King 2006).

Guided by extant scholarship on the impact of policy on social movements, we account for each of the major causal factors that influence change in public policy, assessing contingent and synergistic effects of these factors at two important stages in the policy-making process: agenda setting and law passage. In doing so, we test theoretically driven hypotheses that specify how and under what circumstances movements are more or less likely to elicit changes in public policy. We examine

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movement infrastructure claims (Andrews 2001, 2004) of a synergistic effect when movements simultaneously employ both protest and institutional influence activities (i.e., press conferences and legal maneuvers) as well as political mediation claims (Amenta 2006; Amenta and Caren 2004; Amenta et al. 1992, 2005; Cress and Snow 2000) about the political conditions under which activities are likely to be more or less efficacious. We extend these theories by positing how social movement organizations and activities, or combinations of strategies and political conditions, differentially affect the agenda setting and law passage stages of the legislative process.

We use as our test case the U.S. national environmental movement. The American environmental movement experienced an upsurge in organization building, institutional influence activity and protest beginning in the late 1960s and continuing through the mid 1980s. Meanwhile, environmental issues became increasingly institutionalized within the federal policy-making arena (Andrews 1999; Portnoy 1990). Accordingly, our analyses are guided by the following questions: (1. What has been the role of the U.S. national environmental movement in attracting federal attention to, and affecting policy changes on, environmental issues? (2. How has the movement exerted influence? Does greater organizational capacity, the adoption of institutional influence activity, the use of protest, or some combination of these factors best account for political success? (3. Are there certain conditions under which national movements are more or less likely to influence federal agenda-setting activity or the passage of laws?

How Movements Influence the Policy Process

In attempting to achieve their social change goals, social movement groups primarily target the state in an attempt to influence public policy.¹ Drawing on several influential typologies (see Andrews and Edwards 2004; Amenta, Halfmann and Young 1999; Giugni 1998; Kingdon 1984), we conceptualize the federal policy-making process as consisting of at least four important stages: (1. agenda setting, (2. content specifying, (3. legislation passage, and (4. policy implementation. Before decisions can be made on any given issue, the problem must first come to the attention of political decision makers. While increased agenda salience does not necessarily assure desired outcomes (Burstein 1985), it is a necessary precursor to the development of public policy that increases the likelihood of legislation (Baumgartner and Jones 1993; Cobb and Elder 1975; Kingdon 1984). Moreover, it is at the agenda-setting stage that interest groups and social movements are thought to have the greatest influence (Andrews and Edwards 2004).

Following this initial phase, a wide variety of actors compete to frame the issue. In a simplified version of legislative action, a formal bill is then introduced, and legislators determine whether to pass a law. This stage is the most visible in the political process, but policy making does not end with the passage of new laws. Instead, considerable work remains to specify how laws and policies are

implemented, funded and enforced. The entire process is subject to feedback and revisions are likely.

Despite the assumption “that each part of the policy process is shaped by different explanatory factors” (Andrews and Edwards 2004:492), scholars have only begun the process of illuminating how movement strategies—or combinations of strategies—affect various stages of the policy-making process. Recent scholarship (King et al. 2005, 2007; Soule and King 2006) describes how the influence of social movements is conditioned upon a *legislative logic* of increasingly stringent rules applied at each stage of the process. This logic predicts that movements’ effects should diminish at each successive stage of the policy-making process, as the results of acting on potential legislation become increasingly consequential (i.e. closer to enforceable law) and more closely contested. Agenda setting is the least consequential stage, and the one that should be most responsive to social movement organization activity. And indeed, a growing empirical literature examining multiple stages of the policy-making process suggest that women’s, civil rights and environmental movements significantly affect the setting of legislative agendas, but have only minimal or null effects on the passage of laws (Johnson 2008; King et al 2005; 2007; Olzak and Soule 2009; Soule and King 2006). Rather than simply a question of diminishing effects of social movements across the policy making process, it may also be that different factors or combinations of factors matter at different stages.

At the agenda-setting stage, more expansive organizational capacity and greater amounts of institutional influence and/or protest activities may be sufficient to spur action. We therefore hypothesize:

H1: Social movement organizational capacity, protest and institutional influence activity will each be positively associated with legislative agenda-setting activity on relevant issues.

Concerning law passage, however, we are much more pessimistic about the direct influence of social movements, particularly the role of movement organizations. This reflects our understanding of the theoretically contingent nature of law passage and the legislative logic of the public policy process, as well as the results of previous empirical analyses testing for a direct relationship between organized mobilization and the passing of legislation (Burstein and Linton 2002). In short, we think it unlikely that movements directly influence the passage of laws and embrace Burstein and Linton’s (2002) challenge to posit a null effect.

H2: Neither social movement organizational capacity, protest nor institutional influence activity will have a direct effect on the incidence of law passage.

Political Context

Originally developed to explain social movement mobilization (McAdam 1982; Tilly 1978), the application of political opportunity theory to analyses of movement outcomes has become standard practice (e.g., Almeida and Stearns 1998; Banaszak 1996; Meyer and Minkoff 2004). The political opportunity structure refers to “dimensions of the political environment that provide incentives for people to undertake collective action by affecting their expectations of success or failure.” (Tarrow 1994:85) What precisely should be included as relevant dimensions of the POS is highly variable, however. Analysts suggest a wide range of models, from those focused narrowly on structural dimensions of the political system (McAdam 1996) to those suggesting the inclusion of broad cultural elements (Gamson and Meyer 1996). Given the wide variance in its application, it is perhaps not surprising that political opportunity theory has regularly been critiqued as a “black box,” a potential “sponge that soaks up every aspect of the social movement environment” (Gamson and Meyer 1996:275) or, in even less flattering terms, a “winding snarling vine.”² (Goodwin and Jasper 1999)

In an attempt to add conceptual clarity to political opportunity theory, Meyer and Minkoff (2004) parse commonly employed measures of the POS along two theoretical dimensions. First, they argue that it is important to distinguish between issue-specific measures of the POS (those that apply only to a particular movement or issue) and general measures of the POS important across a range of social movements. Second, they distinguish between measures that speak to structural vs. signaling models of the POS and find that signaling models are closely linked to dynamics of SMO formation but that “[m]ovement-related policy outcomes are unequivocally determined by structural elements in the polity.” (Amenta 1998:1483) Although analyzing the substantive case of environmentalism, we are interested in how social movements may affect a broad range of public policy domains.

Political mediation theory (Amenta 2006; Amenta et al. 1992, 1999, 2005) asserts that, in addition to direct effects, political opportunities mediate the effect of social movement activities on legislative action. In the strongest version of the theory movement mobilization is seen as a necessary, but not sufficient, condition for political action: “...mobilization and collective action are usually insufficient for policy changes; under some circumstances, however, mobilization and collective action may bring about changes.” (Amenta et al. 1992:312) The circumstances under which movement mobilization and activity are likely to bring about change are openings in the political environment. Again, however, rather than focus on direct effects, researchers applying political mediation models have begun to specify how different movement activities may be more or less effectual under different political conditions. The central argument of political mediation models is that movement strategies are more likely to result in political gains when there is a “fit” between movement activities and the political environment. Elite allies play a particularly important role in mediation models (Cress and Snow 2000; Soule

and Olzak 2004). When sympathetic or allied elites are in power, less assertive movement strategies (e.g., institutional influence activity) are needed to achieve a favorable political outcome, and more assertive protest activity may even waste good will and backfire. But, under more restrictive political opportunities more assertive strategies are required. Thus, institutional influence activity and organizational capacity are more likely to be successful in favorable political climates, while relatively restrictive opportunities are more responsive to the use of disruptive protest tactics (Amenta 2006; Amenta et al. 2005; Soule and Olzak 2004).

In the political mediation approach movement organizations, institutional influence activity and protest are presumed to be equally effective. Accordingly, it is the appropriateness of movement activities to existing political conditions that determines policy success.

H3: Across the policy process, the effect of social movement organizational capacity and institutional influence activity will be increased, and protest decreased, under favorable political conditions.

Movement Infrastructure

The movement infrastructure model (Andrews 2001, 2004) emphasizes: (1. how tactical diversity may heighten movement effects; and (2. the role of organizational infrastructure in contributing to diverse movement tactics. SMOs, in this view, are important beyond their contribution to mobilizing resources. Primarily, movements with larger organizational infrastructures are also likely to have a greater diversity of organizations, in turn facilitating the simultaneous adoption of multiple influence methods.

The movement infrastructure approach points to the need for movements to employ both “outsider” and “insider” tactics in achieving policy gains by asserting that movements have the greatest policy impact “when they... create leverage through multiple mechanisms.” (Andrews 2001:76-77) In short, neither disruptive protest nor institutional influence activity alone is sufficient to make favorable changes in public policy. The movement infrastructure model builds on longstanding observations of a radical flank effect within social movements (Jenkins and Eckert 1986; McAdam 1982), whereby the existence of a radical fringe prompts elite concessions in an effort to co-opt more moderate elements of a social movement. In a diverse organizational field, highly stable professionalized SMOs offer the possibility of more effectively maneuvering routinized political channels through a range of institutional influence activities such as petitioning, letter-writing campaigns, litigation, testifying at Congressional hearings, and even drafting legislation and regulations (Staggenborg 1988). By employing professional staff scientists, lawyers and lobbyists, SMOs act like interest groups, serving as stable partners that may influence public policy

by providing information and assistance in framing issues to Congressional members and staff (Andrews and Edwards 2004; Banaszak 1996; Burstein and Hirsh 2007).

Simultaneously, in a diverse organizational field other groups may focus on more disruptive activities, such as political protest, which may be more likely to provoke an elite response. While a focus on social movement organization building has been challenged as counter-productive to direct action (e.g., Piven and Cloward 1979), there is evidence that the size of a movement's organizational infrastructure may be positively associated with protest capacity (McAdam 1982; Minkoff 1997). The organizational infrastructure model sidesteps tension in the literature over the relative efficacy of protest, institutional influence activity and organizations by focusing on potential synergies between various social movement strategies, whereby movements disrupt on the one hand and offer opportunities for reconciliation on the other (see Giugni 1998 for a review).

Despite its theoretical appeal, evidence speaking to the notion of a synergistic effect between movement protest and institutional influence activity remains underdeveloped. Research has generally failed to include data on movement organizational capacity, protest and institutional influence activity, typically focusing on one or the other (Amenta et al. 2005 and Cress and Snow 2000 are notable exceptions). Andrews clearly indicates the necessity of movements employing both institutional influence and protest tactics, but does not directly test for the existence of tactical synergism or, indeed, account for movement activities in his empirical analysis. Instead, there is a presumption that existence of a strong organizational infrastructure allows for the deployment of a wide range of strategic activities. While there is some merit to this approach, it is an open empirical question whether movements with strong organizational infrastructures are necessarily more diverse in the strategies they employ (but see Olzak and Ryo 2007). Accordingly, we test for a synergistic effect between institutional influence and protest activities in affecting law passage, while controlling for the size of the movement's organizational infrastructure. We do not consider multiple influence mechanisms a necessity at the agenda setting stage, however, because this part of the political process is relatively more open to influence. Echoing the idea that this fundamental proposition should apply at the law-passage, but not necessarily agenda-setting stage, Amenta et al. (2005:522) note that, "[f]undamentally altering policy, however, is likely to take both strong mobilization and extensive assertive shows of strength." We therefore expect a differential influence of tactical synergy between the agenda-setting and law-passage stages of the policy process.

H4: The simultaneous deployment of both protest and institutional influence activities is not necessary for influencing agenda-setting activities.

H5: *The simultaneous deployment of both protest and institutional influence activities is positively associated with the incidence of law passage.*

The Modern Environmental Movement

Although the U.S. national environmental movement is rooted in the conservation movement of the late 19th and early 20th centuries, it is the extensive period of organization building beginning in the late 1960s and continuing through the 1980s that marks the beginning of the modern environmental movement in America (Brulle 2000; Gottlieb 1993). The rate of new national environmental movement organization foundings surged after 1965, peaked in 1970, and remained high throughout the 1980s (Johnson and McCarthy 2004; McLaughlin and Khawaja 2000). Many of the EMOs founded during this period can be characterized as proto-typical professional movement organizations (McCarthy and Zald 1977), with a heavy reliance on a paper membership and a full-time paid staff of scientists, lawyers and lobbyists rather than an active membership. Compared to other social movements, the professional skills these organizations brought to environmental issues, along with early legislative success, fostered a heavy reliance on more traditional institutional influence activity such as lobbying, litigation, testifying at Congressional hearings and public education.

The rapid emergence and growth of a popularly supported national environmental movement with a large organizational infrastructure and increasingly diverse tactical repertoire is thought to have spurred the development of a federal environmental regulatory framework. Indeed, during the 1970s, there was unprecedented attention paid to, and bi-partisan support for, ecological issues in national policy. The Environmental Protection Agency founded in 1970, centralized federal responsibility for environmental protection and regulation. Further, 30 major pieces of environmental legislation were passed (Miller 1991). While the inauguration of President Reagan decidedly shifted the political landscape, environmental issues remained firmly institutionalized within the U.S. political system throughout the 1980s. The erosion of federal environmental protections during the Reagan administration initially produced a backlash of support for environmental issues, resulting in a membership surge during the early 1980s for national EMOs (Dunlap and Mertig 1992). As the decade wore on, however, national organizations increasingly came to be perceived as incapable of protecting previous legislative gains. This, combined with the emergence of a vibrant grassroots strand of the movement focused on issues of toxic contamination and environmental justice and extremely critical of mainstream national EMOs (Bullard 1990; Brown and Masterson-Allen 1994; Cable and Cable 1995; Szasz 1994), contributed to a growing crisis of legitimacy within the national movement (Dowie 1995). Observers have tended to assume a link between citizen mobilization around environmental issues and federal attention to those same issues,

although the topic has only recently garnered scholarly attention (Agnone 2007; Johnson 2008; Olzak and Soule 2009). While informative, these analyses suffer from a weakness that has plagued movement outcomes research more generally: the inability to simultaneously account for the role of movement organizations and activities in models while controlling for other important covariates.

Data

Policy Outcomes

Following previous research (Johnson 2008; Jones and Baumgartner 2004; King et al. 2007; Sheingate 2006), Congressional agenda-setting activities are measured by yearly counts of Congressional hearings convened on environmental issues. The convening of Congressional hearings on an issue signals the importance of that issue beyond the limited confines of the particular committee in which they are held (Diermeier and Feddersen 2000). Further, hearings provide outlets for SMOs and interest groups to express policy preferences and provide information that may have important consequences for relative legislation (Burstein and Hirsh 2007).

Measures of Congressional hearings and law passage are constructed using data from the U.S. Congressional Hearings database and the U.S. Public Laws data file of the Policy Agendas Project.³ Each hearing and law in these data is coded according to 19 major topics, and 225 subtopics. We initially defined environmental hearings and laws to include all those coded under the *Environment* heading. Subsequently, textual summaries of each hearing and law were reviewed to determine whether each was consistent with the goals of the environmental movement.⁴ In the end, we included 1,701 total hearings, an annual mean of 57, over the 30-year observation period. A total of 309 laws (maximum yearly count of 27 and mean of slightly more than 10) were identified as directly relevant to the environmental movement. Examples of major environmental legislation are the Clean Water Act and Federal Environmental Pesticides Control Act of 1972 and the Ocean Dumping Act of 1988.

The Environmental Movement

Movement Activities

Data on the incidence of environmental movement collective action events were drawn from *The Dynamics of Social Protest Project*.⁵ We extracted all events ($n = 554$) for which the organizing claim was environmental. This final dataset includes 348 events that can be characterized as institutional influence activity on the part of the movement (e.g., information distribution, press conferences or lawsuits) as well as 180 protest events (e.g., demonstrations, marches, civil disobedience).⁶

Despite a long tradition in social movement research of relying on newspaper reports of protest events (see Earl et al. 2004 and Olzak 1989 for reviews), the method is not above reproach. Although detailed review of the limitations of

newspaper data is beyond the scope of this article, critiques have focused on the extent of description and, especially, selection biases in newspaper coverage (Earl et al. 2004; McCarthy, McPhail and Smith 1996; Myers and Caniglia 2004; Ortiz et al. 2005). While selection bias is a potentially large problem for analyses that employ newspaper events as the dependent measure, when employed as the independent measure, newspaper data is less problematic because newspapers likely capture those events most salient to lawmakers and the public (Earl et al. 2004; McAdam and Su 2002).

Protest has been less central to the environmental than other social movements that have traditionally dominated the field of study (e.g., labor, civil, gay and lesbian rights). This is reflected in the relatively low rates of environmental protest incidents in the United States compared to other domestic social movements (Jenkins and Halcli 1999) and the popular characterization of U.S. national environmental organizations as proto-typical professional SMOs. This does not mean that protest is unimportant or that lawmakers ignore environmental protest. For example, protest activities by the Love Canal Homeowners Association, including the brief hostage taking of EPA officials, are widely credited with playing an important role in the development of federal Superfund legislation (Szasz 1994). And, the first Earth Day protests/celebrations were organized by Sen. Gaylord Nelson and his staff in what was a conscious—and ultimately successfully—effort to pressure his peers into voting for a host of environmental reforms, including passage of the Clean Air Act of 1970. As Gottlieb (1993:127) notes, “[t]o policy makers in Washington, it was precisely the concerns about activism that pushed along the Clean Air debate.” Despite this anecdotal evidence that environmental protest matters to federal policy makers, it may be that protest plays a more important role in terms of securing political outcomes for movements where protest is a more central political tactic. If true, our analyses are likely to underestimate the ability of protest to influence the policy-making process.

Organizational Capacity

Data on environmental movement organizational capacity come from the *Encyclopedia of Associations, National Organizations of the U.S.* (Gale Research Inc. 1956-2003). This yearly survey of national non-profit associations active in the United States has been published annually since 1974 and intermittently back to 1956. National EMOs were identified using headings that indicate environmental concern (see Johnson 2008 for detail). Both highly institutionalized issue advocacy organizations (e.g., Sierra Club or National Wildlife Federation) and more confrontational, loosely structured direct action groups (e.g., Earth First! or The Clamshell Alliance) are included in the sample. Collectively, these organizations exhibit a wide range of tactics, discourse frames, structures and constituencies. An average of 296 EMOs existed across our time series, with a minimum of 92 in 1960 and maximum of 503 in 1989.

As a measure of movement organizational infrastructure capacity, the total number of U.S. national EMOs active in each year, or population density, was computed from organizational birth and death information contained in the *Encyclopedia*. Population density is a commonly employed measure of social movement organizational infrastructure strength, including for the cases of women's and civil rights (Minkoff 1997) and the environmental movement (Johnson and McCarthy 2004; McLaughlin and Khawaja 2000)

Political Context

Democrats have long been identified as allies of the environmental movement in the United States (Dunlap and Allen 1976; Guber 2003), with the presence of Congressional Democrats and a Democratic President expected to increase the number of environmental hearings and the amount of environmentally favorable legislation passed. Democratic control of Congress is measured as the percentage of total Democratic seats held in the House of Representatives and Senate, the standard in the literature (e.g., Olzak and Soule 2009; Stimson, MacKuen and Erikson 1995; Soule and Olzak 2004; Wlezien 2004).⁷ The presence of a Democratic President is measured using a dummy variable coded 1 during years of a Democratic presidential administration (Meyer and Minkoff 2004).⁸ Democratic Party advantage in Congress and the presence of a Democratic President are both expected to facilitate environmental issue agenda setting and law passage.

Another factor affecting legislative activity is the nature of the Congressional workload. Typically, greater numbers of hearings are held in the first year of a Congress, while a greater number of bills are passed in the second Congressional year, which is also an election year. We employ a dichotomous variable coded as 1 during Congressional election years, with the expectation that the incidence of environmental hearings will decrease, and the passage of environmental laws increase, during election years (Agnone 2007; Meyer and Minkoff 2004).

Accounting for movement opposition is important (Andrews 2002; Meyer and Staggenborg 1996). However, the operationalization of environmental movement opposition is complicated by the nature of changing alliances according to the specific environmental issues under consideration (Schnaiberg and Gould 2000) and the changing relationship between industry and environmental issues over time, whereby industries that once steadfastly opposed environmental protection measures have increasingly come to embrace them (Hoffman 2001). Opposition to pro-environmental legislation in Congress has traditionally come from the Republican side of the aisle however, and especially from more conservative quarters. To account for opposition to environmental legislation, we follow Olzak and Soule (2009) by including a measure of Conservative Coalition votes in Congress (data from Ornstein, Mann and Malbin 2008).⁹

Finally, we control for prior congressional action in two ways: the number of environmental hearings held and the number of laws passed in the previous year.

There are two reasons for controlling for past hearings. First, legislative inertia may be at work, as hearings on one topic may spur the need to hold hearings on related topics. Second, controlling for hearings held the previous year is necessary to investigate the impact of agenda setting on the passage of future legislation, as most bills begin as topics explored in hearings. A similarly dynamic process exists for the passage of laws wherein past legislation often spurs future legislation designed to strengthen or weaken earlier laws.

Control Variables

Public Opinion

Research on social movement political outcomes has been strongly criticized for failing to account for public opinion in theories and models (Burstein 1998). One obstacle is that polling firms do not ask about particular issues until they have become important or salient (Burstein 2006). In the case of environmental issues, this means that environmental public opinion trend data is nonexistent prior to 1970 (Dunlap and Scarce 1991; Guber 2003). As a measure of public opinion we employ an environmental attitudes index constructed using Stimson's (1999) WCALC program. This involved entering the positive responses calling for more action on the part of the government based on 64 "readings" of public opinion on the environment from 1954 through 2000 (see Agnone 2007 for details). This technique has been employed to compile time series public opinion data on a range of public policy issues (e.g., Smith 2000; Kellstedt 2003).

Media Attention

Mass media plays an important role in the policy process by focusing public attention on a particular issue (Downs 1972) or by raising the salience of a topic (Zaller 1992). We measure media attention using the annual number of stories in the *New York Times Annual Index* referring to the environment. The data come from The Policy Agendas Project.

Environmental Pollution

Objective environmental pollution is measured as the five-year average of annual U.S. emissions of five air pollutants: particulate matter less than 10 microns, carbon monoxide, sulfur dioxide, nitrogen dioxide and volatile organic compounds (U.S. Census Bureau 1965-1995). Yearly emissions for each of these pollutants were standardized and combined to create an air pollution index, with each pollutant weighted equally. The resulting index is a direct measure of environmental degradation that represents four of the six criteria air pollutants, integrating data on a diversity of types and sources of emissions (Environmental Protection Agency 2000).¹⁰ Descriptive statistics for the dependent and independent variables, as well as interactions described later, are shown in Table 1.

Table 1: Descriptive Statistics 1961-1990

Variable	Mean	SD	Min	Max	N
Environmental Laws Passed	10.30	6.90	1	27	30
Environmental Laws Passed _(t-1)	9.77	6.50	1	27	30
Environmental Hearings Held	56.70	36.01	12	164	30
Environmental Hearings _(t-1)	53.50	35.46	12	164	30
Democratic President	.40	.50	0	1	30
% Congressional Democrats	.59	.05	.51	.68	30
Conservative Coalition Votes	39.60	12.37	17	62	30
Congressional Election Year	.50	.51	0	1	30
Pollution	.44	.46	-.27	1.18	30
Media Attention	14.10	9.06	1	46	30
Public Opinion _(t-1)	52.33	5.02	48.04	66.26	30
Institutional Activity _(t-1)	11.40	6.92	0	23	30
Protest Activity _(t-1)	5.53	3.56	0	14	30
Organizational Capacity _(t-1)	296.20	149.59	92	503	30
Interaction: Organizational Capacity & Democratic Congress _(t-1)	170.32	81.45	57.12	288.65	30
Interaction: Institutional Activity & Democratic Congress _(t-1)	6.55	3.93	0	13.99	30
Interaction: Protest & Democratic Congress _(t-1)	3.26	2.19	0	8.52	30
Interaction: Protest & Institutional Activity _(t-1)	69.73	69.43	0	308	30

Methods of Analysis

Poisson and closely related negative binomial regression models are appropriate statistical inference techniques when fitting models with count data as the dependent variable (Long 1997) and common within the relevant literature (Agnone 2007; Johnson 2008; King et al. 2005, 2007; Meyer and Minkoff 2004; Olzak and Soule 2009). In Poisson regression, a log transformation prevents the model from producing negative predicted values, adjusts for a skewed distribution, and models the variance in event counts as a function of the mean (Liao 1994; Long 1997). The Poisson distribution does, however, have a rather restrictive assumption that the mean equal the variance, known as *equidispersion*. The violation of this assumption downwardly biases the standard errors while leaving the regression coefficients unaffected (Hoffmann 2003). Formal statistical tests for the presence of overdispersion in the data indicated that Poisson regression is more appropriate

than Negative Binomial regression for the estimated models (results available from authors). Data were analyzed using Stata 10.

Results

Setting the Agenda

The results from multivariate Poisson regression models examining the determinants of federal agenda-setting activities from 1961-1990 are shown in Table 2. We began by fitting a baseline model (Model 1) that focuses on the legislative process net of any social movement activity. We control for party of the President, partisan control of Congress, opposition party strength, Congressional election cycles, media attention to environmental issues, pollution, public opinion and prior legislative activity on the environment. Results indicate that Congressional election years are negatively associated with hearings, as is opposition party strength; media attention to environmental issues increases the number of environmental hearings held, as does the occurrence of prior hearings. The percentage of Congress controlled by Democrats is not a significant predictor of environmental hearings.

In Model 2, we include indicators of environmental movement organizational capacity, protest and institutional activity to establish their effect beyond what is accounted for by our baseline model. Independent of one another, each is positively associated with the incidence of Congressional hearings on environmental issues (not shown). Organizational capacity remains a statistically significant predictor of Congressional agenda-setting activities. Exponentiating the coefficient for organizational capacity suggests that the existence of each additional environmental organization in the prior year, net of control variables, increases the likelihood of Congressional hearings on the environment being held the following year by .3 percent ($e^{.003}$).

Model 3 tests for a synergistic tactical impact on Congressional hearings (H4), but this coefficient, as well as the likelihood ratio test measuring overall model fit compared to the baseline linear movement model (Model 2), lacks statistical significance. The environmental movement does not increase its ability to set the Congressional environmental agenda when simultaneously engaging in protest and institutional influence activity.

Political mediation theory posits that *the effect of social movement organizational capacity and institutional influence activity will be amplified, and protest moderated, under favorable political conditions*. We test this hypothesis in a step-wise manner by including interaction terms between the percentage of Congressional seats controlled by Democrats and social movement organizational capacity (Model 4), institutional influence activity (Model 5), and protest (Model 6). Our hypotheses are supported if the individual interaction effects achieve statistical significance and likelihood ratio tests of the interaction model show an improvement in fit over the baseline linear model (Model 2).¹¹ All movement-political opportunity interaction effects are statistically significant at .01 or higher and the likelihood

ratio test comparing the improvement in fit of each interaction model to the linear movement model (Model 2) are statistically significant at .01 or higher, providing support for Hypothesis 3. Movement activity of any type—building organizational capacity, institutional influence activity or, unexpectedly, protest—is associated with greater Congressional attention when political conditions are favorable to movement goals.

Law Passage

Table 3 depicts results from multivariate Poisson regression models of the determinants of the passage of pro-environmental laws from 1961 through 1990. We employ the same modeling strategy as in the analysis of hearings, beginning by fitting a baseline model controlling for the political environment and its covari-

Table 2: Poisson Regression Estimates of the Effects of Environmental Movement on Congressional Hearings, 1961-1990

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	5.261** (3.332)	4.926** (3.498)	4.914** (3.435)	5.815** (5.059)	5.762** (4.345)	4.781** (3.369)
Democratic President	-.036 (.181)	.003 (.021)	.002 (.014)	-.053 (.333)	-.129 (.655)	.013 (.072)
% Congressional Democrats	-.688 (.524)	.348 (.266)	.332 (.259)	-1.405 (.964)	-.685 (.529)	.950 (.979)
Conservative Coalition Votes	-.029** (3.662)	-.012 (1.699)	-.012 (1.658)	-.005 (.835)	-.010 (1.519)	-.013 (1.869)
Congressional Election Year	-.498** (2.677)	-.372 (1.958)	-.368 (1.774)	-.303 (1.888)	-.266 (1.509)	-.512** (2.849)
Media Attention	.014** (2.623)	.021** (3.521)	.021** (3.636)	.016** (2.927)	.014* (1.988)	.027** (4.732)
Pollution	.351 (1.149)	.117 (.431)	.118 (.434)	-.369 (1.503)	-.207 (.809)	.153 (.568)
Public Opinion ^(t-1)	-.021 (.789)	-.023 (1.015)	-.023 (.998)	-.036* (1.992)	-.036 (1.719)	-.021 (.929)
Environmental Hearings ^(t-1)	.012** (5.248)	.006** (2.585)	.006* (2.412)	.005* (2.291)	.006** (2.631)	.008** (3.816)
Environmental Laws ^(t-1)	.014 (1.221)	.009 (.914)	.009 (.908)	.011 (1.294)	.016 (1.738)	.002 (.215)
Organizational Capacity ^(t-1)	.003** (4.432)	.003** (4.432)	.003** (4.171)	.003** (6.090)	.002** (2.851)	.003** (4.076)

ates. Model 1 shows environmental law passage to be positively associated with the presence of Congressional election years and the convening of environmental hearings the prior year.

In Model 2 we include indicators of environmental movement organizational capacity and activities. The U.S. environmental movement does not appear to directly affect the passage of environmental legislation (Model 2). The coefficients for organizational capacity and protest both fail to achieve statistical significance and the addition of these movement variables does not alter the overall fit of the model (the same pattern of results is evident in partial models with movement variables entered individually). No single tactical repertoire of the environmental movement appears sufficient to affect legislative policy. Model 3 tests for a synergistic tactical impact on the passage of pro-environmental

Protest Activity ^(t-1)	.016 (1.391)	.016 (1.239)	.011 (.795)	.004 (.285)	.004 (.371)
Institutional Activity ^(t-1)	-.013 (.909)	-.013 (.880)	-.010 (1.121)	-.213e ⁻³ (.020)	-.016 (1.283)
Interaction: Protest & Institutional Activity ^(t-1)		.125e ⁻³ (.069)			
Interaction: Organizational Capacity & Democratic Congress ^(t-1)			.036** (3.029)		
Interaction: Institutional Activity & Democratic Congress ^(t-1)				.580** (2.675)	
Interaction: Protest & Democratic Congress ^(t-1)					.724** (2.826)
Log Likelihood	-132.17	-110.04	-110.04	-102.63	-105.98
Pseudo R-squared	.6818	.7351	.7351	.7529	.7464
Likelihood ratio test compared to Model 2		.01	14.82**	9.40**	8.13**
Observations	30	30	30	30	30

Notes: T-statistics in parentheses * significant at 5%; ** significant at 1%
% Congressional Democrats; Movement Organizational Capacity, Protest and Institutional Activity are mean centered

laws, as suggested by the movement infrastructure model. We find support for Hypothesis 5. The movement infrastructure coefficient measuring the interaction of protest and institutional influence activity is positive and statistically significant at .01 or greater, while the likelihood ratio of the overall model fit compared to the linear movement model (Model 2) achieves statistical significance at .05 or greater. Consistent with the expectations of the movement infrastructure model, the environmental movement positively affects the passage of pro-environmental legislation when simultaneously invoking protest and institutional influence activities.

Models 4 through 6 offer empirical tests of political mediation theory, which suggests that SMOs and institutional influence activity will be received more favorably during times in which movement allies hold office, whereas protest will

Table 3: Poisson Regression Estimates of the Effects of Environmental Movement on Congressional Laws, 1961-1990

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	3.877* (2.129)	3.694 (1.856)	2.794 (1.454)	3.716 (1.918)	3.988* (2.066)	5.062** (2.636)
Democratic President	-.124 (.792)	-.135 (.539)	-.303 (1.078)	-.246 (.951)	-.294 (1.025)	-.200 (.950)
% Congressional Democrats	2.354 (1.955)	3.286* (2.289)	3.223** (2.576)	3.130* (2.407)	3.135* (2.280)	2.151 (1.647)
Conservative Coalition Votes	.001 (.074)	.007 (.489)	.010 (.928)	.011 (1.000)	.009 (.752)	.009 (.765)
Congressional Election Year	.677** (3.257)	.709** (3.142)	.996** (4.415)	.814** (3.612)	.817** (3.429)	.985** (3.718)
Media Attention	.009 (1.527)	.014 (1.509)	.015 (1.675)	.009 (1.007)	.008 (.797)	.001 (.097)
Pollution	-.202 (.518)	-.368 (1.012)	-.387 (1.501)	-.640 (1.878)	-.588 (1.593)	-.570 (1.737)
Public Opinion ^(t-1)	-.049 (1.594)	-.046 (1.387)	-.033 (1.070)	-.044 (1.306)	-.049 (1.509)	-.073* (2.281)
Environmental Hearings ^(t-1)	.012** (4.364)	.009** (2.664)	.005 (1.762)	.007 (1.737)	.008* (2.508)	.007* (2.304)
Environmental Laws ^(t-1)	-.017 (1.041)	-.020 (1.251)	-.010 (.644)	-.017 (1.113)	-.014 (.888)	-.002 (.085)
Organizational Capacity ^(t-1)	.001 (.772)	.001 (.772)	.001 (1.208)	.001 (.781)	.337e ⁻³ (.244)	.002 (1.562)

be more effective when movement adversaries are in power. Neither movement organizational capacity (Model 4) nor institutional influence activity (Model 5) interact with a Democratic Congress to significantly affect law passage. The interaction term for movement protest and a supportive political environment, conceptualized as Democratic control of Congress (Model 6), is negative and statistically significant at .01 or greater, with significant improvement in model fit at .05 or greater. Thus, consistent with political mediation models, our findings indicate that protest is associated with greater amounts of law passage during politically closed periods and can backfire during open political periods—in the case of the environmental movement diminishing effectiveness when Democrats have higher percentages of Congressional seats.

Protest Activity ^(t-1)	.006 (.431)	.001 (.070)	.007 (.485)	.002 (.149)	.036* (2.373)
Institutional Activity ^(t-1)	.003 (.166)	.002 (.111)	.007 (.380)	.013 (.638)	.008 (.424)
Interaction: Protest & Institutional Activity ^(t-1)		.007** (4.041)			
Interaction: Organizational Capacity & Democratic Congress ^(t-1)			.023 (1.622)		
Interaction: Institutional Activity & Democratic Congress ^(t-1)				.415 (1.353)	
Interaction: Protest & Democratic Congress ^(t-1)					-1.193** (3.395)
Log Likelihood	-71.17	-70.40	-69.66	-69.80	-68.06
Pseudo R-squared	.4364	.4424	.4484	.4472	.4610
Likelihood ratio test compared to Model 2		4.17*	1.49	1.21	4.69*
Observations	30	30	30	30	30

Notes: T-statistics in parentheses * significant at 5%, ** significant at 1%
% Congressional Democrats; Movement Organizational Capacity, Protest and Institutional Activity are mean centered.

Discussion

Our results provide evidence that social movements are able to successfully influence the agenda-setting process, but *how* movements are able to do this is not as straightforward as prior research suggests. Our findings support a legislative logic whereby social movements are more consequential at earlier stages in the political process. Using the U.S. environmental movement as our empirical case, we find evidence that movement mobilization is positively associated with Congressional agenda-setting activities, especially when operating in a favorable political context. These findings remain robust when looking at protest, institutional influence activity or organizational capacity, although organizational capacity appears especially efficacious at the agenda-setting stage of the policy process.

These same factors are much less influential at the law passage stage, however. There is no indication of a direct effect for environmental movement institutional influence activity, protest or organizational capacity on the incidence of law passage. Nor is there any indication that movement organizational capacity or institutional influence activity is more efficacious during open political periods. Protest, however, is associated with increased law passage during closed political periods.

Finally, we find evidence that the environmental movement influences law passage in both high rates of institutional influence and protest activity, as predicted by the organizational infrastructure model. This finding should be of particular interest to movement scholars as it supports the notion that tactical diversity within a movement can be efficacious in achieving desirable political outcomes. Protest activities are likely to be more successful in garnering favorable policy outcomes when accompanied by a vibrant movement simultaneously working through institutionalized political channels. The combination of institutional influence activity and protest allows a movement to simultaneously persuade, disrupt and bargain. This suggests that long-standing debates over the relative efficacy of protest vs. more traditional institutional influence activity (Gamson 1975; Piven and Cloward 1979) represent a false dichotomy. Rather than constituting a zero-sum trade-off, institutional influence and protest activities interact to affect policy change, with movements hoping to secure legislative gains best served by employing diverse tactics (see also Olzak and Ryo 2007). However, it is noteworthy that the simultaneous deployment of these tactics offers no significant advantages at the agenda-setting stage, where Congress appears much more responsive to direct movement influence (Cornwall et al 2007).

Conclusion

While the U.S. national environmental movement has impinged upon the policy-making process, the ways in which it has done so are both complex and context dependent. Our research confirms that movements have greater efficacy at the earlier agenda-setting stage of the policy process than at the more consequential and contingent law-passage stage. Our principle finding, however, is that high levels

of institutional influence and protest activity interact to increase the incidence of law passage. Secondly, we find the contextual effect of a supportive political environment limited to the agenda setting stage of the policy process, while protest increases rates of law passage only when the political context is relatively closed.

While we examine the importance of institutional influence activity, we are not able to account for the direct lobbying of legislators, which may be especially important in explaining public policy outcomes. In attempting to understand how movements influence the legislative process, it would be useful to observe and record information on direct contacts between movement representatives and individual legislators. Wright (1990) shows that PAC contributions are effective only in tandem with lobbying contacts. Whether lobbying activities would have an effect independent of the activities described here, or in combination with them, remains an open empirical question.

There are also specific characteristics of the time period and movement studied here that may be unique. The observation period encompasses extremely high mobilization within the U.S. national environmental movement. The 1965-1985 period is also one of heightened federal legislative attention to environmental issues, what Baumgartner and Jones (1993) refer to as a period of *punctuated equilibrium*. In periods of lower movement activity and/or legislative attention we might expect the relationship between movement and political dynamics to be altered. Unfortunately, the majority of analyses of movement outcomes have studied movements in periods of extremely heightened mobilization (e.g., Amenta et al. 1992, 2005; Andrews 2001; King et al. 2005; 2007; McAdam and Su 2002; Santoro 2002) or excluded cases from analysis after movements achieved a certain level of success, such as the passage of a state-level Equal Rights Amendment (Soule and Olzak 2004). Research assessing the outcomes of movements in periods of stable or declining mobilization is needed to help fill this lacuna.

We hope that this research will move scholars to more routinely account for the variety of factors that influence public policy, the ways in which they interact to effect change, and their differential effects across stages of the policy process. The increased availability of data covering multiple stages of the political process and covariates of interest, combined with increasingly sophisticated theoretical specifications for the complex and contingent ways in which movements affect the policy making process, has great potential to improve our understanding of how and when social movements influence changes in public policy.

Notes

1. For a summary of the literature on non-governmental targets of social movements see Van Dyke, Soule and Taylor 2004.
2. Openings in the POS are generally seen as providing enhanced opportunities for activism, thus contributing to elevated rates of mobilization. But, political threat may also inspire mobilization to protect existing resources (Goldstone and Tilly 2001; Tilly 1978). Meyer (1990, 1993) documents how perceived threats by the Reagan

Administration provoked mobilization of the nuclear freeze movement. Similarly, Reagan's Secretary of the Interior James Watt evinced a similar sense of threat that spurred U.S. environmental mobilization in the early 1980s (Sale 1993; Shaiko 1999). Evidence of politically imposed threats leading to mobilization is widespread in literatures examining ethnic conflict (Jacobs and Wood 1999; Van Dyke and Soule 2002), the interactions between protestors and security forces (Earl, Soule and McCarthy 2003; Goldstone and Tilly 2001; Khawaja 1993), and to a lesser extent movements operating within authoritarian regimes (Almeida 2003). This literature documents ways in which a contracting POS may result in movement mobilization, but there is no corollary literature similarly arguing that contracting political opportunities enhance the odds of movements achieving political success.

3. The data were originally collected by Frank R. Baumgartner and Bryan D. Jones, with the support of National Science Foundation grant number SBR 9320922, and were distributed through the Center for American Politics and Public Policy at the University of Washington and/or the Department of Political Science at Pennsylvania State University. For details, go to: <http://depts.washington.edu/ampol/>.
4. All hearings on the *Environment* between 1960 and 1990 were initially selected, yielding 2,005 events. Of these, 304 were eliminated from the sample because of a focus on funding authorizations, procedural debates or topics otherwise deemed beyond the scope of environmental politics or inconsistent with the goals of the environmental movement (e.g., relaxing air pollution standards). Twenty-five laws were deleted from the sample for the same reasons. Although we think there are good theoretical reasons for excluding these hearings and laws in analyses, in practice their inclusion in models of the incidence of environmental hearings and laws does not change the substantive interpretation of results.
5. These data are collected from daily editions of the *The New York Times* as part of a larger research project initiated by Doug McAdam, John McCarthy, Susan Olzak and Sarah Soule (see McAdam and Su 2002; Earl, Soule and McCarthy 2003; Van Dyke, Soule and Taylor 2004). To be included in this dataset an event had to be collective in nature, have articulated some claim (either a grievance against, or expression of support for, some target) and must have occurred in the public sphere or have been open to the public. These data are publically available and can be found at <http://www.stanford.edu/group/collectiveaction/cgi-bin/drupal/>.
6. Twenty-six events coded as "other" were dropped from analysis.
7. In models not shown, we also tried a series of dummy measures for divided party control of Congress, as well as a cumulative scale of Democratic power (see Agnone 2007). These alternative specifications of the POS had no significant effects.
8. Although we control for Democratic president, substantial environmental legislation was passed and the EPA established during the tenure of Richard Nixon, a Republican president. It has been convincingly argued that Nixon was primarily responding to political pressure from legislative opponents in the democratically controlled congress, rather than being committed to environmental issues or an ally of the environmental movement (Flippen 2000), but there is potential for a "Nixon effect" on environmental legislation that may skew our results. To test for this, we explored alternative modeling strategies that included omitting the variable from analysis, recoding Nixon as a Democrat, and adding a Nixon period effect dummy variable. None of the alternative specifications significantly improved model fit or changed the central findings of the analysis (results available from authors). A Nixon

period dummy variable was consistently and positively related to the incidence of environmental law passage, although its inclusion did not significantly improve the amount of variation explained in our models.

9. Because our dependent variables represent broad Congressional processes (total number of hearings in the House, Senate and joint committees, as well as the number of laws passed), political opposition is measured using counts of the total number of Conservative Coalition votes in Congress, unlike Olzak and Soule (2009) who focus on voting patterns only in the House of Representatives. In models not shown we also controlled for political opposition using the annual budget for the National Association of Manufacturers, the largest trade association in the United States and an organization that has played an important role in the U.S. conservative movement (Soffer 2001). NAM budget was highly correlated with several of our central variables and thus not maintained in our final models. Regardless of measure of political opposition used, our central findings hold (results available upon request).
10. Criteria air pollutants are those for which the EPA has set *health based standards* and include carbon monoxide, nitrogen oxides, sulfur dioxide, particulate matter, ozone and lead. No measure for ozone emissions is available as this pollutant is produced by photochemical reactions in the atmosphere rather than direct emissions. Data on air-borne lead emissions, available beginning in 1970, are excluded from analysis. Volatile organic compounds are included as they enable and facilitate the formation of other criteria air pollutants.
11. Jaccard and Turrisi (2003) consider the interaction model a significant improvement if the interaction term is statistically significant. However, we only consider the interaction terms meaningful if the interaction model elicits an improvement in model fit above the linear specification (Soule and Olzak 2004). We employ a likelihood ratio test comparing each interaction model to the baseline model (Model 2).

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