Mediated Density: 
The Indirect Relationship 
between U.S. State 
Public Policy and PACs

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David Lowery³, Jennifer Sykes², and Mary Deason⁴

Abstract

How does the demand for lobbying reflected by government policy activity influence the use of lobbying strategies and tactics? The authors examine this question by assessing how the complexity of the policy space affects the political action committee (PAC) system. They hypothesize that the complexity of the policy space indirectly affects the size and activity of the PAC system through its direct effect on interest organization density. The authors test this hypothesis within the health sector using a unique data set that connects individual interest organizations registered to lobby U.S. state legislatures with active PACs in the state. It appears that social, economic, and political measures of policy space complexity influence the size of the lobbying community, which in turn influences the size and activity of the PAC community.

Keywords

interest groups, political action committees, public policy, population ecology

Recent scholarship has indicated that lobbying activity, as measured by the number of organizations registered to lobby, is determined to a considerable degree by what government does or how its policy activities generate demand for lobbying (Leech et al. 2005).

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But does this demand function extend to the strategies and tactics that organized interests then employ? One important tactic, of course, is contributing to political campaigns via political action committees (PACs). So does policy activity lead to greater PAC activity? We might expect that the answer is a resounding yes. That is, it is often assumed that campaign donations are an integral lobbying strategy of organized interests. PACs, some argue, may purchase policy or at least the access needed to influence the elected officials making policy. Still, scholarly research more often than not has failed to find an obviously tight connection between the two influence activities. In short, many organized interests do not sponsor PACs, and many PACs are not affiliated with lobbying organizations. Thus, it seems that the relationship between PACs and lobbying is more complex than might be expected on first face (Gray and Lowery 1997; Lowery et al. 2009; Tripathi, Ansolabehere, and Snyder 2002). Accordingly, the relationship between the demand function of lobbying and the use of the specific lobbying tactic of contributing to a political campaign is likely to be complex as well.

We address this complexity by examining how the public policy environment directly and indirectly creates, stimulates, or mobilizes interest organizations and/or PACs. By doing so, we assess the interdependence of the lobbying and PAC systems, arguing that the density and activity of PACs in a policy space are driven directly by the density of lobbying organizations and only indirectly by exogenous political forces and characteristics of the policy space. After reviewing the recent literature on the relationship among lobbying, PACs, and public policy, we test this hypothesis at the state level by assessing both the number of PACs and their contribution activity given the density of the lobbying community and the complexity of the policy space within the health sector. We use a unique data set that connects individual interest organizations registered to lobby state legislatures with active PACs in the state. Our findings provide support for the notion that the PAC system is an extension of the lobbying system at the state level. It is clear that social, economic, and political measures of the saliency of health policy do influence the size of the lobbying community and that the size of the lobbying community then largely determines the number of PACs that form in a state.

PACs and Lobbying

The literature on PACs and lobbying suggests that the relationship between PAC formation and the density of lobbying communities is not as straightforward as we might expect. Despite findings that PAC contributions can influence votes under very specific circumstances (Godwin 1988; Quinn and Shapiro 1991; Wilhite and Theilmann 1987) or on minor issues (Grenzke 1989) or on narrow, technical issues (Frendreis and Waterman 1985), the most thorough studies have found that PAC contributions have little impact on legislative voting (Wright 2004). These studies have led many scholars to believe that PAC donations are more about access than about purchasing policy (Hall and Wayman 1990). Still, even this widely accepted reinterpretation of the role of PACs in the policy process is faced with a significant conundrum. That is, many organizations that lobby do not contribute to electoral campaigns, and many organizations that
contribute to campaigns do not lobby. Indeed, surveys of organized interests lobbying in Washington, D.C., have found little connection between lobbying and contributing to campaigns (Berry 1977; Gais and Walker 1991; Schlozman and Tierney 1986; Wright 1985). Survey research at the state level has found similar results; fewer than half of lobbying organizations contributed to campaigns (Nownes and Freeman 1998). If the two types of political influence organizations represent different or distinctive populations, then it is hard to maintain the access hypothesis.

Several recent studies have helped us to resolve the relationship between PAC and lobbying activity. First, Tripathi, Ansolabehere, and Snyder (2002) analyzed the convergence of organizations registered to lobby Congress and executive agencies in 1997–98 and organizations donating to House campaigns through PACs during 1997–98. In terms of interest organization numbers, their findings support the weak link between lobbying and PAC donations. They found that 74.5% of all organizations registered to lobby had no PAC and 52.8% of PACs were not affiliated with a registered lobby organization. Instead of stopping there, however, they looked beyond numbers of organizations to the amount of money they contributed. Here they found that 85.7% of all campaign contributions were donated by PACs that were also registered to lobby. So if we base our analysis on the size of contributions, PAC donations can still be viewed as one of several lobbying tactics a lobby organization might employ.

Second, a 1997 study by Gray and Lowery further exploring the assumption that PAC contributions are a lobbying tactic found that PAC contributions are especially crucial in crowded organized interest environments where it is more difficult to gain access to elected officials. By examining their hypothesis at the state level, Gray and Lowery (1997) observed variation that could not be seen at the national level (only one interest system) or over time (little variation in total number of PACs over time). They examined their hypothesis in two ways. First, using surveys of organized interest leaders, they found that those who viewed their lobbying community as crowded and competitive were more likely to be affiliated with a PAC. Next, using aggregate numbers of organizations registered to lobby and estimated numbers of PACs, they found a significant, positive, convex relationship between the number of PACs and the number of lobby registrations by organizations. So as the density of lobbying organizations increases, the population of PACs in a given community increases even faster.

Third and more recently, Lowery et al. (2009) expanded on these studies to understand the relationship between PAC contributions and lobbying. They focused specifically on the health policy arena to address several questions arising from Tripathi, Ansolabehere, and Snyder (2002) and Gray and Lowery (1997). First, they replicated the Tripathi, Ansolabehere, and Snyder finding at the state level. The relationship between national PAC activity and lobbying was mirrored with state health PAC contributions and lobby registrations by health organizations. In terms of simple numbers of state-level organizations, only 14% of the 10,755 politically active health interest organizations in 1998 had both a PAC and a lobby organization. Similarly, Tripathi, Ansolabehere, and Snyder (2002, 133) found that 20% of national-level organizations in 1997–98 had both a lobbyist and a PAC. In contrast, unaffiliated or free-standing
PACs accounted for 44.7% of organizations in the states, and organizations registered to lobby but lacking a PAC accounted for another 41.3% in the states. Here, the state results departed more sharply from those at the national level. Tripathi, Ansolabehere, and Snyder found that lobby-only organizations predominated at the national level, occurring 58% of the time. PAC-only organizations composed only 22% of all national organizations.

The picture changes markedly, however, when we look at the actual political activity of state health PACs. It is the many fewer affiliated PACs that provide the lion’s share of funds to candidates. While connected or affiliated PACs accounted for only 23.8% of all PACs, they contributed over $34 million or 75.7% of all contributions. In contrast, though unaffiliated PACs accounted for 76.1% of the PAC population, they made only $11 million in contributions or 24.3% of all contributions. These aggregate numbers are reflected in the differences between mean contribution levels of nonconnected and connected PACs. The mean contribution for nonconnected PACs was only $2,319, while the mean contribution for connected PACs was nearly 10 times larger ($23,067).

In terms of both total volume and average size, the contribution activity of connected PACs dwarfed that of nonconnected PACs. In terms of PAC activity, the state results parallel those at the national level where affiliated PACs contributed even more disproportionately, giving 86% of the total PAC contributions (Tripathi, Ansolabehere, and Snyder 2002, 133). PAC activity is largely the province of organizations already engaged in lobbying. Given this connection, it seems reasonable to interpret such activity as a strategy designed to reinforce lobbying or as an adjunct of lobbying.

**Modeling an Indirect Relationship**

In this article, we conduct a test of the assertion that the PAC system is a secondary effect of the process governing the lobbying system and, thereby, only indirectly affected by the factors that drive the lobbying community. To do this, we derive a set of hypotheses based on Gray and Lowery’s (1996) widely applied energy–stability–area (ESA) model (Bosso 2005; Halpin and Jordan 2009; Nownes 2003; Nownes and Lipinski 2005). This model suggests that the density of organized interest communities is determined by two factors: the area of the system, the number of potential members or sponsors of lobby organizations, and its energy, the political or policy issues of concern to those potential members or sponsors. To form and survive, organized interests must have members or sponsors to support them and issues with which to mobilize them. A farming interest organization is not likely to survive in a state if it has no farms or farmers and/or lacks farm issues on the policy agenda. The ESA model suggests that these characteristics determine the carrying capacity of a policy system for lobby registrations.

For this article, we focus on the energy component of the ESA model, the policy space in which an organized interest operates. How does policy energy influence the demand for both lobby registrations and PACS? Does policy energy also influence PAC activity? To examine this relationship, we limit our sample to health lobby
organizations and PACs, examining the social, economic, and political salience of health care issues as indicators of the energy in the states. Examining health interests is appropriate given both the extensive health policy activity found in the states since the mid-1990s (see Schneider 2009) and the extensive funds raised and distributed by health PACs (Center for Public Integrity 2005; 2006). If there is a connection between public policy and the demand for lobbying and PAC activity, health policy should provide a good context in which to observe it. More specifically, we hypothesize that the formation of a PAC and its secondary activities are secondary actions used to supplement lobbying, likely by improving access. Although they do not test this hypothesis, Lowery et al. (2009) suggest that exogenous factors representing the energy of the policy sector in a given state should only indirectly affect the number of PACs in a state. This finding is a logical consequence of the notion that contributions by PACs are primarily a lobbying tactic. Factors that reflect how salient a policy area is to a state should directly affect the density of lobbying organizations in that state and their activities and only indirectly affect the density of PACs and their contributions.

Next we examine the complexity of the policy space within which organized interests operate, focusing specifically on issue saliency. We view salient issues as ones that are both important to the public and have multiple policy images (Baumgartner and Jones 1993). An increase in the salience of issues, we argue, positively influences the density of lobbying groups, which, in turn, positively influences the density of PACs and the intensity of the financial contributions. More specifically, we use three different measures of salience—social, economic, and political—and examine the impact of health care issues on the densities of lobbying and PAC populations in a state. By economic salience, we mean how central the health sector is to the state’s economy, including how many people work in various health industries and what proportion of state expenditures fund major health programs. When health care is economically central to the state’s economy, there will be a ready supply of issues for organizations to lobby on. The ESA model thus predicts that the greater health care’s economic salience in a state, the greater the density of health policy lobbying organizations and, in turn, the greater the density and activity level of health-related PACs. Our next concept, social salience, is a function of health-related demographic factors. Since the states differ in terms of average age, general health status, and access to health care, each state should have a different propensity to address health issues through the policy process. Here, the ESA model again leads us to expect that increases in social salience should directly and positively influence the density and financial behavior of health-related lobby registrations by organizations and indirectly and positively influence the density of health-related PACs.

Our final concept is political salience that addresses how much of the legislative agenda of a government is devoted to health policy issues and levels of party competitiveness in the state, which should make such issues more politically contentious. The more focused a state legislature is on health policy, the more issues on which health interest organizations will have to lobby. The more political competitive a party system is, the more uncertain policy outcomes should be. Again the ESA model predicts
that an increase in the legislative salience of health policy will lead to increased density of health-related lobbying organizations and indirectly increase the density and campaign contributions of health-related PACs. Expanding the ESA model in this way is in keeping with recent work by Halpin and Jordan (2009), who suggest that population ecology focus more on adaptation and decision making by group leaders. The decision to start a PAC and the decisions about how to allocate PAC campaign resources are all ones that group leaders make under changing environments, ones in which different issues are salient.

Assessing the Relationship

Data and Method

Two critical sources of data are used in our analysis. The first source, which provides our dependent variables, is the data on contributors to state electoral campaigns provided by the National Institute on Money in State Politics. Several caveats about these data must be noted. First, while we and some National Institute staff might refer to the organizations as PACs, that name is not necessarily appropriate in the sense in which it is used to describe national PACs. That is, not all states legally define PACs or, even when they do, define them in the same manner. Indeed, the entities in the institute’s database include legally defined PACs, businesses, and other groups that probably are PACs but that do not use the name (e.g., the Alabama Dental Association). Although for simple convenience we will continue to refer to these entities as PACs, they are more accurately termed “nonindividual, nonparty” contributors to political campaigns given the structure of the National Institute’s database. Second, the raw data generously provided by the Money in Politics Institute through special data requests still required considerable cleaning before they were usable. That is, the state lists included large numbers of individual contributors and duplicates of PAC contributors. Recoding to eliminate these cases reduced the initial list of 222,592 PACs to 162,352 PACs. Thus, our experience should serve as a cautionary tale to researchers who are using the institute’s data without further refinement. Third, we removed party leadership PACs from our data set on the grounds that they are not interest groups, the subject of our study. And fourth, 1998 PAC data were not available for eight states, usually because of their reporting requirements associated with distinctive electoral calendars. In these cases, we used the most recently available data, which were from 1999 or 2000. Nonetheless, we believe our data set is the best data on state health PACs in existence. And it matches up well with our lobbying data set, described below.

The second data set is based on the Gray and Lowery list of organizations registered to lobby in the 50 states in the late 1990s. Thus, we count numbers of organizations, not numbers of lobbyists. In this analysis, we use 1998 lobby registrations given the available PAC data for 1998; thus, we capture both forms of organized interest activity for a single year. Entities on both lists (PACs or lobby registrations) were individually identified as having health interests or not using the coding rules employed by Lowery.
and Gray (2007). The health PACs and lobby registrants were further coded by several subtypes of health interests using the same coding rules. Finally, the cleansed list of PACs was matched with the lobby registration data at the individual organization level to identify whether an organization was registered to lobby, contributed to political campaigns, or both. For the latter two categories, we also measured the size of the financial contribution the organization made to political campaigns for legislative, gubernatorial, statewide office, and judicial candidates.

We examine two dependent variables. The first is the density of the health PAC system in the state as measured by the number of PACs having health interests. The second is the total amount of contributions made by health PACs to political campaigns in the states. For both, we also conduct separate analyses for connected or affiliated health PACs (those affiliated with an organization registered to lobby) and unconnected or unaffiliated health PACs (those without an obvious affiliation with a registered lobby organization).

Two sets of independent variables test our core hypotheses that the impact of political and policy energy is expressed entirely through lobby registrations and, thus, that the energy of the policy space will have only an indirect impact on PAC activity through their direct influence on the density of the lobby system. The first set of independent variables is the number of health lobby registrations. PAC activity on the part of health interests is driven by competition among health interests as reflected in the density of the lobby system. We therefore expect that there should be a strong positive relationship between the number of health PACs and their level of contributions and the squared number of lobby registrations. These relationships should not be linear because the marginal value of forming a health PAC as an additional channel of communication should increase as the number of health lobby registrations rise, given greater difficulties in securing access in crowded interest systems. Thus, the relationship should be convex with health PAC activity increasing at a faster rate as the number of health lobby registrations increases. To test this hypothesis, the number of health lobby registrations is included as a second-order polynomial where the nominal and squared values of the variable should define a positive, convex association. The estimate of the nominal term may be positive or negative depending on the magnitude of the squared term.

The remaining sets of independent variables are designed to measure the energy term of Gray and Lowery’s (1996) ESA model of interest system density. We first include three indicators of the energy of the policy space in terms of the health of the state’s population. Using principal components analysis, we develop an index to tap the health status of the state. The index includes the state’s rate of infant mortality, adult obesity, adult smoking, and cancer deaths. An iterated principal factors method yields a single-factor solution explaining 84% of the common variance. We also include a variable measuring the percentage of the adult population lacking any form of health care insurance or coverage, and a variable measuring the proportion of the population age 65 and older. Increasing values on all three measures indicate a worsening health status in the state, which provides the energy needed for health groups to lobby and
participate through PAC activity. As such, we expect a positive and significant direct relationship between these variables and the size of the interest group system, and a positive and indirect relationship between these variables and the size of the PAC system. This relationship is likely to be true for the range of health organizations included in our analysis. For example, high rates of deaths from cancer would fuel cancer patient advocacy groups, producers of oncology pharmaceuticals and medical devices, and associations of oncology professionals.

Next, we include two indicators of policy energy in terms of the health sector’s economic impact within each state. The first indicator is the percentage of the workforce employed by the health sector.\textsuperscript{19} The second indicator is state-only Medicaid spending as a percentage of total state expenditures.\textsuperscript{20} Increasing proportions of the workforce employed in the health sector and increasing proportions of Medicaid expenditures indicate a larger role for the health care system in the state’s economy. We expect a positive and significant direct relationship between these variables and the density of lobby registrants, and a positive and indirect relationship between these variables and the size of the PAC system.

Finally, we include two measures of political energy. In numerous studies, Gray and Lowery found that lobby registrations rise with both the level of party competition in the states and the size of the political agenda associated with the concerns of a given sector of interests. We tap the former with the average of the folded Ranney Index of state party competition from 1997 to 1999, coded such that high values indicate low levels of competition.\textsuperscript{21} We expect this variable to have a negative, direct relationship with the density of the lobby system and a negative, indirect relationship with the density and activity of the PAC system. Following Gray et al. (2005), we measure the size of the health policy agenda by the number of bills on health—as indicated by a “health” subject code—considered by the legislature from 1997 to 1999.\textsuperscript{22} We expect this variable to have a positive, direct relationship with the density of the lobby system and a positive, indirect relationship with the density and activity of the PAC system. Table 1 provides means and standard deviations of the continuous variables we use.

The ordinary least squares (OLS) regression models also include a control for the campaign finance laws in each state.\textsuperscript{23} We use an index of state campaign finance stringency that is based on 2002 state statutes as developed by Witko (2005). Although this measure is based on the statutes slightly more current than the majority of our PAC and interest group data, the measure allows us to control for the effects of the campaign finance system as a whole.\textsuperscript{24} We expect that states with higher levels of campaign finance stringency will depress the size of the health PAC community in the state.

**Findings**

We begin by presenting a series of OLS regression models that include the health and economic indicators of the energy term in the ESA model.\textsuperscript{25} Table 2 presents these results. The dependent variable varies across each model, with models 1 through 3 examining the number of health PACs in a state and models 4 through 6 examining their contributions
in thousands of dollars. More specifically, models 1 and 4 examine numbers and contributions for all health PACs, models 2 and 5 examine numbers and contributions for only those PACs connected to a lobby organization, and models 3 and 6 examine numbers and contributions for unconnected PACs.

Turning first to the control variable, the campaign finance stringency control index generated consistently negative estimates across the models as expected. However, only the estimate in model 2 was modestly significant. More substantively, the effects of the density of the lobby system on PAC density and contribution activity are indicated by the results reported in the first two sets of rows in Table 2. The density of the health lobbying community, as measured by number of lobbying registrations by organizations, is included in the model using a second-order polynomial. The coefficients of the nominal and squared values of density together should define a positive convex relationship rising at an increasing rate as the density of health lobby registrants increases. The estimates presented in Table 2 support this hypothesized relationship in all but model 2. These results show that, even when controlling for political and policy energy, the density of health lobby groups is modestly related to both formation and strongly related to the activity of health PACs. Figure 1 reports the convex relationship indicated by the estimates reported in model 1. Increasing the number of health lobby registrations has a strong nonlinear effect on the number of health PACs that form in a

Table 1. Summary Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Lower 95% CI</th>
<th>Upper 95% CI</th>
</tr>
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<tbody>
<tr>
<td>Number health PACs</td>
<td>126.18</td>
<td>32.23</td>
<td>61.41</td>
<td>190.95</td>
</tr>
<tr>
<td>Number unconnected health PACs</td>
<td>96.10</td>
<td>29.87</td>
<td>36.07</td>
<td>156.13</td>
</tr>
<tr>
<td>Number connected health PACs</td>
<td>30.08</td>
<td>3.66</td>
<td>22.73</td>
<td>37.43</td>
</tr>
<tr>
<td>Total health PAC contributions (thousands of dollars)</td>
<td>916.70</td>
<td>205.23</td>
<td>504.28</td>
<td>1329.12</td>
</tr>
<tr>
<td>Unconnected health PAC contributions (thousands of dollars)</td>
<td>222.83</td>
<td>52.99</td>
<td>116.34</td>
<td>329.31</td>
</tr>
<tr>
<td>Connected health PAC contributions (thousands of dollars)</td>
<td>693.88</td>
<td>161.72</td>
<td>368.89</td>
<td>1018.87</td>
</tr>
<tr>
<td>Health lobby registrations</td>
<td>119.00</td>
<td>10.82</td>
<td>97.26</td>
<td>140.74</td>
</tr>
<tr>
<td>State health condition index</td>
<td>0.00</td>
<td>0.13</td>
<td>-0.26</td>
<td>0.26</td>
</tr>
<tr>
<td>Percentage uninsured</td>
<td>16.00</td>
<td>0.67</td>
<td>14.66</td>
<td>17.34</td>
</tr>
<tr>
<td>Percentage of population age 65+</td>
<td>12.54</td>
<td>0.27</td>
<td>12.00</td>
<td>13.08</td>
</tr>
<tr>
<td>Percentage of state expenditures for Medicaid</td>
<td>0.10</td>
<td>0.01</td>
<td>0.09</td>
<td>0.12</td>
</tr>
<tr>
<td>Percentage workforce in health sector</td>
<td>7.56</td>
<td>0.15</td>
<td>7.87</td>
<td>7.26</td>
</tr>
<tr>
<td>Size of health agenda</td>
<td>293.80</td>
<td>38.36</td>
<td>216.72</td>
<td>370.88</td>
</tr>
<tr>
<td>Ranney Index</td>
<td>0.60</td>
<td>0.02</td>
<td>0.56</td>
<td>0.64</td>
</tr>
<tr>
<td>Index of campaign finance laws</td>
<td>10.62</td>
<td>0.53</td>
<td>9.56</td>
<td>11.68</td>
</tr>
<tr>
<td></td>
<td>Model 1</td>
<td></td>
<td>Model 2</td>
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<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>Coeff.</td>
<td>SE</td>
</tr>
<tr>
<td>No. health PACs</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Health lobby</td>
<td>-2.33</td>
<td>(1.34)</td>
<td>0.17</td>
<td># (0.09)</td>
</tr>
<tr>
<td>registrations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health lobby</td>
<td>0.013</td>
<td># (0.01)</td>
<td>0.00030</td>
<td>(0.00)</td>
</tr>
<tr>
<td>registrations sq.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State health</td>
<td>-0.19</td>
<td>(15.42)</td>
<td>2.55</td>
<td>(1.92)</td>
</tr>
<tr>
<td>condition index</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage uninsured</td>
<td>8.50</td>
<td>(4.59)</td>
<td>-0.34</td>
<td>(0.51)</td>
</tr>
<tr>
<td>Percentage of pop.</td>
<td>28.8</td>
<td>(17.49)</td>
<td>2.08</td>
<td>(1.69)</td>
</tr>
<tr>
<td>age 65+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of state</td>
<td>248.0</td>
<td>(458.38)</td>
<td>-20.9</td>
<td>(45.40)</td>
</tr>
<tr>
<td>expend. for Medicaid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion workforce</td>
<td>2829.9</td>
<td>(3438.79)</td>
<td>585.5</td>
<td>(344.61)</td>
</tr>
<tr>
<td>in health sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of health</td>
<td>-0.015</td>
<td>(0.14)</td>
<td>0.015</td>
<td>(0.01)</td>
</tr>
<tr>
<td>agenda 1997–99</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Ranney Index 1997–99</td>
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<td>(127.84)</td>
<td>32.8</td>
<td># (13.68)</td>
</tr>
<tr>
<td>Index campaign</td>
<td>-3.52</td>
<td>(7.78)</td>
<td>-1.30</td>
<td># (0.52)</td>
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<td>finance laws</td>
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</tr>
<tr>
<td>Constant</td>
<td>-81.6</td>
<td>(230.30)</td>
<td>19.9</td>
<td>(15.48)</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>.479</td>
<td>.716</td>
<td>.434</td>
<td>.721</td>
</tr>
</tbody>
</table>

Note: N = 50. Values are coefficients and robust standard errors based on states

*p < .10, two-tailed. **p < .05, two-tailed. ***p < .01, two-tailed.
state, controlling for the other variables in the model. Model 2, which examines the number of health PACs connected to a registered health lobby group, shows that the number of PACs is positively but not significantly associated with the number of health organization lobby registrants in the system. Evidently, the “crowded room” effect is not operating as strongly for connected PACs as is the linear positive effect in model 2. However, as indicated by the results reported in model 5, levels of squared density in the health lobbying system do seem to significantly influence contribution activity among connected health PACs. For nonconnected PACs the impact of squared density affects both the number and especially the amount of health PAC contributions. Overall, the pattern is consistent across all models, if stronger for PAC contributions.

We turn next to our indicators of political and policy energy on the number and contribution activity of health PACs in the states. These results provide a first step in addressing our central theoretical question about the lack of independence between the PAC and lobby systems. We hypothesized that the political and policy energy measures should not have a direct influence on the PAC system and should only indirectly
influence PACs through their effects on the density of the lobby registration system. The results show that only the size of a state’s health care workforce and the size of the health issue agenda have any consistent significant and direct effect on the PAC system, and even that is modest. However, these effects hold only for the models that measure the size of PAC contributions. None of the policy energy variables have an effect on the number of health PACs in a state. In addition to density pressures, existing groups are more likely to form PACs if the electoral environment is more competitive. In political competitive environments, groups need to “lobby before the election” with PAC dollars as well as after the election via traditional means.

While the Ranney Index is useful in modeling the number of connected health PACs that form, the index is not significant in predicting the contribution patterns of health PACs, where the health group density variables retain their predictive power. More telling is the lack of a pattern among the remaining coefficients. Within each indicator of policy and political energy, the coefficients often carry the opposite sign from that expected and vary in significance across the six models. The indicators generating significant estimates vary across the dependent variables. Finally, joint F tests fail to reject the null hypothesis that all of the political and policy energy variables are jointly equal to zero for all six models. These results suggest that while political and policy energy might influence the PAC system, any direct influence is inconsistent and weak.

Is indirect influence more likely? We can answer this question using a path analysis in which political and policy energy is expected to directly affect the density of organized interests registered to lobby, which in turn is posited to affect the size of the PAC system. The path analysis allows for a more comprehensive examination of the effects of each energy variable controlling for the presence of the others. This process is depicted in Figure 2. To conduct this analysis, we regressed the number of health interests registered to lobby in a state on the social, economic, and political energy variables. The standardized beta coefficients from this OLS regression are the path coefficients showing the direct effect of the energy variables on the density of the lobby system. Next, we regressed the total number of health PACs on the nominal and squared number of health interest lobby registration variables. The standardized beta coefficients from this regression can then be used to calculate the indirect effect of the energy variables on the density and contribution activity of the PAC system.

As shown in Figure 2, the path analysis demonstrates a positive and significant effect of the state Medicaid spending or economic energy variable, the percentage of the population older than age 65, and the size of the legislative health agenda on the number of lobby registrations in a state. Furthermore, the health sector workforce economic variable carries the correct sign and falls just outside our bound for statistical significance. The interest system, characterized by the nominal and squared terms, then serves as a significant predictor of number of PACs. Table 3 presents the total indirect effect for each of the significant political and policy energy variables. Using the percentage of total state expenditures spent for Medicaid as an example, we can calculate the indirect effect by adding the path from Medicaid spending to PACs through the nominal interest group term to the path from Medicaid spending to PACs.
Figure 2. Path analysis of PAC antecedents
Note: Values represent standardized regression coefficients. 
* p < .05, two-tailed. ** p < .01, two-tailed.

Table 3. Total Indirect Effect of Energy Variables on the Total Number of Health PACs

<table>
<thead>
<tr>
<th>Energy variable</th>
<th>Total indirect effect (standardized beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of population age 65+</td>
<td>.19</td>
</tr>
<tr>
<td>Proportion workforce in health sector</td>
<td>.15</td>
</tr>
<tr>
<td>Percentage of state expenditures on Medicaid</td>
<td>.24</td>
</tr>
<tr>
<td>Size of health agenda 1997–99</td>
<td>.29</td>
</tr>
</tbody>
</table>

through the squared interest group term for a total indirect effect of \((0.38 \times -0.99) + (0.38 \times 1.63) = 0.243\). The use of standardized beta coefficients allows us to compare the magnitude of these effects across the different variables.\(^{29}\) Each of the three significant energy variables seems to yield similar effects on the PAC system, as does the borderline significant effect of the size of the health sector workforce, though interestingly having more health issues on the agenda seems to exert the greatest impact on health PAC formation.

Conclusion

The findings provide support for the notion that the PAC system is an extension of the lobbying system at the state level. Still, social, economic, and political measures of
the saliency of health policy do indeed influence the number and contribution activity of health care PACs that form in a state, albeit indirectly. These factors have a significant impact on the density of the lobby system and the size of this interest community that largely determines the number of PACs that form and the contribution activity of those PACs. We find little support for the notion that these measures of policy saliency directly influence the number or contribution activity of PACs, with only sporadic significance of these variables across different PAC models. In contrast, the number of lobby registrations squared is far more consistent in its ability to predict PAC formation and contribution activity. While our research design comparing states over time is appropriate for validating the causal claims in our model, we examine only health groups and health PACs. The potential exists that other issue sectors will demonstrate more influence of the political environment on PAC formation. In particular, the “crowded room” phenomenon (the squared term from the density model) may operate with greater force in other sectors. The health care lobbying community at the national level at least has shown an ability to expand considerably when health care reform bills are on the table. Bosso (2005) suggests that the environmental community and health care advocacy are the top two public interest communities in density and diversity, although health care has the addition of provider- and producer-defined groups. Future scholars may find it useful to test the generalizability of our model across many issue sectors.

Moreover, this analysis is consistent with the findings of Lowery et al. (2009) that interest system competition is what governs PAC formation and activity. As the number of interests vying for legislative attention and access increases, organized interests look for additional ways to bring their arguments before government. Increasing their levels of PAC activity represents one of the additional tactics interest organizations have at their disposal. The research reported here demonstrates that PAC scholars and interest group scholars cannot continue to operate as if their worlds are entirely independent of each other. Our research is an important step forward in the study of PACs because we show that PAC scholars must account for the density of the lobbying environment when explaining the behavior of PACs. Little else has a direct impact on the system of PAC formation; moreover, interest system density plays a strong role in the behavior of PACs once they are formed. The models predicting PAC contributions indicate that lobbying density is a critical element in any explanation of PAC behavior. Thus, PACs and PAC activity—and perhaps the use of other lobbying tactics and strategies—are best understood as part of a larger system governing the size and composition of interest communities as a whole in which the demand function identified by Leech et al. (2005) or the energy term of the ESA model plays a significant if indirect role. Finally, our results contribute to the ongoing program in population ecology and its modeling of organized interests in their many manifestations. We show that interest organizations do adapt to the changing environmental pressures and to opportunities government creates for access through PACs. Thus, we view our analysis as one step toward meeting the challenge posed by Halpin and Jordan (2009) that population ecology must incorporate organizational adaptation within its purview.
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Notes

1. As noted above, the policy connection could also be one of interests buying policy, but see the discussion below.
2. This three to one ratio of contribution dollars from connected PACs to dollars from unconnected PACs is also true for each party. Connected PACs account for 74.05% of contributions to Democrats in the states and 76.78% of contributions to the GOP. GOP contributions ($25,368,300) somewhat exceed those to Democrats ($20,222,100). Note these numbers exclude smaller contributions to third parties. There are no significant differences in the two-party distribution of PAC contributions between nonconnected and connected PACs.
3. Because of the skewed nature of contributions, we find it also useful to look at the differences in terms of median contributions. The median contribution for nonconnected PACs is $500, with an interquartile range (IQR) of $200–1,000. The median for connected PACs is $4,500, with an IQR of $1,150–16,238.
4. Stability refers to the amounts of change in the political system. Interest organizations are dependent on the relative stability of the political system they operate within. If the government chronically undergoes serious leadership and process changes, interest organizations may not survive. This is generally viewed as only theoretically relevant given the contemporary stability of state governments (Gray and Lowery 1996).
5. While some studies measure issue saliency with survey questions (Baumgartner and Jones 2005; Wlezien 1995), we do not have access to any comparable survey measure at the state level for the salience of health care.
7. Nor does the FECA Federal Election Campaign Act legislation for that matter since the term PAC does not appear.
8. The National Institute in May 2008 reorganized its website so that campaign contributors are reported by different categories altogether.


10. We ran checks to see how thorough the National Institute on Money in State Politics (NIMISP) data on donating organizations were relative to what states disclosed and found that, in most cases, NIMISP listed more organizations than the states did as PACs. After removing many of the individual and party donors from the list, we still found that the NIMISP data listed more organizations as donors or PACs than most states did. This helps to avoid problems with different disclosure laws regarding PAC registration in states and gives us a much larger picture of what could easily be interpreted as PACs in the states.

11. The state lobby registration data we employ have been described fully in many places. Lobby registration lists were gathered by mail or web page from state agencies responsible for their maintenance. After purging the lists of state agencies in states requiring their registration, organizations registered to lobby—rather than individual lobbyists—were coded by organizational type (membership group, institution, or association) and interest content (26 guilds of substantive interests) using directories of organizations and associations and the web pages of individual organizations. A second coder then examined the coding assignments, with discrepancies resolved via discussion between the two coders. Only 1.58% of the 35,928 organizational lobby registrations in 1997 could not be coded by type or substantive interest. The organizations in the health category among the complete population of guilds were then recoded by substantive interest using the 18 categories reported in Lowery and Gray (2007). Only 38 organizations or 0.66% of the 1997 health population could not be coded by these categories of substantive interest. Fortunately, previous work indicates that the stringency of state lobbying registration requirements has little impact on the density (Lowery and Gray 1994; 1997) and diversity (Gray and Lowery 1998) of interest communities.

12. Following Lowery and Gray (2007), these include the following kinds of organizations: direct patient care, drugs and health products, health finance, local government health agencies, health care advocacy, health professional associations, and health education institutions.


21. Since this measure is inversely coded, with values near 1 indicating one-party dominance and values near 0.50 indicating balanced party strength, negative estimates indicate that party competition promotes mobilization. Although the variation across years in the values of this variable is not great, we include the average to control for lagging and leading effects of political influences on PAC activity.

22. Bill count data were collected from the State Full Text of Bills database on Nexis Academic Universe. The database is maintained by LexisNexis, a division of Reed Elsevier Inc., and is available for a fee at http://www.nexis.com. The database contains bill text files of all bills considered by each statehouse in a calendar year with each bill assigned a set of subject codes, providing a separate listing for each revised version of a bill in the database. For example, Alabama House Bill 175, which appropriated $4,564,831 to the Department of Public Health in 1997, was listed five times in the database: one entry was the initial version, three were revisions, and the fifth was the enacted bill. Multiple counts are appropriate because the concerns of organized interests about bills should heighten as they move through the legislative process. Again, although the variation across years in the values of this variable is not great, we include the average to control for lagging and leading effects of political influences on PAC activity. In terms of variation across states, the average number of bill counts in 1997 was 278 and ranged from a low of 17 in Kentucky to a high of 1,409 in California.

23. We included several other control variables in previous iterations of the models. These variables included four variables broadly designed to account for structural differences in PAC activity across years and states. Most importantly, these include two dummies indicating via a value of 1 that no gubernatorial or general legislative election was held in the year in which PAC activity was measured. We also include a dummy indicating whether a legislature operated under term limits, which may increase opportunities for influence on the part of organized interests. And last, in terms of any cycles in PAC activity, we include a dummy identifying the eight states for which the PAC variables were measured in years after 1998. None of these variables were larger than their standard error in any of models, so for parsimony they were excluded from the current analysis.

24. In other models, we included several individual campaign finance controls (prohibitions for corporate and union contributions, public disclosure, and contribution limits). These variables rarely made a significant contribution to the models. Including the index allows us to continue controlling for these effects with additional parsimony.

25. The mean variance inflation factor (VIF) for our models is 5.3. With the exception of the interest group density variables, the VIF for all other variables is less than 3.0.

26. We use total health PACs as the dependent variable for illustrative purposes. Because the pattern of effects from the independent variables is similar across dependent variables in the ordinary least squares (OLS) and mediation tests, we chose to present path analysis results for only one dependent variable. The path analysis results replicate across four out of the other five dependent variables (numbers of unconnected health PACs, total health PAC contributions, connected health PAC contributions, and unconnected health PAC contributions).
Like those for the OLS analysis, the results differ for numbers of connected PACs. These additional analyses are available from the authors.

27. In a linear system, the total causal effect of a variable \( x \) on a variable \( y \) is the sum of the values of all the paths from \( x \) to \( y \) (Alwin and Hauser 1975).

28. The minimum of this quadratic function is at a Health Lobby Registrations value of 98. Since the mean health lobby registrations in a state is 119 and the lower 95% confidence interval on health lobby registrations occurs at roughly 97 registrants, the positive relationship we hypothesize holds for the majority of our data.

29. It is possible that the number of health groups in a state is an endogenous part of the political system. This endogeneity would bias the coefficients in the second stage of our model predicting the number of health PACs. To guard against this possibility, we have also estimated a two-stage least squares model. In this alternative specification, we regress health groups and health groups squared on the number of health PACs in a state, but instead of using the count of health groups in a state we use an instrumental variable for health groups. The instrumental variable is made up of the political system variables from stage 1 of the model. This alternative specification yields the same results as our simpler path model.

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