Wherein Lies the Power? Lobbyists and Lobbying Organizations in North Carolina

John C. Scott  
*University of North Carolina at Chapel Hill, jcscott@email.unc.edu*

Jeff Summerlin-Long  
*University of North Carolina at Chapel Hill, summerlinlong@gmail.com*

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Wherein Lies the Power? Lobbyists and Lobbying Organizations in North Carolina

John C. Scott, JD, PhD
Department of Public Policy, University of North Carolina at Chapel Hill

Jeff Summerlin-Long, JD
Department of Public Policy, University of North Carolina at Chapel Hill

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Abstract: Using multilevel social network and standard statistical analysis, this paper compares three levels of a state-level lobbying network - the network of individual lobbyists, the network of lobbying organizations, and the client or principal network - in order to provide a more nuanced understanding of the structure and dynamics of state-level interest groups. North Carolina is unusual in that it provides public longitudinal data since 1993 covering all three levels of relations. By engaging in this comparison, we hope to further parse the key characteristics of the network in order to understand its evolving structure. Specifically, how do different levels of the lobbying network evolve and change? How do key network characteristics differ across network levels? How are changing connections over time between lobbyists, lobbying organizations, and their clients associated with key political variables such as perceived influence?
Introduction and Overview

Using a unique longitudinal dataset, this project is focused on the structure and evolution of lobbying networks at the state level. We use the data from 1993 on lobbying organizations in the State of North Carolina as a case study. Examining the structure of lobbying relationships in North Carolina in terms of different levels of lobbyist relations, this project assesses whether and how political networks change and whether different levels of lobbying relationships exhibit different characteristics.

We study three levels of relationships within the interest group community, from the level of individual lobbyists to lobbying organizations to principals who hire individual and organizational lobbyists. Our overall focus is not confined to one level (e.g., principal networks that are affiliations through common lobbying organizations) but to relations that span levels such as when principals employ individual lobbyists. Within and across these levels we are interested in relations change and how patterns of relations matter for political activity.

While the ostensible topic concerns state level lobbying, this paper is also about structure and time. If social network methods permit us to take a relational view of political life, then we have to ask questions such as: What does the structure of relations look like? And more importantly, what does it mean for political activity? In addressing these questions, we have to consider the role of time. Relationships build over time as actors interact and develop trust, norms, and common perspectives. So in this paper, we are concerned not just with the presence or absence of relations among lobbying entities, but also with the explanations and interpretations of such relations.

This paper begins by providing a review of prior research, and the review has two foci. First, we begin by reviewing the state of the literature on political activity at the state and local level, particularly the interrelationships among interest groups across jurisdictions. Second, we summarize prior political work from a social network perspective, which provides a rationale for examining politics from a relational perspective. The review of prior literature provides a foundation for our arguments, which suggest that lobbying communities are dynamic and that lobbying entities develop relations as a function of this dynamic process. After a discussion of the data sources and methods, we present our results from descriptive social network analysis and dynamic modeling analysis. We conclude this paper by discussing future work and extensions as well as connecting this project to the concept of political influence.

Prior Research

State-Level Lobbying

The structure of political activity has been a focus of social scientists for at least a couple of decades (Laumann and Knoke 1987). However, as Baumgartner and Leech (1998) noted, little work has been done at the state level. This project is not only focused on the state level but also on relations between local and national firms. To the best of our knowledge, little research has explored the connections between interest groups represented at both the national and state levels.

Wolak, Newmark, McNoldy, Lowery, and Gray (2002) created a dataset of state-level lobbying registrations across all 50 states in 1997. They found that while the lobbying techniques show some convergence, communities of special interest groups remain predominantly local. Similarly, de Figueiredo (2004a and b) and Boehmke (2008) model the
variations of state-level interest group activity. In Boehmke’s (2008) study, he notes that states that permit direct initiatives have significantly larger interest group populations. Evidence supports the proposed mechanism that state-level initiatives generate mobilization of previously dormant groups, which are usually local in nature. This result might obtain because initiatives are typically state-specific, they foster larger interest group communities that create openings for niche groups, and as initiatives typically create groups with a short-term focus, higher rates of group exit create openings for new groups.

However, recent research suggests significant linkages between the federal and state levels. Baumgartner, Gray, and Lowery (2009) model how federal policy activity stimulates lobbying activity in the states, and their analysis finds that “strong linkages exist between federal policy activities and the subsequent activities of groups in the states” (2009: 13). They document that the pathways that connect federal and state-level policy activity are many and distinct. For example, they find evidence that federal and state policy actors are responding contemporaneously and directly to ongoing events. They also find a substitution effect in which congressional hearings in one year dampen or stimulate state lobbying registrations in another year, the effect of dampening or stimulation depending both on the kind of state legislature and policy area. However, the “precise mechanisms and timing associated with these factors should be the object of further research” (2009: 13).

Gray and Lowery (1996) have used a population ecology framework to measure and model the growth and development of interest group communities at the state level. Two ideas from the population ecology literature are especially relevant: the density of interest group communities and the diversity of such communities. These concepts are best addressed through the use of network theory and analysis.

Networks

Social network theory and analysis has a long tradition in political research. For example, the resource mobilization approach uses the patterned links among interest groups to show the structure coalitions, cleavages, and competitive relations among such groups and how political actors are linked to resources (Laumann and Knoke 1987; Wellman 1988; Knoke 1990). Other political scientists have recognized the value of stable relationships in policymaking. For example, lobbying groups that have a long tenure or track record are often successful with bureaucratic lobbying because such a group will likely be of use to the agency in the future (Costain, 1978). Informal social relationships in lobbying exist and can serve useful ends (Chubb, 1983; Milbrath, 1963). However, the political science literature generally has not explored the mechanisms and implications of social relationships and social norms among lobbyists. Instead the models used in political science either have an undue reliance on structure, such as through the ‘iron triangle’ or subgovernment model, or view political actors as atomistic in nature (Lowi, 1969; Heclo, 1978; Heinz et al., 1993; Hula, 1999).

In contrast, a relational perspective stressing social network analysis may be useful in getting at social reality in “dynamic, continuous, and processual terms” (Emirbayer, 1997: 281).

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1 In contrast, a number of organized interests are known best for their outsider reputations as either dissidents or non-specialists. “These groups appear to contribute little of direct value to specific policy decisions because the costs of making their proposed policy changes are very high” (Browne, 1989).
Social network analysis studies the behavior of individual actors at the micro level, the pattern of relationships at the macro level, and the interaction between the micro and macro levels (Stokman, 2004). Networks facilitate information transmission (Granovetter, 1973) and assist in providing cooperation and collective action (Gargiulo and Benassi, 2000).

There are two fundamental threads to analyzing power or influence in terms of a lobbying network. First, the network itself represents a macro-level picture of the influence of lobbyists on political or policy activity. An extremely dense network structure may provide the potential for great power, while a more loosely coupled structure will be less likely to provide the foundation from which to exert significant influence (Hanneman and Riddle, 2005). Second, the power of the overall network can be distributed amongst its component parts in a variety of ways. This micro-level distribution of power is concentrated in the relational space between particular actors within the system, and can be more or less equally distributed (Hanneman and Riddle, 2005). In social network theory, these two related, but distinct threads are captured by the concept of “embeddedness”.

The embeddedness perspective in network analysis “stresses the role of concrete personal relations and structures (or ‘networks’) of such relations in generating trust and discouraging malfeasance” (Granovetter 1985: 490). “‘Embeddedness’ refers to the fact that economic action and outcomes, like all social action and outcomes, are affected by actors’ dyadic (pair-wise) relations and by the structure of the overall network of relations.” (Granovetter 1992: 34). The micro-level concept of embeddedness emphasizes the dyadic or relational properties of the network. Reciprocating ties are generally asymmetric, differing in content and intensity, but ties are usually reciprocated in a generalized way (Wellman 1988). Ties link network members indirectly as well as directly such that any tie between two actors must be defined within the context of the overall network.2

Relational embeddedness typically has direct effects on individual action and leads to trust. Information from a trusted source is cheaper, richer, more detailed, and known to be accurate precisely because continuing relations often become overlaid with social content that carries strong expectations of trust and abstention from opportunism (Granovetter 1985). Embedded exchanges make expectations more predictable and reduce monitoring costs. They also allow ‘thick’ information exchange of tacit and proprietary know-how, and joint problem-solving arrangements that stress flexibility and feedback (Uzzi 1997).

In contrast, macro-level structural embeddedness typically has more subtle and less direct effects on action. Multiple independent paths that link pairs of structurally cohesive actors help information flow among organizations in a way that facilitates politically similar activity (Moody and White 2003).3 Structural embeddedness, which arises from sharing one or more foci of activity with others, is less under the control of individuals and is more stable than the dyad (Feld 1997).

2 “In practice, many ties are with network members whom one does not like and with whom one would not voluntarily form a twosome. Such ties are involuntary in that they come as part of the network membership package” (Wellman 1988: 41).

3 “In saying this I draw on the principle that to the extent that a dyad’s mutual contacts are connected to one another, there is more efficient information spread about what members of the pair are doing, and thus better ability to shape that behavior. Such cohesive groups are better not only at spreading information, but also at generating normative, symbolic, and cultural structures that affect our behavior” (Granovetter 1992: 35).
Our Arguments

Interest group communities are diverse and dynamic, exhibiting flows of people and organizations. Within this fluid environment, we argue that a policy community is partly characterized by durable and informal relationships of participating lobbying organizations, but the strength of the relationship is a property of the group rather than the constituent organizations (Moody and White 2003). Lobbying organizations will vary in terms of their specific strength of ties to each other, but the group has a unique level of cohesion that should persist over time.

Moreover, relationships arise out of shared needs to find reputable services, information and key resources. These needs contribute to an increasing level of group-wide relationships as reputations develop and spread in a way that fosters ties between entities. Markovsky and Lawler (1994) identify ‘reachability’ as an essential idea to group embeddedness, meaning that we should be able to trace an actual path from one group member to any other member. As new relations develop out of shared interests, multiple and independent paths between two lobbyists can be traced through the group (Moody and White 2003).

But relations might only exist at one point in time: For example, lobbyists might come together once, and only once, to discuss five legislative areas of interest, and then depart. Therefore, time also becomes part of the equation. When we see the same lobbyists working together over time, we could say that they occupy a set of positions within a web of close-knit relationships. Therefore, we would expect that those lobbyists and principals who operate in a policy community over time would increasingly develop a stable set of shared interests with other, similarly situated entities relative to those who do not work consistently in a policy area over time. Moreover, people often know each other, but when they do not, they search for reliable markers of quality (Spence 1976; Podolny 1993) that will provide some assurance that the relationship or exchange will be beneficial rather than harmful, that the relationship will continue into the future (Hardin 2002).

With these perspectives in mind, we will test the following hypotheses:

Hypothesis 1: In a dynamic policy environment, long term participants in a policy community are more likely to create relationships with each other than with relative newcomers

Hypothesis 2: In a dynamic policy environment, relationships are more likely to be higher for entities that have higher reputations for trust and/or ability.

Data and Methods

Because our focus is on relations within a community of policy actors, we rely primarily on social network concepts and methods. Statistical procedures are used to assess the significance of associations, and we use a new modeling method for longitudinal network data. In using different methods, we hope to provide as complete a picture of a state-level lobbying community as the limited data will allow.

In addition, the data is multilevel in nature. We have data on principal organizations (organizations that hire or employ lobbyists), lobbying organizations (organizations that hire themselves to principals or that are self-representing), and individual lobbyists. The long-term
aim of this project is to assess the community of lobbying in North Carolina on each of these levels.

Our primary data source is mandatory lobbyist registration information collected and maintained by the Office of the North Carolina Secretary of State. Lobbyists – individuals and organizations – are required to register with the Secretary of State and file periodic reports. Periodic reports must identify clients that hire lobbyists. These reports are publicly available, but they do require data manipulation and recoding. Reports were downloaded for the following time periods: the two year periods of 1993-94; 1995-96; 1997-98; 1999-00; 2001-02; 2003-04; 2005-06. Beginning in 2007, reporting requirements switched to annual reporting such that we have data for 2007 and 2008.5

Since the 1980s, the North Carolina Center for Public Policy Research (NCCPPR) has polled members of the legislature and the lobbying community as to the most influential individual lobbyists. An example illuminates the process. For the 2004-05 legislative session, NCCPPR conducted the survey during the first three months of 2006. All 50 state senators and 120 state representatives, 442 registered lobbyists (including the lead state agency legislative liaisons), and 16 state capital news correspondents were asked to choose the top ten most influential lobbyists during the prior two-year session from a list of all registered lobbyists. The overall response rate was 48%, though there was wide divergence in the response rate of different groups: 68% of representatives; 72% of senators; 39% of lobbyists; and 63% of news correspondents responded that year. There is no publicly available data on the distribution of the respondents compared to the overall sample. The rankings are calculated by aggregating the number of times each lobbyist is listed as amongst the top ten and then constructing a list of the top 50 individuals ranked in terms of perceived influence.

We use this data from 1993 to 2007 to construct a measure of a lobbying organization’s reputation for influence during each two-year legislative session. First, we construct a total influence variable by reversing the coding such that the scales are reversed – the number 1 lobbyist is coded as a ‘50’ and the 50th ranked lobbyist is coded as a ‘1’. In this way each lobbyist is rated on a point scale from 1 to 50 with 50 representing the most influential lobbyist. Each individual lobbyist’s ranking is attributed to the organization that employs him and if an organization has more than one influential lobbyist, the scores are added together.

In terms of analysis, we first provide descriptive statistics for the different lobbying entities in North Carolina, including an exposition of the nature and structure of lobbying relations at the organizational and individual levels. Social network analysis will also be used to illustrate the pattern of relations among lobbyists, among principals.

Because we have longitudinal social network data, we use the “actor-oriented” statistical network model as expressed in the software program SIENA6 (Simulation Investigation for Empirical Network Analysis), which was developed to describe and explain the development of closed networks over time (Snijders, 1995, 1996, 2001, 2005; Snijders & Van Duijn, 1997). The

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5 We understand that the time periods do not completely match up in terms of duration, and we hope to remedy this disjuncture in future iterations of the project. However, we do not believe that different durations detracts from the main points of this paper.
6 A free copy of the latest version is now available in R and from the website at [http://stat.gamma.rug.nl/siena.html](http://stat.gamma.rug.nl/siena.html).
model evaluates the changes in the networks as a result of the rational actions of the lobbying organizations.

Each actor maximizes a utility function based on substantive arguments and constructed such that it represents the costs and rewards for an actor to be in a specific state (e.g., creating or dissolving a tie) at a moment in time. The individual utility function is modeled as a random component because it includes elements that are not represented in the model by measured variables. Therefore, the utility function contains statistical parameters that have to be estimated from real observed data.

For each actor, a set of admissible actions is defined in that lobbying organizations may start, consolidate, or dissolve a tie to another organization. Actors only control their own decisions to create or dissolve links and do not force other actors to change their links. In general, the choice of action for actor \( i \) at time \( t \), \( a_{it} \), is based on a number of independent variables. If an action can be described as a function of one or more substantive utility arguments, it is assumed that the actor is able to determine the expected effects of future actions. Therefore, each decision is associated with a change in utility, \( \Delta U_{it}(a) \). Because the choice of action can also be based on utility arguments that are not explicitly modeled in the utility function and because of measurement and/or specification errors, it is assumed that ego chooses the action that maximizes \( \Delta U_{it}(a) + E_{it}(a) \), in which \( E_{it}(a) \) is random error term. Under certain conditions on the distribution of \( E_{it}(a) \), this leads to the model:

\[
P_{it} = \frac{\exp(\Delta U_{it}(a)/\sigma)}{\sum_{a=1}^{A} \exp(\Delta U_{it}(a)/\sigma)}
\]

This model states that in cases in which the expected change in utility is approximately the same for all actions ego’s choice is more or less entirely based on pure chance. However, if, compared to other actions, one action is associated with a relatively large increase of expected utility, the probability that ego chooses this specific action is also relatively large.

In summary, we observe the networks of lobbying entities at different points in time and collect information regarding a number of fixed and varying individual and dyadic attributes. However, because we have no information about what happens between observations, the model simulates what happens in between the observation points using the random utility model. The organizational actions that make the network develop from one structure into another are the core of the simulation procedure.\(^7\)

SIENA estimates the model based on a maximum likelihood estimator using the method of moments, implemented as a continuous-time Markov Chain Monte Carlo simulation. The model first calculates likely starting values for the parameters of all the variables. SIENA next simulates the choice process based on the starting values, compares the resultant simulated network with the observed networks of actual ties, and adjusts values to reduce differences between the observed and the simulated data. The model then uses a number of simulations to determine the frequency distribution of predictions, which then are used to calculate standard errors for the final parameter values.

\(^7\) The software that is used for the estimation is called SIENA, which is part of the network software package STOCNET and can be downloaded for free from [http://stat.gamma.rug.nl/siena.html](http://stat.gamma.rug.nl/siena.html).
In this model, we examine the changes in ties between principals and individual lobbyists for 3 time periods (1993-4, 1995-6, 1997-8). Because the modeling process is computationally intensive, we limit the analysis to the set of individual lobbyists who are consistent players in the policy community in at least 7 of the 8 total time periods.

While we tried a number of parameters, including betweenness centrality, cycles of relations, and outdegrees, the model converged best when using four parameters (in addition to the standard density parameter that must always be included): the ‘popularity’ of the individual lobbyist as shown by his or her indegrees, an assortativity effect in which high outdegree principals are tied to high indegree lobbyists, the number of time periods that a principal is represented by lobbyists, and the reputation of the individual lobbyist as evidenced by being named as influential in a particular time period.

In terms of the hypotheses, we would expect that positive and significant results for the number of time periods for principals would provide evidence for hypothesis 1. That is, ties are more likely to be formed between long-term player-principals and long-term lobbyists. For hypothesis 2, we expect that lobbyists with lots of indegrees and/or that have reputations as influential have the requisite markers of quality that will attract principals. Moreover, the assortativity effect means that high outdegree principals are more likely to form relations with high indegree lobbyists. In this way, we are assuming that higher numbers of degrees or ties are indicators of quality such that principals and lobbyists with similar numbers of ties will seek each other out.

However, both hypotheses assume a crowded and dynamic policy environment. Therefore the first part of our analysis describes the interest group environment in North Carolina.

**Analysis**

**Lobbying in North Carolina**

We first provide some numerical and graphical representations of the networks of lobbying firms and hiring principals in North Carolina. Figure 1 below shows over time trends in terms of the number of organizations and persons lobbying in North Carolina. Whether individuals, lobbying organizations, or principals, we are seeing large and increasing numbers at each level although the number of lobbying organizations has shown more fluctuation.

However, these numbers do not adequately describe the entire lobbying environment so we next discuss each level in more detail.
Individual Lobbyists

Table 1 below indicates the total number of individual lobbyists over all time periods. A relatively small number of individuals are consistent players in the lobbying world as only 113 or 4.6 percent have lobbied in all 8 time periods. The vast majority of individual lobbyists only do this kind of work for one legislative session. Thus, we see a lot of movement in and out of the lobbying community over time.

Table 1: Number and Percentage of Individual Lobbyists by Time Periods Spent Lobbying

<table>
<thead>
<tr>
<th>Time Periods</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,298</td>
<td>52.81</td>
</tr>
<tr>
<td>2</td>
<td>470</td>
<td>19.12</td>
</tr>
<tr>
<td>3</td>
<td>241</td>
<td>9.8</td>
</tr>
<tr>
<td>4</td>
<td>127</td>
<td>5.17</td>
</tr>
<tr>
<td>5</td>
<td>97</td>
<td>3.95</td>
</tr>
<tr>
<td>6</td>
<td>72</td>
<td>2.93</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>1.63</td>
</tr>
<tr>
<td>8</td>
<td>113</td>
<td>4.6</td>
</tr>
</tbody>
</table>

In Figure 2 below, we see a network map of individual lobbyists who are affiliated to each other via common principals in 2007-08. Components are color-coded, and one can see a giant component in red with a large number of small components scattered throughout. This is a common pattern across time as the number of individuals belonging to the main component has fluctuated from 42 to 49 percent since 1993.
From Figure 3, we can see that the average number of ties per individual lobbyist is small, fluctuating between 2 and 2.5, although the trend is on increasing ties over time. This suggests that perhaps a relative few lobbyists have a large number of ties and many individual lobbyists have 1 or 2 ties to principals.
Lobbying Organizations

In terms of numbers, our data includes 2,624 organizations that lobbied or were represented by lobbying organizations in North Carolina over the 1993 through 2008 time period. Of these, 2,292 were principals and 1,129 were lobbying organizations. The reason that the number of principals and the number of lobbying organizations collectively are larger than for the entire dataset is that many organizations have, at one time or another, been both principals and lobbying organizations. In total, 797 organizations have been in both categories (although not necessarily at the same time).

But how does multilevel lobbying fit into the structure of the North Carolina interest group community? To answer this question, we first consider the role of time. For organizations in North Carolina, the distribution reflects a large number of organizations that are active for a short period of time but with a significant number of groups that operate across all time periods.

![Figure 4: Number of Lobbying Organizations by Number of Time Periods Represented in North Carolina (1993-2008)(n=1,129)](image)

What we can see from the distribution in the table is that organizations can be characterized generally as either *repeat players or one-shot players* (Galanter, 1974).

With these characteristics of the lobbying community in mind, we now consider the overall shape of the network. Table 2 below provides a different set of cross-tabulations, this time between time spent lobbying in North Carolina and the number of times that an organization was selected as influential. To be clear, this reflects the mere selection for being influential, not the relative ranking of influence. The table shows that most organizations (91.2 percent) are never chosen as influential. Of those organizations chosen as influential, the distribution appears bimodal: Many organizations are consistently influential, and many are influential only one or two times. Time, of course is an important factor—an organization cannot not be influential if it is not actively involved in advocacy. But it is striking that a small subset, about 2
percent of lobbying organizations, are consistently viewed as influential in North Carolina politics.

Table 2: Tabulation of Time Periods Lobbying in North Carolina and Influence Rankings, in percentages (1993-2008)(n=1,119)

<table>
<thead>
<tr>
<th>Time in NC</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27.6</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>27.7</td>
</tr>
<tr>
<td>2</td>
<td>17.4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>17.4</td>
</tr>
<tr>
<td>3</td>
<td>9.8</td>
<td>0.5</td>
<td>0.2</td>
<td>0.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>10.6</td>
</tr>
<tr>
<td>4</td>
<td>5.5</td>
<td>0.3</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>5.7</td>
</tr>
<tr>
<td>5</td>
<td>7.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>7.2</td>
</tr>
<tr>
<td>6</td>
<td>5.0</td>
<td>0.3</td>
<td>0.3</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>5.5</td>
</tr>
<tr>
<td>7</td>
<td>4.1</td>
<td>0.3</td>
<td>0.2</td>
<td>0.3</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.0</td>
<td>5.1</td>
</tr>
<tr>
<td>8</td>
<td>4.0</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>4.6</td>
</tr>
<tr>
<td>9</td>
<td>10.8</td>
<td>1.3</td>
<td>0.7</td>
<td>0.3</td>
<td>0.5</td>
<td>0.5</td>
<td>0.3</td>
<td>1.0</td>
<td>0.8</td>
<td>16.2</td>
</tr>
<tr>
<td>Total</td>
<td>91.2</td>
<td>3.0</td>
<td>1.6</td>
<td>0.8</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>1.2</td>
<td>0.8</td>
<td>100.0</td>
</tr>
</tbody>
</table>

First, we note that the presence of a giant component is not restricted to one time period. Table 3 summarizes the size of the giant component over time. Generally 60 percent of lobbying organizations active in any particular year are members of the main or giant component.

Table 3: Organizations in Main Network Componet, 1993-2008 (frequency and percent)

<table>
<thead>
<tr>
<th>Time Periods</th>
<th>93-94</th>
<th>95-96</th>
<th>97-98</th>
<th>99-00</th>
<th>01-02</th>
<th>03-04</th>
<th>05-06</th>
<th>07</th>
<th>08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Orgs in Main Component</td>
<td>443</td>
<td>545</td>
<td>565</td>
<td>538</td>
<td>602</td>
<td>500</td>
<td>610</td>
<td>557</td>
<td>497</td>
</tr>
<tr>
<td>All Organizations</td>
<td>735</td>
<td>827</td>
<td>888</td>
<td>831</td>
<td>868</td>
<td>827</td>
<td>972</td>
<td>974</td>
<td>887</td>
</tr>
<tr>
<td>Pct in Main Component</td>
<td>60.3%</td>
<td>65.9%</td>
<td>63.6%</td>
<td>64.7%</td>
<td>69.4%</td>
<td>60.5%</td>
<td>62.8%</td>
<td>57.2%</td>
<td>56.0%</td>
</tr>
</tbody>
</table>

What is holding this main component together? In Figure 5 below, we show the average number of in-degrees (normalized to reflect the variations in the networks over time) for for-hire lobbying organizations over the entire time period of the data. The general trend is of an increase in the average number of in-degrees held by these for-hire lobbying firms. In other words, relations may be concentrating within a small group of organizations.
Principals

The last group that we review is principals, which are those entities that either hire lobbyists. Figure 6 below provides a graphical breakdown of the percentage of principals in each legislative session by number of time periods that they support lobbying activities. The top group in the figure are principals that are involved in all time periods considered in this study. In general, this group of long-term principals account with some variation for a third of all principals in any one time period. At the other end of the spectrum are principals that are active for very short time periods. Those principals that are only active for 1 or 2 legislative sessions make up approximately 30 percent of all principals in any one time period. Much like the environment for individual and organizational lobbyists, the policy environment for principals can be characterized as dynamic.
Figure 6: Distribution of Total Lobbying Time of Principal Organizations by Legislative Session

Figure 7 indicates that despite the fairly dynamic nature of the principals community, the vast majority of principals are connected to each other, based on common affiliations with individual lobbyists, as approximately 85 percent belong to the main component. The other line in Figure 7 shows that the average degree of principals has fluctuated between 7 and 22 degrees. As Figure 1 above illustrated a sharp increase in the number of principals, the fluctuation may reflect the addition of new principals in more recent time periods.

Figure 7: Average Degrees of Principals and Percent in Main Component, 1993-2006
The Distribution of Lobbying Relationships and Power Laws

The foregoing discussion suggests a process of concentration occurring in the networks. The fact that North Carolina lobbying has a substantial minority that are ‘repeat players’ and a large number that are ‘one-shot players’ (Galanter 1974-5) may translate into a particular distribution in the relationships among organizations. Such a concentration of ties in a small group of entities may indicate the presence of a scale-free network or a structure of ties that is characterized by a power law distribution (Barabasi 1999; Aldrich and Kim 2007). A power law distribution of ties is characterized by many organizations have few or no ties to others while a small minority have a large number of ties. The network is therefore sparse in terms of its connections. While there are different ways to check for power law distributions (see Barabasi et al. 2002), log-log plots of the distribution of ties or degrees in network parlance are often used to check for power law distributions. If the general distribution of ties exhibits a fat right tail (e.g., many organizations with little or no ties to others with a minority of organizations holding many ties to others), we would expect a power law distribution. For example, Figure 8 gives the in-degree distribution for the 2007-8 network.

Figure 8: Kdensity Distribution of In-Degrees for the 2007-8 Lobbying Organizations

Transforming the general distribution to logarithmic scales should convert the fat tail to a linear relationship. Figure 9 provides log-log plots for the incoming ties to all North Carolina lobbying organizations for all years as well as for the distribution of the sum of ties across all years. Each graph has a scatter of dots for the actual distribution as well as a line that is fitted for the distribution. Looking at the individual years, some distributions exhibit a better fit to the power law distribution than others (such as the graph for 2007-8, which was the example network in Figures 4 through 8 above). However, all graphs exhibit, to a greater or lesser degree, a power law distribution, and this is certainly true for the last graph, which is the sum of all in-coming ties across all years.
Figure 9: Log-Log Plots of In-Degree Distributions (Directed Ties) for North Carolina Lobbying Organizations, 1993-2008
A somewhat similar picture can be found at the individual lobbyist and principal levels. Figure 10a provides a log-log plot of the individual lobbyist indegree distribution for 1993 through 2008, and Figure 10b shows the logged distribution of the total outdegrees for principals for 1993 through 2008.

However, note that in many of the graphs in Figure 9 that the ‘tail’ of the distribution does not follow the fitted line all the way down to the x axis but rather curves down. The scale-free quality of the network is truncated even in cases in which the actual values fit very well to the line. This indicates that the best linked organizations are not getting all the links. Kogut, Urso, and Walker (2007), writing in the context of the venture capital industry, suggest that actors in a truncated scale-free network may tend to recreate prior ties rather than link to the most linked actors. Given the importance of trust in lobbying relationships, it is perhaps not surprising, then, that prior relationships might act as a break on the development of a pure scale-free network in an interest group community.

Why is characterizing the network of lobbying organizations as scale-free important? Such a characterization indicates a ‘winner-take-all’ quality to lobbying. Certain organizations seem to garner the majority of business from principals. As discussed in the conclusion, this has implications for the business of lobbying, representation, and influence.

Results of Dynamic Modeling Analysis of “Long-Term” Individual Lobbyist-Principal Network:
In this section we discuss changes in network structure over time with regard to the relationships between individual lobbyists and principals. Because of the challenges of modeling large longitudinal networks, we limit the analysis in two ways. First, we focus on only those individual lobbyists who are consistently registered as lobbyists, that is, registered for at least 7 out of 8 legislative sessions over the 1993-2008 time period. Second, we consider only 3 waves of data. Below are Figures 11a through 11c, which are network maps of these relationships for 1993-4, 1995-6, and 1997-8. In each figure, color indicates a component, and the size of the node indicates whether the individual lobbyist was listed as influential for that legislative session.
The three figures provide a similar story. In each network, there is a giant component in which the majority of individuals and principals are connected (in each case, the giant component is colored blue and can be seen as giant arc around the other components).

Table 6 below presents the results of the dynamic modeling of the change in the network structure among long-term individual lobbyists (registered for at least 6 legislative sessions) and principal organizations that hire the lobbyists. Because the model is computationally intensive, we have so far only modeled changes in network structure for three waves of data, which are the 1993-94, 1995-96, and 1997-98 legislative sessions. As the data is directional in that a tie from a principal to a lobbyist indicates a hire, we are looking to see if changes in ties across the network reflect basic processes in lobbying relationships. As discussed above, these processes include whether more ‘popular’ lobbyists attract more business, whether highly connected principals (with lots of outdegrees) tend to hire lobbyists with lots of indegrees (out-in assortativity), whether a lobbyist’s public reputation as influential is an attractor for principals, and whether higher outdegree principals tend to hire more lobbyists.
Table 4: Parameter Estimates for Long-term Individual Lobbyists and Principals, 1993-1998 (3 waves)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t Value</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate Parameter Period 1</td>
<td>0.287</td>
<td>0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate Parameter Period 2</td>
<td>0.291</td>
<td>0.024</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outdegree (density)</td>
<td>-7.732</td>
<td>0.231</td>
<td>-33.472</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Indegree (popularity)</td>
<td>0.060</td>
<td>0.027</td>
<td>2.222</td>
<td>0.077</td>
</tr>
<tr>
<td>Out-In Degree Assortativity</td>
<td>0.575</td>
<td>0.088</td>
<td>6.534</td>
<td>0.001</td>
</tr>
<tr>
<td>Influence of Alter</td>
<td>0.973</td>
<td>0.348</td>
<td>2.796</td>
<td>0.038</td>
</tr>
<tr>
<td>Principals’ Total Time Lobbying</td>
<td>0.274</td>
<td>0.042</td>
<td>6.524</td>
<td>0.001</td>
</tr>
</tbody>
</table>

n = 850

The coefficients in Table 4 indicate changes in network ties for a change in the parameter, all other parameters held constant. We find support for the hypothesized processes. The ‘popularity’ of individual lobbyists as shown in the number of indegrees does have a positive and statistically significant coefficient of 0.06, but this coefficient is relatively small and the significance is not very strong. But it does suggest a process of high indegree lobbyists getting more business – The rich getting richer.

The coefficient for out-in assortativity is 0.575 and is statistically significant. Thus, principals with more outdegrees (that is, with many lobbying hires) are more likely to hire additional lobbyists with more indegrees. So there is a bit of a homophily process in which high degree principals and lobbyist are attracted to each other.

In addition, the influence alter coefficient is 0.973 and also significant. Thus, lobbyists who have been recognized by their peers as influential are significantly more likely to attract principals than lobbyists who are not so recognized.

Finally, the total time spent in the policy community by principals also shows positive and significant results with a coefficient of 0.274. Recall that we only included individual lobbyists who were long-term players so these results indicate that long-term players, both principals and lobbyists, tend to create ties over time.

Discussion

This paper has shown some important features of the interest group community at the state level (at least for one state!). First, all levels in the lobbying community – individuals, organizations, and principals – exhibit a dynamic environment that is generally becoming more numerous.

We also found that the network of lobbying entities seems to exhibit scale-free properties at the state level. That is, within the main component of the network in each time period, a small number of entities hold a disproportionate number of ties to other entities. This finding seemed to appear in each time period at least for lobbying organizations.

With this environment as a backdrop we argued that entities seeking to create relations and affiliations will look for markers of quality and trustworthiness. In order to make an attempt at answering this question, we modeled the changes in a network of long-term individual lobbyists.
and principals that hire them. We found that high indgree lobbyists attracted ties in general, that high degree lobbyists and principals tended to attract to one another, that long-term principals created ties, and that lobbyists publicly identified as influential attract ties. We think that these results suggest that in entities looking to influence policy through working with others look for signals of reliability.

However, these results are preliminary. There are a number of unfinished tasks associated with this project. We intend to continue collecting data and coding additional variables that can augment the analysis presented here. For example, we would like better organizational and interest attributes. Moreover, we will extend this work to principal organizations and individual lobbyists. In addition, a goal of this project will be to continue to explore how the structure of relationships changes over time. Finally, we intend to collect data from other states in order to see whether the findings in this paper can be generalized.
References


