THE STRENGTH OF WEAK TIES IN LOBBYING NETWORKS
EVIDENCE FROM HEALTH-CARE POLITICS IN THE UNITED STATES

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ABSTRACT

How does policy information flow through Washington ‘issue networks’? And how does information flow determine which lobbyists get access in policy-making? Drawing upon the ‘strength of weak ties’ argument, the authors argue that policy information passes more through acquaintances (‘weak ties’) than through close, trusted, contacts (‘strong ties’). They support this argument in an analysis of data on lobbying networks in health-care policy-making in the 1970s and 1980s. The statistical analyses show that access to policy-makers in Washington is network-autocorrelated: a lobbyist’s access depends upon the access of other lobbyists s/he knows. The results demonstrate the importance of weak ties as a restricted form of ‘social capital’ in policy-making.

KEY WORDS • health politics • informational lobbying • issue networks • network autocorrelation • weak ties

Increasingly, it is through networks of people who regard each other as knowledgeable, or at least as needing to be answered; that public policy issues tend to be refined, evidence debated, and alternative options worked out – though rarely in any controlled, well-organized way. (Hugh Heclo. 1978)

My contacts trust me, and I think their trust is well placed. Most of the things they tell me are not of a secret nature; it’s just a development that they have discovered which they think I would be interested in. It is very difficult to get information if you go out digging for it . . . Actually, you get much better information from people who know you, know what your interests are, and know that they can trust you. (A lobbyist interviewed by Lester Milbrath, 1963)

Observers of Washington policy-making have long understood that information is socially distributed among interest groups in the capitol’s lobbying community. The intuitive kernel of both Heclo’s and Milbrath’s arguments is that in Washington, what you know depends upon who you

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know and how you are positioned. Put differently, policy information is embedded in and exchanged through communication networks among groups. And as Hecko observes, networks are not designed, but are the concatenation of a myriad of individual decisions as to whether to talk or not to talk, to acquaint or not to acquaint.

In this paper, we examine the political significance of the social distribution of information among lobbyists. We do so by analyzing the determinants of lobbyists' access to government officials. Access is at once the most cherished resource and the most pressing objective of the Washington lobbyist (Shlozman and Tierney, 1986: 104). It is well known from the interest groups literature that access to government officials depends critically upon lobbyists' credibility, and informational credibility, we show, is a function of where lobbyists are positioned in the communication networks composing a policy domain. The basis for this argument is Granovetter's (1973) strength of weak ties hypothesis. In a world composed of cliques of tightly knit social circles, individuals are better off investing time in acquaintances (or 'weak ties') because it is through acquaintances that cliques are bridged and that information diffuses through a policy network (see e.g. Schneider et al., 1997b: 1205). From the perspective of the individual lobbyist, weak ties constitute the pathway to useful information. From the perspective of the network as a whole, weak ties make all lobbyists better informed. In the Washington community, to summarize, lobbyists glean more useful information through 'weak tie' acquaintances than through 'strong tie' close contacts.

Our basic assumption is that lobbyists establish 'strong ties' (or close and trusted contacts) on the basis of politically salient similarities. In healthcare policy-making in the 1980s, for example, patient associations such as the American Heart Association and the American Cancer Association were strong ties of one another. So too were insurance groups Blue Cross/Blue Shield and the Group Health Association of America. Predictably, of course, strong ties between a patient association and an insurance provider are rare. As a result, strong ties tend to fragment communication networks into tightly knit groupings (or 'cliques') of functionally and politically

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1. In Shlozman and Tierney's study, 81 percent of surveyed organizations mention the importance of a reputation for credibility in lobbying, and credibility ranks highest among valued lobbying resources (1986: 104).

2. We offer here a note about two assumptions we make which affect the terminology in this paper. The first is that organizations can be modeled as unitary actors for purposes of studying their lobbying behavior. While limiting, this is a relatively common and uncontroversial approach to the study of lobbying. For this reason we use the terms 'lobbyists' and 'organizations' interchangeably in this paper. Second, we assume that government organizations can be considered as lobbyists too, a point we develop later. Though we talk occasionally of 'interest groups', lobbyists in our theory (and our data) can be public or private organizations.
similar organizations. This argument yields several implications. The most important is that information communicated by strong ties – or within-clique communication – will tend to be redundant, and will tend to travel short distances relative to the size of the network as a whole. Weak ties, in contrast, will tend to convey relatively new or distinct information, and therefore will generally be more informative. Another implication of this argument concerns the competition for access in lobbying. Lobbyists' access is not independent and identically distributed in a policy domain; depending upon whether they are linked by a strong tie or a weak one, one lobbyist's access can help or hinder another's.

We derive hypotheses regarding lobbyists' access to the government from these implications, and statistically test the hypotheses with a unique data set covering health-care policy-making in the 1970s and 1980s. The data document the full network of ties connecting over 100 groups and government organizations to one another. We replicate the statistical results using two distinct measures of lobbyists' access to the government, where access is narrowly defined as the interest group's ability to convey technical policy information to the government. In addition, we replicate the results of the empirical models of access to the government with an additional model of a group's relative access to the entire policy-making community (see Hedlo, 1978: 102–3). Modeling a lobbying group's access to the entire issue network serves not only as an additional test of the informational advantage of acquaintances, but also as an empirical test of Hedlo's often-cited description of the influence of expertise in contemporary policy-making.

Our statistical results show that organizations with more investments in 'weak ties' or acquaintances greatly improve their access to the government. Such organizations gain access to a wider array of government policy-makers than they would if they were not as well connected in the lobbying network. Counterintuitively, though, this principle does not hold true for investment in close, trusted contacts or 'strong ties'. A greater investment in 'strong ties' does not directly enhance, and may even impair, access to government policy-makers.

We also show that one organization's access cannot be viewed as statistically independent of another organization's access, especially if the organizations have ties to one another in the lobbying network. Access is \textit{network-autocorrelated} in Washington lobbying, meaning that one lobbyist's access to government policymakers is dependent upon the access of other organizations to whom the lobbyist is tied. We show that this

\footnote{3. The data come from Laumann and Knoke (1987) and are housed at ICPSR.}
network-autocorrelation of access differs across types of ties; access is positively autocorrelated across strong ties, but negatively autocorrelated across weak ties.

We begin our analysis by outlining our theory of lobbying networks and the social distribution of political information. We then offer hypotheses on the informational advantage of acquaintances and the effects of network autocorrelation on lobbyists’ access, and discuss the data we use for the statistical tests. After reviewing the results of our statistical analyses, we offer some implications of our argument for theories of social capital and policy-making.

1. Lobbying Networks and Access: Theory and Hypotheses

Access and the Social Distribution of Information

Interest-group scholars have long recognized that lobbyists can gain credibility and influence in policy-making through detailed factual knowledge of the issues.¹ This is a point of agreement between the communications lobbying perspective (Bauer et al., 1972; Milbrath, 1963; Heinz et al., 1993) and the signaling perspective (Austen-Smith, 1992; Austen-Smith and Wright, 1992, 1994; Rasmussen, 1993; see also Hansen, 1991 and Kollman, 1997). As Lester Milbrath (1963: 308) writes, ‘If the sender has a reputation for accuracy, brevity, and the ability to get to the crux of the matter, the information is likely to be welcomed and carefully read.’ Similarly, Austen-Smith (1992: 47) states that ‘for a speaker to be able to persuade the listener to act in a particular way . . . it is clearly essential that the listener believe the speaker knows something that the listener does not.’

The determinants of who is informed and who is not, however, have not been studied systematically. How do some lobbyists get information that others do not, or cannot, have? To some extent, being well informed is a function of an organization’s internal capacity or resources to gather

¹. It is important to recognize, for purposes of this paper, that not all lobbyists in the Washington policy community are private-interest groups. Many government organizations and actors, including agencies and members of Congress, also lobby one another on policy issues. Members of Congress, for instance, often lobby administrative agencies for rule-making or regulatory decisions favorable to their constituents. They may also seek information from agencies. And agencies frequently lobby congressional committees in order to influence their decisions (many federal agencies have ‘legislative relations’ offices erected for precisely this purpose).
information first-hand through research or direct observation. We suggest a different mechanism: a considerable amount of policy information is socially distributed in a multi-node lobbying network, and is passed on through social contacts. The quotations from Heclio's and Milbrath's classic studies of lobbying, printed at the outset, illustrate this principle. Information is distributed throughout the Washington lobbying community since most, if not all, lobbying organizations routinely collect policy information.

As Kingdon (1984: 133) observes, ‘The regulated truckers and Teamsters … employ many experts and analysts who worry constantly about refuting the calculations and arguments of their opponents’. Interest groups and agencies may be willing to pass on information that they discover but which does not concern them directly – information tangential to their own concerns but of direct interest to others.

Since information is socially distributed among interest groups, a useful means for lobbyists to acquire needed information is simply to seek it from other groups rather than to conduct research anew for each issue. Lobbying groups often find it easier to ‘ask around’ about policy information than to run an experiment or otherwise learn about the effects of policy first hand. As Heclio (1978: 103) writes, modern lobbyists are ‘more than mere technical experts’, they are ‘network people … policy activists who know each other through the issues. Those who emerge to positions of wider leadership … are experts in using experts, victuallers of knowledge in a world hungry for right decisions’ (italics supplied). So too, in Bauer et al.’s (1972) study of trade policy, trade associations were ‘nodes in the communication process’ and ‘what they knew or failed to learn, what they heard or did not hear, what they said or failed to say, had a profound effect on what other people learned, heard, or said’ (Bauer et al., 1972: 325). Contemporary policy debate is often research-intensive, focusing on such questions as the proper guidelines for DNA research or regulations for generic drugs. Groups are especially likely to depend upon each other for the information needed to gain entry into these debates, since gathering and interpreting this information first-hand would require too large an investment in time and resources (see e.g. Browne, 1988: 55).

The Informational Advantage of Acquaintances

From a macro-level network perspective, the accumulation of lobbyists’ individual choices with whom to establish contacts forms a communication

5. Information acquisition often is thought of as a direct function of a price paid for the information received. Hansen (1991: 14) for example, shows how agricultural interest groups successfully compete with political parties ‘by polling … constituents more efficiently’. Many signaling models of government access adopt the price market for information as a simplifying assumption (see e.g. Austen-Smith and Wright, 1992).
network. As a modeling simplification, we make a qualitative distinction between a strong and a weak contact, or ‘tie’, where a strong tie implies closeness or trust and a weak tie implies a more superficial or acquaintance relationship. The full sets of strong and weak contacts among lobbyists aggregate into distinct (and overlapping) strong- and weak-tie communication networks.

Strong ties, however, impart a fragmented, ‘clumpy’ character to the lobbying communication network as a whole. This is because strong ties tend to be transitive – in Figure 1, if lobbyist A is a strong tie of lobbyist B and lobbyist B is a strong tie of lobbyist C, then lobbyist A and lobbyist C are more likely to be strong ties also. This transitivity, which creates small groupings of lobbyists where everyone knows everyone, occurs for two reasons, set out as follows.6

**Assumption 1.** Strong-tie transitivity through prolonged contact. Strong ties require greater time and attention to maintain than do weak ties. If a lobbyist has a strong contact with two other lobbyists, and so tends to spend considerable amounts of time with both of them, then these other lobbyists are likely to spend more time with each other (Granovetter 1973: 349).

**Assumption 2.** Strong-tie transitivity through similarities. Those strongly connected tend to be similar in politically relevant characteristics. Interest groups that have functional or ideological similarities, or who represent the same market sector, are more likely to form strong contacts with each other. If a lobbyist has a strong contact with two other lobbyists, and has similar characteristics with each of them, then it is

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6. These arguments are not mutually exclusive, but rather are mutually reinforcing.
likely that these other lobbyists are similar to each other (Granovetter, 1973: 349).

When information is packed in cliques of relatively exclusive social circles, the information flow for the network as a whole suffers. The information exchanged within cliques quickly becomes redundant, and useful information will less often be shared across cliques.

Granovetter's claim for the informational advantage of acquaintances, or the 'strength of weak ties', rests on the empirical observation that weak ties serve as a local bridge between closely-knit political cliques. This suggests that those who are better able to establish weak ties in the lobbying communication network are the most likely to hear new information. We illustrate this counterintuitive 'strength' of weak ties in Figure 1. Imagine again that lobbyists A, B and C are all strong ties ('chums') of one another and so form a political 'clique', and similarly with lobbyists D, E and F. The only connection between these two cliques is the weak (acquaintance) tie between C and E. Lobbyists A and B, for example, do not know (weakly or strongly) lobbyists D, E or F. The key insight of Granovetter (1973) is that lobbyists C and E are probably better informed than the others, as they have access to the knowledge contained within the other clique. The limitation of strong ties is redundancy: what lobbyist C learns from lobbyist A s/he is also likely to hear from lobbyist B. Conversely, the strength of weak ties lies in the uniqueness of information that C gets from E. What C hears from E s/he can hear from no one else. It is because the C-E connection bridges two cliques (triangles) that it is so powerful.

One characteristic of strong-tie networks, therefore, is that there will be more 'triads' where all three members are connected (such as A–C–D in Figure 1). Acquaintance networks will have relatively fewer connected triads. Consider lobbying networks in health-care politics, the networks we

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7. As Granovetter illustrates, 'If one tells a rumor to all his close friends, and they do likewise, many will hear the rumor a second and third time, since those linked by strong ties tend to share friends' (1973: 453). In his pioneering combinatorial optimization model wedding rational choice theory and network analysis, Boorman (1975) formalized this very conclusion. A similar argument has been made by students of rational network design within organizations (Radner, 1993). In summary, whether they are designed or not, networks are always less efficient at informational distribution when they are densely packed.

8. To illustrate, if we return to Figure 1 and hypothesize that lobbyist A and lobbyist B are acquaintances ('weak ties') of one another, and that lobbyist A and lobbyist C are also weakly tied, then by reversing the logic of assumptions (1) and (2), 'C and B are less likely to interact and less likely to be compatible if they do' (Granovetter 1973: 449). The implication is that 'weak ties are more likely to link members of different small groups than are strong ones, which tend to be concentrated within particular groups' (Granovetter 1973: 463).

9. Figure 1 is purely illustrative. In the example, the C-E tie could be 'strong' and perform the same bridging function. Granovetter's point, however, is that the C-E tie is far more likely to be weak than strong, given the nature of social contact-making.
examine in this paper. If one asked how often fully connected triads occurred in the strong-tie network relative to the number expected if ties were distributed randomly, the answer is 4.6 times as often. The equivalent number for the weak-tie network is just 2.8 (Figure 2).\footnote{The measures of strong and weak communication contacts are described in the data section.}

A similar pattern holds for agricultural policy-making in the United States. Studying agricultural interest representation in the 1980s, Browne offers an observation that is consistent with the 'strength of weak ties' argument. The growing power and size of congressional committee staff has increased the importance of analytical information in lobbying Congress, and has decreased the importance of strong personal contacts relative to weak or superficial contacts.

Staff-dependent lobbying does not mean that friendship-based lobbying of legislators and advisors is outmoded. It is simply less feasible and less routinely practiced ... Personal relationships ... generally have become more superficial. 'I know far more people in [Washington] than ever,' lamented one veteran lobbyist, 'but I don’t count many friends among them ...' (Browne, 1988, 55)

The veteran lobbyist’s lament is consistent with our theory of the informational advantage of acquaintances. Close friends tend to form tightly packed, closely knit networks that make both individual lobbyists and the entire network less informed.

![Figure 2. Ratio of Connected Triads in Observed Network versus Random Network](image)

10. The measures of strong and weak communication contacts are described in the data section.
11. This is for 187,460 triads in the weak-tie network and 156,849 triads in the strong-tie network (the difference is due to non-responses to the strong-tie item).
From a political efficiency perspective, one can think of acquaintances as a public good for the network as a whole, since acquaintances help to move information across the network. As Laumann and Knoke (1987: 206, italics supplied) observe

Every night in Washington, as clerks and secretaries head home for the evening’s relaxation, the upper-level managers of innumerable agencies, trade associations, and public interest groups begin preparing for some serious partying. At White House state dinners, Georgetown soirees, and Kennedy Center galas, the real business of Washington continues: talk, talk and more talk. The ceaseless flow of information between policy-makers and claimant organizations knows no distinction between office hours and private time. Such information is the currency with which all types of exchanges are transacted.

Since the state often depends upon lobbying groups for policy information (see e.g. Schlozman and Tierney, 1986: 97), acquaintance-making in the Washington community may serve as a public good for the polity. The often observed superficial social behavior of lobbyists’ attendance at cocktail parties and Washington cultural events may serve the social function of rendering policy-makers better informed than they would be otherwise.12

Practically, it is difficult to observe directly how informed or how reliable a group is. Yet we assume that the government observes the reliability and informedness of groups through repeated interaction and first-hand observation. We also assume that interest groups’ degree of access to the government is relatively easy to measure. As in informational models of lobbyists’ access, we assume the government wishes to maximize the probability of being informed and so wishes to grant access to those lobbyists who themselves are the most informed and most reliable on a given issue (Hansen, 1991; Austen-Smith, 1992). Government actors accord ‘reliability’ to groups when, through repeated interaction, the government comes to recognize the lobbyist as a provider of sound and trustworthy information. ‘Access’ as a variable follows from the observation that the government is willing to let some groups in the door more often (and earlier) than others.13

The argument for the ‘strength of weak ties’ yields four hypotheses for access and reliability. The first two hypotheses state our expectations about the direct advantage of acquaintances for informedness and access, and the second two hypotheses state our expectations about the indirect effect of

12. We thank Ken Kolmam for making this point.
13. In theoretical and empirical discussions here, we treat legislative, executive and bureaucratic actors identically. This ignores important differences among them – legislators accept cash, while (under law, de minimis) agencies and executives do not. Yet agencies are lobbied with every bit the intensity that legislators are, and the failure of interest-group scholars to study patterns of executive and administrative lobbying is one we intend to redress here (see Peterson, 1992, for an exception).
both close contacts and acquaintances on access through the network autocorrelation of access.

Since most novel information is transmitted through weak rather than strong ties, we predict

**Hypothesis 1 (Information and Weak Ties):** The access of lobbyists is increasing in their weak ties to other lobbyists.

**Hypothesis 2 (‘Strength’ of Weak Ties):** The marginal impact of a weak tie should be greater than that of a strong tie.

*Weak Ties, Strong Ties and the Network-autocorrelation of Access*

In a world where actors communicate repeatedly with one another, and where access is conditioned upon this communication, access and reliability cannot be said to be independent and identically distributed. In other words, these variables are not independent of the matrix of ties upon which they depend. To explain, return to Figure 1 and consider the two lobbyists A and B. In recent health-care policy-making, the American Cancer Society and the American Heart Association would be examples of two such lobbyists with a strong-tie connection. These two lobbyists know each other well, and they know well each other’s actions and contacts even if they compete for access. For this reason, they are likely to have similar network profiles, have similar information and act similarly, *ceteris paribus*. We would expect, then, that if A (the American Cancer Society) receives access to a government policy-maker, B (the American Heart Association) will also receive access, based upon their similar situation in the communications network.\(^{14}\) The strong tie between the lobbyists is an indicator of the similarity of their interests and resources. In other words, we would expect

**Hypothesis 3 (Strong Contacts Indicate Similarity).** Access and reliability are positively network correlated across strong ties.

We would not expect a similar result for weak ties. Weak ties connote acquaintance and utilitarian contact-making, not similar positioning. If the lobbyists of Blue Cross/Blue Shield and the American Cancer Association are acquaintances (or ‘weakly’ tied), it does not follow that the Blue Cross/Blue Shield’s lobbyist’s access will lead to the American Cancer Association lobbyist’s access. Since more differentiated (or less redundant) information tends to flow through the weak tie, the weak tie implies that both groups are similarly well informed. If access is thought of as a vacancy competition – where only one or a few of many candidates for access

\(^{14}\) This expectation also follows from the similarity assumption, which implies that two close contacts may share an unobserved characteristic that is correlated with access.
actually get it, as in Austen-Smith (1997) – then the access of one organization will reduce the likelihood that organizations it is weakly tied to will receive access. That is, we expect

**Hypothesis 4** (Vacancy Competition among Acquaintances): *Access is negatively network correlated across weak ties.*

### 2. Lobbying Networks and Access in Health-care Politics

Over the last three decades, health-care politics has been characterized by relatively vigorous debate and lobbying concerning highly complex policy issues. Whether the issue of the month has been national health insurance (as in 1994), Medicare fee schedules, the government regulation of pharmaceuticals or the spread of AIDS, the story remains the same: technical and scientific discussions dominate health-care policy-making. Policy debates in health care are usually informed by various discussions ranging from the cost estimates for insurance or regulatory programs, to debates over the actuarial assumptions of new legislation, to demographic statistics regarding the spread or distribution of diseases.

Because information – both technical and non-technical – is at such a premium in health-care politics, there is a vigorous degree of information exchange in this policy domain. To study the properties of information flow in health-care politics, we employ the rich data collected by Laumann and Knoke (1987) for their book *The Organizational State.* In the summer of 1981, Laumann and Knoke surveyed informants from an exhaustive list.

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15. There is a complicated point to be made here. There is a difference between (1) access conditioned upon information and (2) access conditioned upon lobbyists' other traits (resources or 'cash'. ideological similarity (Kollman, 1997), etc.). In Figure 1, the C-E tie makes both C and E better informed than lobbyists A, B, D or F, and the tie therefore boosts the probability of access for lobbyists C and E conditioned upon policy information. Yet it does not therefore follow that if lobbyist C gets access to a government policy-maker, lobbyist E is more likely (by virtue of his/her tie to C) to get access. To the contrary, if an informed legislator ('L1') grants access to lobbyist C, s/he already obtains all of the network-distributed information available to lobbyist E. Lobbyist E is therefore less likely to get access to this particular legislator, though E may still have a higher probability of gaining access to other legislators ('L2', 'L3') than if s/he had no tie to C.

16. The relative importance of information in health lobbying can be inferred from the 'sample' of issues in the Laumann and Knoke (1987) dataset, which includes, for example, biomedical research issues such as DNA research and human experimentation, the organization of health-care delivery issues such as HMOs and hospital cost containment, and regulation of food additives or medical devices.
of relatively consequential health lobbying organizations. Their sample of 
health lobbying organizations includes industry associations (such as the 
American Insurance Association and the Pharmaceutical Manufacturers 
Association), professional societies (American College of Cardiology, 
American Medical Association), health interest groups (Coalition for 
Health Funding, Arthritis Foundation), as well as more general interest 
groups, business firms, and relevant government agencies and congressional 
committees. The authors constructed a remarkable dataset which 
dокументы the full network of communication ties from each of these 
groups to every other, as well as internal organizational characteristics.

Data

The unit of analysis in the following discussion is not the lobbyist but the 
lobbying organization. This may problematize the link between theory and 
estimation, as our theory is couched in terms of individual persons. Yet the
‘organization as unitary actor’ assumption is not unreasonable in this 
situation, especially where the credibility of an individual lobbyist working 
for an organization depends upon her/him toeing the organization line. 
Furthermore, ties among organizations are more enduring than ties among 
persons, and organizational reputations are often longer-lived than those 
of individuals.

Dependent Variables and Their Measurement

Operationally, we cannot observe directly how informed or reliable a 
group is, but we do observe (through a variety of measures) which groups 
have access to convey policy information to government policy-makers. 
We assume that the government can observe the reliability of groups 
through repeated interaction and first-hand observation, and further that it 
will condition lobbying groups’ access on the quality of the information 
that groups can provide (Hansen, 1991). We note at the outset that ‘access’ 
to the government is not necessarily conditioned on informedness and

17. The sample of organizations is not a probability sample drawn from a known 
population, but rather is an exhaustive list of organizations that are consequential or highly 
visible in health-care lobbying. An organization was deemed consequential if it appeared with 
some degree of regularity in newspaper articles covering health-care politics, congressional 
hearings, amicus filings in federal court, health lobbying registration lists, or was named by a 
panel of health politics experts. The informant was either the organization’s executive 
director, government affairs or staff specialist. The researchers had an 89.4 percent response 
rate from health lobbying organizations yielding 135 observations (see Laumann and Knoke, 
1987: 97–101). The researchers used this method of non-random random selection since there is 
no known universe for sampling health lobbying organizations, and since it avoids selecting 
organizations on their degree of connectedness (see Laumann and Knoke, 1987: 95).
reliability, as various descriptions of subgovernment politics (e.g. Fritschler, 1989) and the privileged position of business (e.g. Lindblom, 1977; Galbraith, 1967) make clear. Laumann and Knoke’s data, however, have several direct measures of lobbying groups’ ability to convey information to the government; and we use these measures (along with the assumption that the government wants the best policy information) to indicate how well informed a group is.18

We model two dependent variable measures of informational access to the government, as well as an additional measure of a group’s relative access to the policy network as a whole. First, the Laumann and Knoke survey measured government policy-makers’ perceptions of which groups provide reliable information. Government policy-makers were asked which lobbying organizations they had ‘found to be the most reliable and useful’ sources of policy-related information. We construct a count-based reliability variable by summing the number of times a lobbying group was picked. Hence our reliability measure is

(Y1) The number of ‘reliability hits’ each group receives from the set of government actors. This is the count of how many government decision-makers (agencies and committees) in the survey mentioned group i as a reliable source of policy information.

Second, we replicate our results from the reliability model with a distinct measure of lobbying groups’ ability to convey technical policy information to the government. Since much of health-care politics concerns quite technical and scientific issues in legislation and administration, influence in health policy-making depends, to a large extent, on a group’s policy expertise in scientific and technical matters. Our second dependent variable measures expertise as

(Y2) The number of ‘scientific hits’ each actor receives from government actors. This is the number of government organizations in the survey which mentioned group i as having provided useful information on a scientific or technical subject.

Finally, we model an interest-group’s expertise measured as its relative access to the issue network as a whole. Heclo (1978: 102–3) claims that ‘issue networks seek influence commensurate with their understanding of

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18. Readers might properly wonder why we are discussing access to government agencies, given that most of the lobbying literature concerns itself with access to legislators. We study access to agencies for two reasons. First, in health-care politics, administrative agencies play a strong role in policy-making (Laumann and Knoke, 1987). Second, we suggest that the exclusive focus of much of the interest-group literature on lobbying legislature is unwarranted. As Schlozman and Tierney (1986) found in their study of lobbying in Washington, interest-group to agency contacts are just as frequent, and just as significant, as interest-group to Congress contacts.
the various, complex social choices being made’. To model the extent to which a group is able to communicate technical information to the issue network serves as an additional test of the informational advantage of acquaintances that does not depend on the assumption that the government wants accurate policy information. Modeling this dependent variable serves in addition as an econometric test of Heclo’s widely cited qualitative observation that influence and visibility in contemporary issue networks depend on a group’s expertise and access to technical policy information. In this vein, we model informational access to the issue network as a whole as

(Y3) The number of ‘scientific hits’ each actor receives from all other organizations in the policy domain. This is the same measure as in (Y2), but counts the number of times group i is mentioned by the full set of survey respondents.19

Independent Variables and Measures

Hypotheses 1 and 2 state the tests for the strength of weak ties in terms of the amount of weak and strong ties that an organization has established with other groups. We measure weak ties and strong ties in the following manner:

(X1) The number of weak ties each lobbyist has to other lobbying organizations (where it is receiving information). An interest group receives a weak tie if another interest group ‘regularly and routinely discusses national health policy matters’ with the group.

(X2) The number of strong ties each lobbyist has to other lobbying organizations (again, where it is receiving information). Operationally, an interest group receives a strong tie if another interest group indicated in the survey that it has a relationship of ‘trusted exchange of sensitive and confidential advice’ with the group.

We also control for two critical attributes of lobbying organizations – their resources and their age. It is well known from the lobbying literature that, while cash may not buy influence or votes, it certainly does buy access. The reason for this effect is not due to distributive, ‘pork-barrel’ politics, but rather that resources can help an organization become informed (see e.g. Smith, 1984: 49; Hojnacki, 1997: 7; Wright, 1996: 149). Just as some policy information can be obtained through networks, so too some information can be obtained through research. Simple intuition suggests that an

19. Note that only government respondents were asked about the reliability of their contacts – thus informational access in the network as a whole cannot be measured with respect to reliability.
organization’s information level should be increasing in resources it can bring to bear in its search for information. So we include

\[(X3)\] The organization’s \textit{budget} (logged).

We also expect access to be a function of an organization’s reputation, its knowledge of Washington networks, and the quality of its ties to other groups (its ‘social capital’, in a way). For this reason we include

\[(X4)\] The organization’s \textit{age}.

We condition access to the government as well on certain organizational attributes such as whether the group is a government actor that is lobbying or a business representative. Both the ‘iron triangle’ and the ‘issue network’ characterizations of national policy domains call attention to the role of government actors as lobbyists, and we model government actors’ degree of access to other government actors. Government organizations – congressional committees and government agencies – will, in general, be more disinterested in policy debates than mobilized interest groups, and so it is more likely that other government policy-makers will view them as credible. We expect in addition that government actors are likely to have some degree of \textit{routinized} access to other parts of the government, since the American constitutional structure requires inter- and intra-branch agreement in policy decision-making. This suggests that marginal contributions of strong and weak ties for government actors will be less than for private-interest groups. For this reason we include the following variables, the first of which \[(X5)\] we expect to have a positive impact upon access, the second and third of which \[(X6, X7)\] we expect to have a negative impact upon access, given the presence of \(X1\) and \(X2\).

\[(X5)\] Whether the organization is a \textit{government organization} (1 if federal agency or congressional committee, 0 otherwise).

\[(X6)\] The number of \textit{weak} ties held by a government organization (\(X5\) times \(X1\) if a federal agency or congressional committee, 0 otherwise).

\[(X7)\] The number of \textit{strong} ties held by a government organization (\(X5\) times \(X2\) if a federal agency or congressional committee, 0 otherwise).

In addition, we can expect that business representatives and professional societies have some amount of privilege in gaining access to the government, while voluntary organizations are relatively under-privileged (see e.g. Leech, 1997; Gais et al., 1984). We include dummy variables to distinguish the types of private lobbying organizations based on the
assumption that business is given privileged access to the government. We code these as follows:

(X8) Whether the interest group represents business interests (e.g. a trade association or firm) (1 if business representative; 0 otherwise).

(X9) Whether the interest group is a voluntary organization (e.g. a single-interest group or a patient association) (1 if a voluntary organization; 0 otherwise).

(X10) Whether the interest group is a health professional society (such as the American Nurses Association or the College of American Pathologists) (1 if a professional society, 0 otherwise).

3. The Strength of Weak Ties in Health-care Policy-making: Statistical Analyses of Lobbying Networks

The two dependent measures of access and the measure of communication on scientific and technical issues take the same stochastic form: they are simple counts of the number of connections that an actor has with the government (or in the case of the communication measure, connections with other groups). Consistent with the arguments of King (1989), we employ a variety of count data regression models to analyze our data. We first estimate by numerical optimization a Poisson regression model of the form

$$E(Y_i) = \exp(X_i \beta)$$

(1)

where an organization’s observed number of connections ($Y_i$) to the government (or, for the communications measure, to other groups) is assumed to be Poisson-distributed. Then, to account for over-dispersion, we also test Hypotheses 1 and 2 in a negative binomial estimation. Because the likelihoods and estimation issues of these estimators are well known, we do not review them further here, except to say that where the variance of the count variable departs positively from its mean, the negative binomial results are to be preferred to the Poisson.

---

20. Given that we are modeling informational access to the government, we expect that business will be given privilege, though not through the state’s direct dependence on capital. From an informational perspective business may be given privileged access to policy discussions through the kinds of ‘circularity’ identified by both Lindblom (1977: 202) and Galbraith (1967: 163, using the term ‘consistency’), since the well-being of capital affects citizens’ livelihoods, and this leads constituents to support pro-business policy unquestioningly.
Network-dependent Estimation of Poisson Regression Tests

In order to test Hypotheses 1 and 2 in a sample where i.i.d. observations cannot hold, and in order to test Hypotheses 3 and 4, we resort to an augmented Poisson regression model with a network autoregression term. Let $W_w$ – a symmetric matrix with elements $\{w_{ij}\}$ – be a matrix which assigns lobbyists to their weak-tie acquaintances ($w_{ij}$ equals 1 if a tie exists between $i$ and $j$, 0 otherwise). Further let $W_s$ be its strong-tie counterpart, defined similarly to $W_w$. We construct an analog to the normal model of Anselin (1988) for spatial econometrics, by taking the $n$ eigenvalues of $W$, multiplying them by $\rho$ and subtracting them from unity and taking the log of the result. Let the $1 \times n$ vector of these values be $\zeta_w$ for the weak-tie matrix and $\zeta_s$ for the strong-tie matrix. Then network-autoregression enters the Poisson regression model of (1) in the following manner for weak ties and strong ties:

$$y_i = \exp[\ln(1 - \rho_i\zeta_w)] + \rho_i W_{wy} + X\beta$$ for weak ties (2a)

$$y_i = \exp[\ln(1 - \rho_i\zeta_s)] + \rho_i W_{sy} + X\beta$$ for strong ties (2b)

Since $\rho_i$ is jointly determined by $\zeta_w$ and $W_w$ (and likewise $\rho_s$ by $W_s$ and $\zeta_s$) the estimation is strictly nonlinear. A model where the observations are mutually dependent through both weak and strong ties – otherwise known as a second-order network-autoregression specification – can be estimated as follows

$$y_i = \exp[\ln(1 - \rho_i\zeta_w)] + \ln(1 - \rho_i\zeta_s) + \rho_i W_{wy} + \rho_i W_{sy} + X\beta$$ (3)

Tables 1–3 summarize our analysis of the determinants of access to the government and the policy network, which again serve as our surrogate measures of informedness. Table 1 contains all estimations in which the dependent variable is the number of government policy-makers identifying the lobbying organization as a ‘reliable’ source of information. Table 2 reports all estimations in which the dependent variable is the number of government actors that receive scientific information from the lobbying organization. And we examine the determinants of the number of scientific ties to all groups, governmental and non-governmental, in Table 3.

In the second column of each table we report the basic results from Poisson regressions (equation 1), followed in the next column by results from a negative binomial model. After the negative binomial model, we report the results from the Poisson model with network autocorrelation with respect to weak ties (equation 2a) in the third column, the Poisson model with network-autocorrelation with respect to strong ties (equation 2b) in the fourth

---

21. While for simplicity we spoke earlier of ‘network-autocorrelation’, our statistical models are more properly termed models of network-autoregression, and we will in this section use the proper term.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Poisson Negative Binomial</th>
<th>Poisson Weak-tie Dependent</th>
<th>Poisson Strong-tie Dependent</th>
<th>Poisson Second-order Dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-2.687*</td>
<td>-2.687*</td>
<td>-5.214**</td>
<td>-5.5166*</td>
</tr>
<tr>
<td></td>
<td>(0.8279)</td>
<td>(0.9769)</td>
<td>(1.3244)</td>
<td>(1.4387)</td>
</tr>
<tr>
<td>Weak Ties to Groups (β₁)</td>
<td>0.0157*</td>
<td>0.0157*</td>
<td>0.0211*</td>
<td>0.0194*</td>
</tr>
<tr>
<td></td>
<td>(0.0059)</td>
<td>(0.0083)</td>
<td>(0.0109)</td>
<td>(0.0057)</td>
</tr>
<tr>
<td>Strong Ties to Groups (β₂)</td>
<td>0.0005</td>
<td>0.0005</td>
<td>-0.0033</td>
<td>-0.0294*</td>
</tr>
<tr>
<td></td>
<td>(0.0061)</td>
<td>(0.0085)</td>
<td>(0.0064)</td>
<td>(0.0163)</td>
</tr>
<tr>
<td>ln(Budget) (β₃)</td>
<td>0.1296*</td>
<td>0.1295*</td>
<td>0.2726*</td>
<td>0.3044*</td>
</tr>
<tr>
<td></td>
<td>(0.0498)</td>
<td>(0.0518)</td>
<td>(0.0724)</td>
<td>(0.0817)</td>
</tr>
<tr>
<td>Organization Age (β₄)</td>
<td>0.0022</td>
<td>0.0022</td>
<td>0.0004</td>
<td>-0.0013</td>
</tr>
<tr>
<td></td>
<td>(0.0023)</td>
<td>(0.0033)</td>
<td>(0.0019)</td>
<td>(0.0021)</td>
</tr>
<tr>
<td>Government Organization (β₅)</td>
<td>3.9537*</td>
<td>3.9537*</td>
<td>6.6157*</td>
<td>6.8471*</td>
</tr>
<tr>
<td></td>
<td>(0.8836)</td>
<td>(1.0351)</td>
<td>(1.3555)</td>
<td>(1.4614)</td>
</tr>
<tr>
<td>Government × Weak Ties (β₆)</td>
<td>-0.0218*</td>
<td>-0.0218*</td>
<td>-0.0181*</td>
<td>-0.0244*</td>
</tr>
<tr>
<td></td>
<td>(0.0112)</td>
<td>(0.0171)</td>
<td>(0.0099)</td>
<td>(0.0091)</td>
</tr>
<tr>
<td>Government × Strong Ties (β₇)</td>
<td>-0.0002*</td>
<td>-0.0002</td>
<td>0.0026</td>
<td>0.0101</td>
</tr>
<tr>
<td></td>
<td>(0.0120)</td>
<td>(0.0263)</td>
<td>(0.0107)</td>
<td>(0.0095)</td>
</tr>
<tr>
<td>Business Representative (β₈)</td>
<td>0.7366*</td>
<td>0.7366</td>
<td>1.1709*</td>
<td>0.9599*</td>
</tr>
<tr>
<td></td>
<td>(0.4042)</td>
<td>(0.5505)</td>
<td>(0.5438)</td>
<td>(0.4811)</td>
</tr>
<tr>
<td>Voluntary Organization (β₉)</td>
<td>-0.0318*</td>
<td>-0.0318</td>
<td>0.4084</td>
<td>0.4269</td>
</tr>
<tr>
<td></td>
<td>(0.4200)</td>
<td>(0.4572)</td>
<td>(0.5615)</td>
<td>(0.5569)</td>
</tr>
<tr>
<td>Professional Society (β₁₀)</td>
<td>0.5106*</td>
<td>0.5106</td>
<td>1.2255*</td>
<td>0.9097*</td>
</tr>
<tr>
<td></td>
<td>(0.3731)</td>
<td>(0.4124)</td>
<td>(0.5514)</td>
<td>(0.4871)</td>
</tr>
<tr>
<td>Dispersion</td>
<td>—</td>
<td>0.0188</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.1119)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak-tie Autocorrelation (ρ₁)</td>
<td>—</td>
<td>—</td>
<td>—0.0094</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0133)</td>
<td></td>
</tr>
<tr>
<td>Strong-tie Autocorrelation (ρ₂)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.0183</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.0122)</td>
</tr>
<tr>
<td>N</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
</tr>
</tbody>
</table>

**Model Test**

| LLF                      | -140.20                   | -121.36                   | -135.43                    | -134.60                       | -133.44                       |

| Wald (β₁ > β₂) | —                       | 1.042                      | 2.484*                     | 2.382*                        | 2.722*                        |

χ² (1) 21.65*  0.072  52.84*  54.50*  56.82*

*Note:* * denotes significance at p < .05. † denotes significance at p < .10. (All tests are two-tailed.)

**Source:** Laumann and Knoke (1987). Test for joint significance of ρ₁ and ρ₂: Wald = 1.865*.
column. Finally, in the rightmost column of each table, we report the estimates for the fully specified network autocorrelation model (equation 3).

The findings in Tables 1–3 strongly support our contention that access to the government is a function of lobbyists’ weak-tie investments. In the full (second-order autoregressive) model, lobbyists’ numbers of weak ties are strongly and positively related to: reliability as assessed by government actors; scientific ties to the government; and scientific ties to both non-governmental and governmental actors ($p < .001$ or better in all three cases). The impact of weak ties was substantively important as well. In the final specification, calculated at the mean of all independent variables, an increase in 10 weak ties is associated with: (a) an increase of 1.2 reliability ‘hits’ from the government (where the average number of reliability hits is just 1.67); (b) 1.9 more scientific contacts with the government (average number of scientific contacts with the government is 3.44); and (c) 12.8 more scientific contacts with all groups (average number of such contacts is 7.81).

Further, the Wald test results reported at the bottom of the tables suggest that, for lobbyists, the marginal benefit of getting another acquaintance is greater than that of obtaining another close contact. For all three measures of access, weak ties are much more closely related to access than strong ties. The coefficient for weak ties is significantly greater than the coefficient for strong ties ($p < .02$ or better) in all three cases. The relationship between strong ties and access is actually negative in all three cases for the second-order autoregressive model ($p < .05$ in one case).

These findings are robust with respect to the alternative specifications of the model summarized earlier. For the four alternative specifications, number of weak ties is found to be positively related to access in each of three measures of access. Of those 12 regressions, the relationship is positive at $p < .05$ in 10 cases, $p < .10$ in an eleventh. The direction of the relationship between strong ties and access is inconsistent for the other specifications examined.

As anticipated, centrality in the weak-tie network was less important for government actors’ access to each other, although this finding was more tenuous: the coefficient for the interaction of government and weak-tie centrality was negative ($p < .10$ for the reliability measure, $p < .05$ for all scientific ties, and non-significant for scientific ties to the government). This is consistent with our expectation that government actors, through the sharing of power and the necessities imposed by constitutional checks and balances, give each other routine access to policy discussions.

Further bolstering our interpretation of these findings, organizational attributes that one would expect to be related to the quantity and quality of information organizations might offer the government are positively related to access. Organizational resources, as measured by the logged budget, are
### Table 2. The Correlates of Access to Government Policy-makers for Technical and Scientific Issues in Health Care (Maximum Likelihood Count Regressions; Standard Errors in Parentheses)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Poisson</th>
<th>Negative Binomial</th>
<th>Poisson Weak-tie Dependent</th>
<th>Poisson Strong-tie Dependent</th>
<th>Poisson Second-order Dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.3045</td>
<td>(0.4221)</td>
<td>0.3037</td>
<td>0.1967</td>
<td>0.2884</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.5304)</td>
<td>(0.9260)</td>
<td>(0.4389)</td>
</tr>
<tr>
<td>Weak Ties to Groups (β_p)</td>
<td>0.0138*</td>
<td>(0.0042)</td>
<td>0.0138*</td>
<td>0.0429*</td>
<td>0.0140*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0049)</td>
<td>(0.0178)</td>
<td>(0.0406)</td>
</tr>
<tr>
<td>Strong Ties to Groups (β_p)</td>
<td>0.0024</td>
<td>(0.0056)</td>
<td>0.0024</td>
<td>0.0122</td>
<td>-0.0120</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0065)</td>
<td>(0.0101)</td>
<td>(0.0110)</td>
</tr>
<tr>
<td>ln(Budget) (β_i)</td>
<td>0.0208</td>
<td>(0.0239)</td>
<td>0.0208</td>
<td>0.0690</td>
<td>0.0328</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0056)</td>
<td>(0.0295)</td>
<td>(0.0403)</td>
</tr>
<tr>
<td>Organization Age (β_t)</td>
<td>-0.0008</td>
<td>(0.0017)</td>
<td>-0.0008</td>
<td>-0.0033</td>
<td>-0.0026*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0019)</td>
<td>(0.0029)</td>
<td>(0.0015)</td>
</tr>
<tr>
<td>Government Organization (β_g)</td>
<td>1.7834*</td>
<td>(0.4648)</td>
<td>1.7839*</td>
<td>4.1213*</td>
<td>1.8489*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.6399)</td>
<td>(0.9739)</td>
<td>(0.4592)</td>
</tr>
<tr>
<td>Government × Weak Ties (β_g_p)</td>
<td>-0.0155</td>
<td>(0.0076)</td>
<td>-0.0155</td>
<td>-0.0225</td>
<td>-0.0152*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0101)</td>
<td>(0.0136)</td>
<td>(0.0062)</td>
</tr>
<tr>
<td>Government × Strong Ties (β_g_p)</td>
<td>-0.0093</td>
<td>(0.0091)</td>
<td>-0.0093</td>
<td>-0.0257</td>
<td>-0.0097</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0148)</td>
<td>(0.0162)</td>
<td>(0.0066)</td>
</tr>
<tr>
<td>Business Representative (β_b)</td>
<td>0.3160</td>
<td>(0.2410)</td>
<td>0.3164</td>
<td>0.8745*</td>
<td>0.2668</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.3243)</td>
<td>(0.4878)</td>
<td>(0.2079)</td>
</tr>
<tr>
<td>Voluntary Organization (β_v)</td>
<td>-0.7078*</td>
<td>(0.2654)</td>
<td>-0.7078*</td>
<td>-1.4852*</td>
<td>-0.7830*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.2589)</td>
<td>(0.6364)</td>
<td>(0.3230)</td>
</tr>
<tr>
<td>Professional Society (β_p)</td>
<td>0.0123</td>
<td>(0.2209)</td>
<td>0.0123</td>
<td>0.2851</td>
<td>-0.0696</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.2258)</td>
<td>(0.4613)</td>
<td>(0.2166)</td>
</tr>
<tr>
<td>Dispersion</td>
<td>—</td>
<td>0.0001</td>
<td>—</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0474)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak-tie Autocorrelation (ρ_p)</td>
<td>—</td>
<td>—</td>
<td>-0.0123</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0105)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong-tie Autocorrelation (ρ_p)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.0071</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0049)</td>
<td></td>
<td>(0.0097)</td>
</tr>
<tr>
<td>N</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
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<tr>
<td>Model Statistics:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LLF</td>
<td>-156.93</td>
<td>-156.93</td>
<td>-162.83</td>
<td>-162.41</td>
<td>-161.22</td>
</tr>
<tr>
<td>Wald (β_p)</td>
<td>—</td>
<td>1.265</td>
<td>1.299*</td>
<td>1.924*</td>
<td>2.553*</td>
</tr>
<tr>
<td>X (81)</td>
<td>82.14*</td>
<td>62.52*</td>
<td>62.52*</td>
<td>64.90*</td>
<td></td>
</tr>
</tbody>
</table>

Note: * denotes significance at p < .05.  * denotes significance at p < .10. (All tests are two-tailed.)

positively related to access to the government ($p < .001$ for reliability; $p < .10$ for scientific ties to the government). Organization type is also an important determinant of access – most significant, statistically and substantively, was whether the organization was governmental ($p < .001$). Notably, neither budget nor the government/non-government distinction were significant in the analysis of all scientific ties, and this is consistent with Heelo’s strong claim that expertise is not only necessary but sufficient to achieve prominence in an issue network (Heelo, 1978: 102–3). Among non-governmental organizations, business representatives tended to have greater access ($p < .05$ in all three cases).

*The Autocorrelation of Access in Washington Lobbying*

The observed distribution of access to government policy-makers (revealed in Tables 1 and 2) also offers an important methodological lesson. Access in lobbying is correlated through the very communication networks by which lobbyists become better informed. Critically, however, the direction of this ‘social correlation’ is conditioned upon the type of ties. In Tables 1 and 2, $p_1$ estimates uniformly negative across specifications of the model, and $p_2$ estimates positive across specifications. The results in Tables 1 and 2 provide weak support for Hypotheses 3 and 4, as $p_1$ and $p_2$ are statistically distinguishable from zero only at weaker levels of significance ($p < .10$) in the fully specified model of the rightmost column. In the fully specified model of Table 1, the estimate of 0.0456 for $p_2$ (autocorrelation of access through strong ties) implies a marginal effect of 0.0751. In other words, if one lobbyist (lobbyist A) gains access to 13 government policy-makers, and lobbyist B has a strong tie with lobbyist A, then lobbyist B gains access to an additional policy-maker simply by virtue of this strong tie. A similar result appears in Table 2 for access on technical and scientific issues, where both $p_1$ and $p_2$ are statistically distinguishable from zero at a $p < .10$ level.

The results of Table 3 display strong support for the network-autocorrelation of influence with groups. With the exception of the ‘strong-tie dependent’ estimation in the fourth column of the results, access to other groups on technical issues is positively network-correlated through strong ties and negatively network-correlated through weak ties. In the fully specified model of the rightmost column, the marginal effect of weak-tie autocorrelation is $-0.2266$, and the marginal effect of strong-tie autocorrelation is 0.175. In other words, for every five additional technical contacts a lobbyist has with other groups in health-care policy-making, her/his acquaintances will have one less technical contact but her/his strong-tie friends will have about one more.

The statistical significance of the weak-tie autoregression parameter in
Table 3. The Correlates of Access to Other Lobbying Organizations On Scientific and Technical Issues (Standard Errors in Parentheses)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Poisson</th>
<th>Negative Binomial</th>
<th>Poisson Weak-tie Dependent</th>
<th>Poisson Strong-tie Dependent</th>
<th>Poisson Second-order Dependent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.2773*</td>
<td>0.1401</td>
<td>0.3153</td>
<td>2.0974*</td>
<td>-0.9267</td>
</tr>
<tr>
<td></td>
<td>(0.2539)</td>
<td>(1.3598)</td>
<td>(0.7382)</td>
<td>(0.7144)</td>
<td>(1.6933)</td>
</tr>
<tr>
<td>Weak Ties to Groups (β₁)</td>
<td>0.0234*</td>
<td>0.0459*</td>
<td>0.0712*</td>
<td>0.0122</td>
<td>0.1633*</td>
</tr>
<tr>
<td></td>
<td>(0.0026)</td>
<td>(0.0164)</td>
<td>(0.0219)</td>
<td>(0.0083)</td>
<td>(0.0268)</td>
</tr>
<tr>
<td>Strong Ties to Groups (β₂)</td>
<td>0.0116*</td>
<td>0.0043</td>
<td>0.0165*</td>
<td>0.0387*</td>
<td>-0.0087*</td>
</tr>
<tr>
<td></td>
<td>(0.0025)</td>
<td>(0.0187)</td>
<td>(0.0065)</td>
<td>(0.0180)</td>
<td>(0.0376)</td>
</tr>
<tr>
<td>ln(Budget) (β₃)</td>
<td>-0.0355*</td>
<td>-0.0186</td>
<td>-0.0210</td>
<td>-0.0668*</td>
<td>0.0222</td>
</tr>
<tr>
<td></td>
<td>(0.0141)</td>
<td>(0.0724)</td>
<td>(0.0322)</td>
<td>(0.0402)</td>
<td>(0.0672)</td>
</tr>
<tr>
<td>Organization Age (β₄)</td>
<td>-0.0003</td>
<td>0.0005</td>
<td>-0.0059*</td>
<td>-0.0003</td>
<td>-0.0132</td>
</tr>
<tr>
<td></td>
<td>(0.0011)</td>
<td>(0.0068)</td>
<td>(0.0030)</td>
<td>(0.0034)</td>
<td>(0.0057)</td>
</tr>
<tr>
<td>Government Organization (β₅)</td>
<td>-0.4879</td>
<td>0.3385</td>
<td>0.0895</td>
<td>-1.3383</td>
<td>3.070</td>
</tr>
<tr>
<td></td>
<td>(0.3764)</td>
<td>(1.6803)</td>
<td>(1.4654)</td>
<td>(1.3816)</td>
<td>(2.6742)</td>
</tr>
<tr>
<td>Government × Weak Ties (β₆)</td>
<td>-0.0115*</td>
<td>-0.0286</td>
<td>-0.1304</td>
<td>0.0041</td>
<td>-0.0068*</td>
</tr>
<tr>
<td></td>
<td>(0.0056)</td>
<td>(0.0429)</td>
<td>(0.0164)</td>
<td>(0.0176)</td>
<td>(0.0310)</td>
</tr>
<tr>
<td>Government × Strong Ties (β₇)</td>
<td>0.0126*</td>
<td>0.0217</td>
<td>0.0243</td>
<td>-0.0026</td>
<td>0.0709*</td>
</tr>
<tr>
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<td>(0.0062)</td>
<td>(0.0475)</td>
<td>(0.0195)</td>
<td>(0.0184)</td>
<td>(0.0339)</td>
</tr>
<tr>
<td>Business Representative (β₈)</td>
<td>-0.0573</td>
<td>-0.1200</td>
<td>0.8491*</td>
<td>-0.1992</td>
<td>2.7710*</td>
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<tr>
<td></td>
<td>(0.1722)</td>
<td>(0.8625)</td>
<td>(0.5070)</td>
<td>(0.4938)</td>
<td>(1.2021)</td>
</tr>
<tr>
<td>Voluntary Organization (β₉)</td>
<td>-0.0239</td>
<td>0.0340</td>
<td>0.3777</td>
<td>-0.2444</td>
<td>1.2618</td>
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<tr>
<td></td>
<td>(0.1616)</td>
<td>(0.9601)</td>
<td>(0.5131)</td>
<td>(0.4973)</td>
<td>(1.2394)</td>
</tr>
<tr>
<td>Professional Society (β₁₀)</td>
<td>0.1947</td>
<td>0.2605</td>
<td>0.8389*</td>
<td>0.1208</td>
<td>2.1619*</td>
</tr>
<tr>
<td></td>
<td>(0.1595)</td>
<td>(0.8016)</td>
<td>(0.4782)</td>
<td>(0.4557)</td>
<td>(1.1331)</td>
</tr>
<tr>
<td>Dispersion</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Weak-tie Autocorrelation (ρ₁)</td>
<td>—</td>
<td>—</td>
<td>-0.0122*</td>
<td>—</td>
<td>-0.0290*</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>(0.0027)</td>
<td>—</td>
<td>(0.0068)</td>
</tr>
<tr>
<td>Strong-tie Autocorrelation (ρ₂)</td>
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<td>—</td>
<td>-0.0040</td>
<td>—</td>
<td>0.0224*</td>
</tr>
<tr>
<td></td>
<td>—</td>
<td>—</td>
<td>(0.0035)</td>
<td>—</td>
<td>(0.0089)</td>
</tr>
</tbody>
</table>

| Model Statistics:          |        |        |        |        |        |
|                           | N       |        |        |        |        |
|                           | 81      | 81     | 81     | 81     | 81     |
| Wald (β₁ > β₂)            | -465.22 | -231.06 | -280.00 | -289.45 | -278.79 |
|                           | (1.60)  | (3.91)  | -1.201 | 4.050* | 49.74* |

Note: * denotes significance at p < .05. * denotes significance at p < .10. (All tests are two-tailed.)
the access models, and its insignificance in the reliability model, is consistent with the view that acquaintances lead to a vacancy competition for access. For lobbyists, being similarly well-informed should impair access, since groups must compete for policy-makers’ scarce time and since the information each has will be redundant, but being similarly informed will not necessarily affect the government’s perception of their respective reliabilities.

Combined with the ‘strength of weak tie’ results, the autocorrelation results demand a nuanced interpretation. The estimates of $\beta$, show that, for a given Washington lobbyist (say, again, lobbyist C from Figure 1), having more weak ties always improves access because weak ties boost policy information. Yet if lobbyist C is weakly tied to lobbyist E, and lobbyist E just happens to get access to a legislator, then lobbyist C is slightly less likely to gain access to that legislator. While paradoxical, these results suggest merely that gaining access in Washington is a competitive venture; a lobbyist wants ‘weak-tie’ acquaintances to become better informed, but she also hopes that her Washington acquaintances are unable to get the same access she desires. Conversely, the results suggest that investing overall in strong ties does not yield greater access, but a given lobbyist will want the few close contacts she has to have access to government policy-makers (see Kollman, 1997). Access demands both an investment in many acquaintances and a judicious selection of political ‘friends’.

**Conclusion**

Information is socially distributed in the Washington community, and acquiring information is not equivalent to buying it. We have shown that establishing acquaintance relationships confers an informational advantage for individual lobbyists. Lobbyists are more likely to hear new information through acquaintances than through close contacts. We find this advantage is qualified, to some extent, by a form of competition for access induced by the social acquisition of information. Strong ties, we show, help to mitigate this form of competition, perhaps because those with access to the government can facilitate access for their close contacts.

Our argument does not logically conclude, however, that lobbyists in a high information demand environment will invest all of their time establishing acquaintances. We expect, to the contrary, that lobbyists establish close and trusted communication contacts for a variety of reasons unrelated to acquiring new information. From this view, lobbyists engage in a form of trade-off by investing in strong and weak contacts. Those who choose to invest more in acquaintance contacts are likely to value the kinds
of access and influence that information confers relative to the kinds of advantages gained through strong contacts. 22

From a macro-level social efficiency perspective, we claim that it is through the set of acquaintances in the communication network that new information moves across the network of policy-making participants. It is from this view of the informedness of the network as a whole that we argue acquaintances confer a form of social capital for the Washington policy-making community. Putnam (1995: 71) defines social capital as 'features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit'. Modern democratic policy-making requires issue network participants at minimum to be able to construct shared meanings, coordinate on the terms of debate, decide which are the most pressing issues, and so on. Laumann and Knoke (1987: 206) state that '[i]n the absence of communication, coordinated policy action would become impossible, and the domain would fragment into ineffective, atomized policy actors'. Our findings suggest, however, that much of this coordination occurs, counterintuitively, through chance meetings and relatively superficial contacts. Attending gala events and the like, we argue, is a form of 'civic participation' that sustains social capital in weak-tie networks (Brech and Rahn, 1997; Schneider et al., 1997a), and it is the weak-tie communication networks that uniquely permit collective policy decision-making in the modern democratic state.

APPENDIX
Definitions and Survey Questions for Selected Variables

Dependent Variables

(Y1) Reliability score. Each government policy-maker interviewed in the health-care policy domain was asked survey question C13 (Laumann and Knoke, 1988: 446):

As a congressional committee/government agency [you receive] many communications from numerous organizations containing information, proposals, and opinions about [health-care policy]. Most people recognize that [you] must be able to select those which are considered reliable and useful sources of such information. Please tell me which organizations on this list [you have] found to be the most reliable and useful.

This question was asked to all government agencies and congressional committees. The dependent variable 'reliability' (Y1) in our analyses is the total number of government organizations (agencies or committees) mentioning organization i as

22. Schneider et al. (1997b) find that, at the individual (rather than organizational) level, incentives to acquire information do not affect contact-making behavior.
‘reliable and useful’ source. Because the number of such government organizations is 29, this count has an upper bound of 29. Yet this bound does not introduce skew into the variable, as its mean is only 1.67.

(Y2) Scientific contact with government policy-makers. All organizations (public and private) were asked survey question C3a (Laumann and Knoke, 1988: 442):

The process of formulating positions on national [health-care] matters often involves the use of technical or scientific information relevant to the issues. Which organizations on the list [do you] regularly rely upon as sources of this type of technical and scientific information?

In constructing Y2, we restrict the sample of respondents to C3a to the same agencies and committees that were asked question C13 (‘reliability’) above. Y2 is thus the total number of government organizations which list organization i as a regular source of scientific and technical information.

(Y3) Scientific contact with all groups. This variable is constructed identically to Y2, using survey question C3a, except that the sample of respondents is no longer restricted to government organizations. Hence the variable Y3 is the total number of organizations (public or private) which list organization i as a regular source of technical or scientific information.

Independent Variables

(X1) Weak ties. All organizations (public and private) answered survey question C1a: ‘Would you please place a check mark in front of the name of all organizations with whom [you] regularly and routinely [discuss] national [health-care] policy matters?’ (Laumann and Knoke, 1987: 441; bold in original). Organization i was marked as having a weak tie with organization j if organization j listed organization i, and if organization j reported that it ‘typically initiates’ discussions with organization i. (In other words, our coding does not allow an organization to report its own weak-tie investments, or to list itself as receiving information from another organization; we code a ‘weak tie’ for i only where another organization (j) reports sending information to i.) The variable X1 is the total number of times organization i was listed by all other organizations in the survey in this manner. The ‘weak-ties’ matrix Ww consists of the full n x n array of organizations, where element ij is 1 if a weak tie exists between i and j, 0 otherwise.

(X2) Strong ties. All organizations were asked question C2 (Laumann and Knoke, 1987: 441):

From time to time, organizations face especially sensitive problems in the national [health-care] field, where the judgments of others are valuable in deciding what positions or actions to take. Organizations often develop relationships with other organizations that they trust to exchange sensitive and confidential advice about actions or positions that might be taken … [W]e would like you to check those
organizations with whom [you have] such special relationships that involve the trusted exchange of sensitive and confidential advice.

Variable X2 is the total number of times organization i was mentioned by all other organizations in response to C2. The matrix Ws was constructed similarly to Wm, using C2.

(X8) Business groups. A dummy variable scored 1 if the organization was listed as a business corporation in Laumann and Knoke (1987: 409), 0 otherwise. Because many business groups were listed as professional societies or lay voluntary associations, we changed the categorization of Laumann and Knoke, coding the following organizations as business groups:

The U.S. Chamber of Commerce, the Washington Business Group on Health, and the Robert Wood Johnson Foundation, the American Association of PSRO's, the American Health Care Association, the American Hospital Association, the American Insurance Association, the Federation of the American Hospitals, the Group Health Association of America, the Health Industry Manufacturers Association, the Health Insurance Association of America, the National Association of Home Health Agencies, and the Pharmaceutical Manufacturers Association.

(X9) Voluntary associations. A dummy variable scored 1 if the organization was listed as a 'lay voluntary association' in Laumann and Knoke (1987: 409–10), 0 otherwise. All lay voluntary associations switched to 'business groups' (see X8) were coded 0.

(X10) Professional societies. A dummy variable scored 1 if the organization was listed as a ‘professional society’ in Laumann and Knoke (1987: 408–9), 0 otherwise. All professional societies switched to 'business groups' (see X8) were coded 0.

REFERENCES


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