A Dilemma of State Power: Brokerage and Influence in the National Health Policy Domain

Author(s): Roberto M. Fernandez and Roger V. Gould

Source: *American Journal of Sociology*, May, 1994, Vol. 99, No. 6 (May, 1994), pp. 1455-1491

Published by: The University of Chicago Press

Stable URL: https://www.jstor.org/stable/2782581

A Dilemma of State Power: Brokerage and Influence in the National Health Policy Domain[1]

Roberto M. Fernandez
Stanford University

Roger V. Gould
University of Chicago

This article shows that occupancy of brokerage positions in the U.S. health policy domain's communication network is a crucial determinant of influence. However, the ability to convert structural position into power is contingent on the type of brokerage position occupied and whether the actor is a government organization. In the government sector, actors in representative positions are more influential to the extent that they take public stands on events, whereas liaison and itinerant positions only confer influence if their occupants remain impartial. The article concludes that the influence of government organizations is contingent on their capacity to link disparate actors in the communication network while remaining uncommitted to specific policy agendas.

Although the connection between power and position has captured sociologists' attention for many years (Hunter 1953; Burt 1977; Laumann and Pappi 1976; Galaskiewicz 1979), the notion of brokerage—the occupancy of a structural position that links pairs of otherwise unconnected actors—has only begun fairly recently to figure in this debate (Galaskiewicz and Krohn 1984; Marsden 1982; Laumann and Knoke 1987; Gould 1989; Gould and Fernandez 1989; Knoke and Pappi 1991). Discussions of brokerage shift attention from the effects of network structure on an actor's bargaining power in dyadic exchanges (e.g., by creating monopoly positions) to the implications of one actor's network position for the possibil-

[1] We would like to thank Ed Laumann and David Knoke for generously providing access to the national health policy domain data. Ken Dauber, Art Stinchcombe, and the AJS reviewers gave us helpful advice and criticisms. Correspondence may be directed to Roberto M. Fernandez, Graduate School of Business, Stanford University, Stanford, California 94305.

0002-9602/94/9906-0002$01.50

ity of transactions among other actors. For example, brokerage behavior can be observed in transactions that bridge social strata (Bonacich 1973; Lomnitz 1977), local versus national levels in patronage networks (Blok 1974; Eisenstadt and Roniger 1984), and the boundary between legal and illegal economic activity (Steffensmeier 1986).

From our perspective, the most interesting difference between brokerage and other pivotal structural positions is that a broker's power appears to be incompatible with the overt pursuit of his or her own interests. For example, Gould (1989) showed that occupants of brokerage positions in a community elite only derived influence from their position to the extent that they were poor in mobilizable resources. Similarly, Padgett and Ansell (1993) argued that Medici influence in 15th-century Florence depended on the inability of other elite Florentine families to discern Cosimo de' Medici's interests.

In this article, we argue that occupancy of brokerage positions, coupled with impartiality with respect to private interests, is a central and constitutive element of state power. Using data on the U.S. health policy domain, we show that occupancy of brokerage positions in the network of communication among organizational actors is positively related to influence. However, government organizations that are in a position to broker communication among disparate actors are only influential to the degree that they refrain from taking stands on policy events. For nongovernment organizations, on the other hand, occupancy of a brokerage position is positively related to influence regardless of an actor's tendency to take stands on issues. This suggests that government organizations are influential in the policy domain because they make it possible for other actors to communicate indirectly on issues of interest to them; but this influence depends on the degree to which state actors remain visibly above the fray of interest politics.

In the next section, we present a formal conceptualization of brokerage. Then, we discuss the role of information brokerage in policy domains and develop a set of hypotheses about the relationship between influence, impartiality, and the various types of brokerage. After characterizing each organization in the health domain in terms of the degree to which it is situated in five structurally distinct brokerage positions, we present regression analyses of the ways in which occupancy of these positions and policy-event participation interact as determinants of influence reputation.

A THEORETICAL CONCEPTION OF BROKERAGE

A number of theoretical and empirical studies of brokerage have appeared in research areas as diverse as patron-client systems (Carlos and

Anderson 1981), networks of restricted exchange (Marsden 1982), and community elite structures (Burt 1976, Gould 1989). For our purposes, the most important area in which the brokerage concept has had a theoretical impact is the study of interorganizational relations (see, e.g., Aldrich 1982; Galaskiewicz 1979; Knoke and Laumann 1982). While interest in the concept is growing among organization scholars, a general, rigorous formulation of brokerage behavior has only recently been developed (see Gould and Fernandez 1989).

Following past theoretical treatments (Aldrich 1982; Marsden 1982), we define brokerage as a relation in which one actor mediates the flow of resources or information between two other actors who are not directly linked.[2] In past work (Gould and Fernandez 1989), we have extended this simple conception of brokerage by allowing for the possibility that actors in a social structure may be differentiated with regard to activities or interests, so that exchanges between some actors may have a different meaning or function from exchanges between other actors. Such differentiation may be taken into account by partitioning the system into a set of mutually exclusive classes or subgroups of actors and to distinguish communication of resource flows within groups from flows between groups.

When brokerage relations cross such boundaries, the subgroup affiliation of the broker is also relevant: brokers play different roles depending on the group to which they belong (Rogers and Agarwala-Rogers 1976; Friedman and Podolny 1992). For instance, a "representative" role is created when one member of a subgroup takes upon itself or is given the role of communicating information to, or negotiating exchanges with, outsiders. In the context of interorganizational relations, an example of this role would arise if the leading firm in an industry were to act as a spokesman for the rest of the industry in discussions with government regulatory agencies. If the criterion for grouping actors was to be based on shared interests (as opposed to function or activity), then another example of the representative role would be the trade association (see

[2] Using a similar idea, Galaskiewicz and Krohn (1984, p. 547) refer to organizations that both send and receive high levels of resources as "transmitters"; they argue that this role corresponds to "a reallocation or redistribution function, helping to circulate financial resources in the community." Laumann and Knoke (1987, chap. 8) employ the same strategy, defining interest groups as brokers when they send and receive information at high levels but exhibit less than chance levels of internal communication. Our conception of brokerage differs from theirs in two significant ways. First, our conception is more restrictive in that it does not permit the endpoints of the brokerage relation to be directly connected. Second, we have a finer grained strategy, since it permits variation in brokerage capacity across individual organizations, not simply across network subgroups.

Litvak 1982; Tierney 1987). This example illustrates the general point that the type of brokerage role assigned to an actor is contingent upon the criterion according to which actors are grouped. Because of the highly political nature of the national health policy domains and the resulting diversity of policy preferences among organizational actors in the arena, our analyses of brokerage assign organizations to groups on the basis of shared interests.

In Gould and Fernandez (1989), we show that there are five structurally distinct types of broker (or equivalently, five types of brokerage relation) that follow from a partitioning of actors into nonoverlapping subgroups (see fig. 1). The first type is a "liaison" (Gould and Fernandez 1989), a brokerage relation in which all three actors occupy different groups. One example of liaison brokerage is the mediator or arbitrator in interorganizational bargaining relations such as union-management negotiations. (See Kochan [1975, 1980] for studies of collective bargaining from an interorganizational relations perspective.) Another prominent sociological example is the "middleman minority," a marginal group that mediates economic transactions between social groups who do not transact directly because of a "status gap" (Blalock 1967; Bonacich 1973). The most significant liaison brokerage positions in the health policy domain are held by congressional subcommittees, the Office of the Secretary of the Health and Human Services, and the director of the National Institutes of Health (see appendix, below).

The second type of brokerage is the "representative" role described above. The third type is the "gatekeeper" role, in which an actor screens or gathers resources from the outside and distributes them to members of his or her own subgroup. The gatekeeper and representative types of broker, because they perform, in Aldrich and Herker's (1977) terms, "information processing" and "external representation" functions, have clear relevance for research on "boundary-spanning" roles (see Adams 1976, 1980; Friedman and Podolny 1992). An example of a gatekeeper organization is the Census Bureau, which is charged with gathering and processing information and passing it on to other government agencies. In our data, the American Medical Association (AMA) occupies such a position with respect to the health professionals group.

Fourth, the two principals may belong to the same subgroup while the intermediary belongs to a different group. The individual or organization in such a position is termed a "cosmopolitan" or "itinerant" broker. This type of brokerage may be performed by "federation management organizations" (see Provan 1983) such as the United Way (Galaskiewicz 1982, 1985; Provan, Beyer, and Kruybosch 1980; Pfeffer and Leong 1977), which are differentiated—both in interests and activities—from the groups of organizations they coordinate. The director of the National

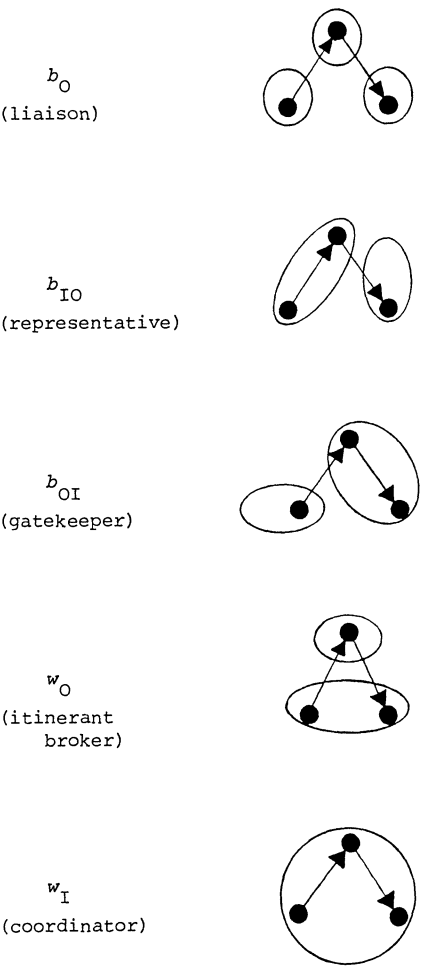

FIG. 1.—Graphic representation of five types of brokerage relation (solid points are actors; ellipses correspond to subgroup memberships).

Institutes of Health and the Health Care Financing Administration are examples of organizations occupying this type of brokerage position in our data.

Finally, all three actors may belong to the same group; this role is termed the "local broker" or "coordinator." This is a "null" type in the sense that it describes any brokerage relation in which no partition is imposed on the actors; but it also describes mediation between actors within a specified subgroup.

Because it is framed in relational terms, this conceptual typology of brokerage calls for operationalization using social network data. Accordingly, we measure occupancy of brokerage positions using data on the network of communication flows in the health policy domain. We discuss the details of our brokerage measures in the section on methods.

BROKERAGE AND INFLUENCE IN POLICY DOMAINS

In our conception, brokers permit communication between pairs of actors who do not regularly communicate with each other. There are two reasons why the ability to establish such indirect links should be crucial in national policy domains. First, the sheer number and diversity of organizational actors in such an environment makes it extremely unlikely that any given actor will be able to maintain routine communication ties with all others. This is particularly true for policy arenas that can be characterized as "issue networks" marked by fluid and complex patterns of participation, as compared with the stability and simplicity of "iron triangles" and corporatist political systems (Heclo 1978; Jordan 1981). As a result, organizational actors constrained by monitoring costs should focus their communication efforts on actors likely to provide them with useful information, that is, actors who themselves have many communication links. Also, organizations are unlikely to communicate regularly with actors whose interests focus on areas of health policy that overlap only slightly with their own. Consequently, actors whose ties bridge specific policy areas facilitate the flow of information in the policy domain.

Second, actors in brokerage positions may link pairs of other actors who need to communicate as a result of a specific policy initiative that unexpectedly makes their interests interdependent. For example, a proposed change in Medicare that would eliminate payment for a particular drug might attract the attention of both the pharmaceutical industry and the American Association for Retired Persons, giving them a reason to communicate where none had existed previously. Actors tied to both interest groups will be in a position to establish a temporary but essential communication link between them. This is suggested by the argument (Knoke and Burleigh 1989; Knoke and Pappi 1991) that indirect linkages (which outnumber direct ties) are necessary for the formation of "action sets" in policy domains (for a similar argument for a very different setting, see Mayer [1966]).

For these reasons, organizational actors linking otherwise unconnected pairs of actors play a critical role in policy domains because they permit information to flow easily among a large and diverse set of actors, which in turn allows actors to coordinate their efforts to formulate and influence policies (Laumann and Knoke 1987). This leads to our first hypothesis.

HYPOTHESIS 1.—*For all five brokerage types, actors who control two-step paths between pairs of other actors are perceived as more influential, on average, than actors who do not.*

We argue, however, that influence derived from this kind of structural position depends on two things: the extent to which actors pursue specific policy goals and the degree to which these actors are expected to play certain types of brokerage roles. When occupants of brokerage positions support particular policies, actors who do not support these policies may choose not to rely on them as brokers for fear that they will not mediate communication impartially.[3] The consequence is that the actor's brokerage position will not lead to actual brokerage behavior. In addition, some actors are not candidates for the role of impartial broker regardless of their structural position and pattern of policy event participation: most organizational actors in the private sector are a priori seen as pursuing particularistic interests. Indeed, the pluralist conception of democracy is predicated on the idea that the diversity of private interests in civil society simultaneously undergirds and necessitates political institutions that are defined as serving the *public* interest (Anderson 1979; Tierney 1987). Brokering the flow of communication in a disinterested way is thus a crucial role limited to government actors in the collective effort to formulate and evaluate policies; their efficacy in this role is limited by the extent to which such actors are perceived as unbiased with respect to policy events (for a parallel argument, see Heinz et al. 1990). Note that we are *not* arguing that state actors are totally passive with respect to policy events; on the contrary, there is considerable evidence that government organizations often act quite aggressively in favor of specific policy initiatives (Schlozman and Tierney 1986). Rather, our argument is that if state actors do take sides in policy events, they will cease to be treated as brokers by other actors in the system.

However, we expect that government organizations will be differentially subject to this constraint, depending on the type of brokerage role they occupy. This is because the five structurally defined brokerage types differ in the degree to which they entail impartial behavior. Specifically, occupants of liaison and itinerant roles, who by definition link actors with interests dissimilar to their own (i.e., actors in other policy domain

[3] Knoke and Pappi (1991) examine the relationship between policy-event participation and network "betweenness" (which is related to total brokerage; see Gould and Fernandez 1989), and find that betweenness is not associated with event participation after controlling for influence and other organizational attributes. In contrast, we are interested in a complementary question: Is the relationship between network position and influence sensitive to event participation? In other words, we are interested in the connection between brokerage position and influence precisely when actors are *not* active on policy events.

subgroups), will be able to convert their structural position into influence only if they generally refrain from public advocacy of policies.[4] In contrast, occupants of representative and gatekeeper roles should derive influence from their position irrespective of their stands on issues, because boundary spanners are expected to share the goals of their own groups (which, for government organizations, will consist predominantly of other government organizations) when mediating communication between members of their group and other groups. Indeed, our theoretical argument implies that government organizations *must* pursue some policy goals, namely, those that affect their viability as servants of the public interest. Ruggie (1992) shows, for example, that the U.S. government justified its creation of the diagnostic related groups (DRG) system of Medicare and Medicaid reimbursement by arguing that DRGs would protect the market against undue intervention by federal agencies.[5]

HYPOTHESIS 2.—*Among government organizations, the relationship between influence and occupancy of liaison and itinerant brokerage positions will be attenuated by a tendency to take stands on policy events.*

HYPOTHESIS 3.—*Among government organizations, the relationship between influence and occupancy of representative and gatekeeper brokerage positions will* not *be attenuated by a tendency to take stands on policy events.*

HYPOTHESIS 4.—*For nongovernment organizations, the relationship between influence and liaison, gatekeeper, representative, and itinerant brokerage position will be unaffected by advocacy of specific policies.*

Finally, advocating specific policies should *enhance* rather than attentuate the relationship between coordinator brokerage and influence. The reason is that, while policy events produce cleavage on the level of the policy domain as a whole, they unify actors within particular interest groups. An actor that consistently aligns itself with the other members of its subgroup will appear impartial with respect to that group, even though actors outside the group will see it as partisan.[6] Consequently,

[4] Of course, actors may advocate a policy on the grounds that it will serve the public interest, a stand that might be considered impartial. We maintain, however, that from the standpoint of actors *opposed* to the policy, such a stance will not appear impartial, regardless of the arguments used to justify it (with some notable exceptions; see n. 5 below).

[5] In fact, we expect government actors to frame arguments in this way regardless of whether the arguments are sincere. For instance, members of Congress may justify a salary raise for themselves by arguing that it will attract talented people to public service and weaken the incentive to take money from private interests.

[6] This argument presupposes that groups are relatively homogeneous with respect to the stands they take on policy events—which will be the case to the degree that subgroup boundaries actually identify interest groups. The subgroup boundaries we

HYPOTHESIS 5.—*Taking stands on policy events will contribute to the influence of coordinators, whether or not they are government organizations.*

DATA AND METHODS

The data we examine here are taken from Laumann and Knoke's (1987) study of the social structure of the national energy and health policy domains under the Carter presidency. Detailed descriptions of the project and the various data collection procedures can be found in Laumann and Knoke (1987), Laumann, Knoke, and Kim (1985), and Prensky (1986).[7] We restrict our attention to data from the health policy domain.

Our dependent variable, influence reputation, was measured by presenting each respondent with a list of actors in the policy domain and asking them to check off organizations that he or she saw as "especially influential and consequential in formulating national health policy" (Laumann and Knoke 1987, p. 445). "Influence reputation" is equal to the number of such nominations each actor received from other actors in the policy domain.

Reputational measures of influence have a long and controversial history in political sociology (see, e.g., Hunter 1953; Laumann and Pappi 1976; for a concise review of debates regarding measures of influence, see Laumann and Knoke [1987, chap. 5]). In the present context, there are three reasons to use influence reputation as the dependent variable rather than behavioral measures (such as those based on decision outcomes or exercise of formal authority). First, we agree with Gamson (1966) that influence reputation is itself a resource and is therefore not reducible to tangible resources like money or control over jobs, although these certainly play a part. Actors may carry weight in policy delibera-

---

impose in our analyses (following Laumann and Knoke [1987]) meet this criterion: in analyses not reported here, we found that joint membership in a subgroup is strongly associated with taking a common stand on policy events.

[7] In brief, Laumann and Knoke (1987) used multiple criteria to identify the population of core organizational actors in the health policy domain during the Carter years (1977–80). In addition to major federal agencies (departments and congressional subcommittees charged with health regulation) a list of nonfederal organizations were identified from five sources: mentions of organizations involved in health issues in computer-generated abstracts of major newspapers and weekly periodicals; participation in health-related hearings before major congressional subcommittees; a computer-generated list of amicus curiae participants in health cases in federal appellate courts; lobbyist registrations for health issues; and additional names suggested by experts in health policy. For the nonfederal sources, organizations that appeared five or more times across the five sources were selected for participation in the study. Interviews with prominent members of each organization were completed in 89.4% of the cases.

tions simply because they are collectively defined as carrying weight. Second, there is considerable evidence that a broad consensus obtains in the health policy domain concerning the identities of key players (Laumann and Knoke 1987, pp. 179–81), indicating that influence reputation is at least a reliable measure in this case. Third (and most significant for our purposes), influence based on brokerage, if it exists, is by definition invisible to methods that focus on the ability to determine policy-event outcomes: if brokers are influential in the ways we have hypothesized, it is precisely because they facilitate negotiations without attempting to bias the outcome.[8]

To collect data on communication flows, organizational informants were asked to identify all the organizations with which their organization "regularly and routinely discusses important health policy matters." Informants were then asked which organizations usually initiated the discussions. From this information, we constructed a 135 × 135 binary matrix here in which "1" indicates the presence and "0" the absence of relations between each pair of organizations. The i,jth cell of the matrix is coded "1" if either or both of the following conditions held: (1) organization i reported having initiated communication with j; (2) organization j reported having received communication from i. Note that this procedure does not guarantee symmetry, that is, a "1" in the i,jth cell does not imply anything about the j,ith cell.

[8] One reviewer was concerned that distortions might result from the fact that all actors in the domain receive equal weight in determining the influence reputation of other actors in our measure. Ideally, we would test for this possibility by computing "prominence" scores from the original 135 × 135 matrix of influence votes; unfortunately, we do not have access to this matrix. However, Laumann and Knoke (1987) report that the average agreement among pairs of actors in the health policy domain was 72%, i.e., randomly chosen pairs of actors agree on who is influential for roughly three out of four cases. Moreover, highly influential actors did not differ substantially from less influential actors in their assessments of "who mattered." This convinces us that adjusting the influence measure to give greater weight to the assessments of (endogenously identified) influential actors would produce only minor differences in the distribution of the dependent variable. This reviewer also raised the related question of why we used influence reputation across the entire policy domain rather than within-cluster influence votes for coordinator brokerage and out-cluster influence votes for liaison and itinerant brokerage. We did not choose this strategy because we do not believe that an actor's influence is perceived only by those directly involved in its brokerage relations. On the contrary, the fact that an organization plays an important role as a coordinator of communication within its own group has major implications for the way actors outside the group perceive and interact with it. For example, the Health Insurance Association of America, an umbrella group representing commercial insurers, recently became the principal target of lobbying efforts by consumer groups because of its key role in formulating the insurance industry's response to the Clinton health care reform package ("Lobbyists of Every Stripe on Health Care Proposal," *New York Times,* September 24, 1993).

Using this matrix, we characterize each organization in terms of its occupancy of brokerage positions in interorganizational information flows, taking into account the interest cluster (see below) of the sender, mediator, and receiver of information. This yields a set of measures for the five brokerage types described above (see fig. 1; for a complete discussion of the measurement approach, see Gould and Fernandez [1989]). The brokerage measures we use are "partial" brokerage scores for each of the five brokerage types. These variables measure the extent to which organizations control the communication paths between pairs of organizations; thus they are a variant of "betweenness" centrality (Freeman 1977; Gould and Fernandez 1989). Each organizational actor in the network is assigned a set of five "raw" brokerage values, which are equal to the number of ordered pairs of other organizations in the appropriate groups that are connected indirectly (i.e., by a two-step path) by the actor without being directly linked.[9] To measure the degree to which each actor controls each two-step path between other organizations, we weight each of the five raw measures by the inverse of the total number of indirect links between each pair of organizations. This weighting reflects the probability that each pair will actually use the focal actor as an intermediary, rather than some other actor. We refer to this measure as "partial" brokerage because it takes into account the fact that the focal actor may only partially control information flows among other actors. For example, if the focal actor is the only intermediary between the two other actors, it is completely in control of any flow between the two actors. In this instance, we would assign this two-step path a weight of one in computing the focal actor's brokerage score. However, the focal actor only partially controls this flow if there are other potential intermediaries. (Note that these other potential intermediaries may or may not be in the same group as the focal actor.) In that case, we would

[9] Note that the scheme we describe here is mutually exclusive and exhaustive, i.e., we account for all the possible ways an actor might stand as an intermediary on two-step paths between pairs of others that are not directly linked. Consequently, we may define total brokerage as the sum of the scores across the five types of brokerage position. Another way of interpreting total brokerage is that it is the degree to which an actor stands between pairs of others (who are not themselves directly linked), *regardless* of the group affiliation of the sender, broker, or receiver of the information. In this dataset, total brokerage is a linear function of Freeman's (1977) "betweenness" because all paths between pairs of actors are of length two or less. However, brokerage is not in general a linear function of betweenness because the latter takes account of shortest paths of any length (Gould and Fernandez 1989). Nor does betweenness permit differentiation among the various types that follow from a partition of the network into subgroups. The theoretical issues we address in this article lead us to focus on the differentiated character of organizational actors in the health policy domain and, consequently, on the five brokerage types discussed above.

measure the focal actor's partial control over the communication between the pair of organizations by weighting the link by the reciprocal of the total number of two-step paths between the pair in question.[10]

We define the five brokerage roles with reference to a partition of the organizational actors into subgroups on the basis of interest similarity. Laumann and Knoke (1987) gave organizational informants a list of 56 health policy issues and asked them to indicate on a six-point scale (0–5) their level of interest in each issue. After consulting various press and academic sources as well as a panel of experts, Laumann and Knoke designed this list to represent a broad range of the health issues that were salient in the policy domain during the Carter presidency. Prensky (1986) reports the results of a hierarchical cluster analysis of the 135 organizations in the health domain, which grouped the organizations into 15 distinct clusters.[11] Organizations and their brokerage scores are listed by clusters in the Appendix. The clusters are labeled to correspond to issues in which the organizations constituting the cluster show a high level of interest. For example, the mental health cluster is primarily composed of mental health organizations and organizations that deal with substance abuse. These organizations tended to express a high level of interest in mental health and federal funding issues. The consumer cluster comprises

[10] It is worth stressing that the brokerage measure used here does not necessarily reflect the actual amount of brokering each organization does. Rather, it measures an actor's structural potential to act as a broker. If an organization, i, sends information to j, and j sends information to k, this does not mean that the information passing from i to j is necessarily related to the information flowing from j to k. The intermediate position of j in the i–j–k path is a necessary but not sufficient condition for j to act as a broker for i. Thus, this measure may be more accurately termed "brokerage potential." For ease of exposition, we will use the term "brokerage" interchangeably with "brokerage potential." More refined data would enable us to track specific information from i to k through j, revealing the amount of brokerage activity that j actually engages in. Of course, the absence of a tie between i and k might be meaningless if it were unproblematic for i to establish communication with k whenever the need arose. However, we think this is highly unlikely. There are many reasons why actors might have difficulty initiating direct contact with other actors to whom they have no previous ties. Organizations employ receptionists precisely because they find it necessary to screen incoming attempts at communication. Even in settings that are traditionally thought of as posing no obstacles to interaction, such as securities markets, actors establish restricted interaction patterns that remain stable over time (Baker 1984; Carruthers 1991).

[11] Briefly, the cluster analysis used an average similarity criterion in a hierarchical, agglomerative algorithm (Spath 1980) and was performed on a 135 × 135 matrix of Pearson product-moment correction coefficients describing organizational overlaps in issue interests. This technique combines organizations into clusters based on the average correlation among the organizations that are eligible to be combined. With the exception of a few organizations from the two government clusters being placed in other clusters, these interest clusters correspond exactly to Laumann and Knoke's (1987) "issue publics."

consumer organizations and organizations that represent governmental providers of care. (For a detailed discussion of the interest clusters, see Laumann and Knoke [1987].)

Participation in policy events was recorded by requesting that respondents report whether their organization had publicly taken a stand (either for or against) on each of 85 distinct events. Our measure of event participation is the total number of events on which respondents reported having taken a stand.

An alternative strategy in computing brokerage scores would be to define subgroups based on patterns of event participation rather than issue interest profiles. We do not pursue this strategy for two reasons. First, as we argued in our theoretical discussion, agreement on particular policy events often reflects a short-term confluence of goals among actors rather than long-term similarity of interests. Laumann and Knoke's (1987, pp. 320–42) analysis of "event scenarios" similarly suggested that patterns of alliance in the health domain continually shifted across policy events. Clustering actors on the basis of shared policy-event participation will, consequently, do a poorer job of identifying durable subgroups than will a clustering based on similar patterns of interest in general health issues.[12]

Second, if brokerage positions were defined with respect to event participation, our ability to test hypotheses 3–5 would be compromised. Our objective is to ascertain whether structural position and impartiality interact in their effects on influence reputation; but because impartiality is directly connected to patterns of activation on policy events, defining subgroups in terms of the latter would artificially create a relationship between brokerage position and taking a stand.

In order to address hypotheses 2, 3, 4, and 5, we distinguish among government organizations, profit-seeking organizations, and voluntary associations. We disaggregate the analyses into government and nongovernment organizations, and include a dummy variable for profit-seeking organizations in analysis of the latter category. (Because there are only five profit-seeking organizations in the policy domain, we did not conduct tests for interactions between this dummy variable and other variables.)

[12] We directly tested our intuition on this matter by comparing a cluster analysis based on event participation profiles to the clustering based on interest profiles. Confirming our suspicion, we found that the former failed to identify distinct subgroups in the health policy domain. That is, the dendrogram for this analysis revealed only a trivial clustering: at each level of similarity, virtually every actor is either in its own cluster or absorbed into one large "residual" cluster. In contrast, the issue interest analysis generates a nontrivial clustering in the sense that actors are classified into multiple, nonoverlapping subgroups at a point well above the minimum similarity level. (Dendrograms from these analyses are available from the authors.)

Finally, we include as controls a variety of organizational characteristics likely to be associated with influence. We measure organizational age by coding the number of years since the founding of the organization, and organizational size by the number of full-time-equivalent (FTE) employees. Because voluntary associations often rely on volunteers for much of their work, this measure does not accurately reflect their size; for voluntary associations, we have coded organizational size by adding the number of FTE volunteers to the number of full-time staff.

Our analyses also include a variable measuring the degree to which the organization sees itself as a player in the health policy field in order to control for possible spurious relationships. These organizations vary substantially in the degree to which they devote their activities to the national health policy domain. While organizations like the United Auto Workers and the National Urban League met the criteria to be included in the domain (see n. 7 above) and therefore appear in these data, they are not primarily oriented toward health issues. We coded a self-reported variable describing the percentage of effort that each organization devotes to health policy. This variable enables us to control for the possibility that actors marginal to the health policy domain are less likely to be perceived as influential, independent of their values on the other variables.

RESULTS

Before presenting the analyses that model the effects of brokerage position on influence reputation, it is worth reporting some descriptive and bivariate statistics for the brokerage scores. Table 1 provides means and

TABLE 1

CORRELATIONS, MEANS, AND STANDARD DEVIATIONS AMONG UNSTANDARDIZED PARTIAL BROKERAGE MEASURES AND NETWORK CENTRALITY MEASURES FOR INFORMATION FLOWS IN THE NATIONAL HEALTH POLICY DOMAIN

	b_O	b_{IO}	b_{OI}	w_O	w_I	t	Mean	SD
Liaison (b_O)		.359	.321	.978	.162	.992	71.655	174.164
Representative (b_{IO})			.962	.490	.843	.473	7.657	11.646
Gatekeeper (b_{OI})				.450	.827	.436	7.955	11.802
Itinerant (w_O)					.266	.990	4.400	9.688
Coordinator (w_I)						.267	.740	1.286
t							92.407	193.360
In-degree	.731	.613	.626	.775	.402	.775	41.593	27.400
Out-degree	.764	.649	.630	.803	.440	.809	41.595	21.571
Prominence	.674	.622	.603	.712	.425	.720	.397	.174

NOTE.—N = 135. Here, t = calculations computed from the sum of the five types.

standard deviations along with the correlation matrix for the five brokerage measures and total brokerage. All the correlation coefficients are positive, indicating that organizations that occupy one kind of brokerage position are likely to occupy other types of brokerage position as well. However, there is considerable variation in the strength of this tendency. Among the five types, the highest correlations are between liaison and itinerant "outside" brokerage (labeled, respectively, b_O, and w_O) on the one hand, and on the other hand, among the representative, gatekeeper, and coordinator "inside" types (b_{IO}, b_{OI}, and w_I). The main distinction that appears in this pattern of results is whether or not the broker is a member of the same subgroup as the sender or receiver of the information flow. In the former case, the subtypes involve an intermediary that brokers information for organizations outside of its subgroup. Another point needs to be made with regard to table 1: the fact that total brokerage is highly correlated with the liaison and itinerant types implies that much of the brokerage observed in this network occurs through intermediaries who tend to be set apart in distinct groups from those organizations for whom they broker.

Tables 2 and 3 present multiple regression analyses that test hypothesis 1; because hypotheses 2, 3, and 4 distinguish between government and nongovernment organizations, we present disaggregated regression results here. (Pooled analyses yield the same conclusions with respect to hypothesis 1.) For all five brokerage types, the extent to which actors control two-step communication paths is positively related ($P < .05$)[13] to influence reputation, net of the effects of organizational attributes. Moreover, this pattern holds for both government and nongovernment actors.

To test hypotheses 2–5, tables 4 and 5 report regression results that parallel the models in tables 2 and 3 but include a coefficient estimate for the interaction between the five brokerage types and the extent to which organizations took public stands on policy events. A positive interaction indicates that a high level of policy-event participation enhances the positive impact of brokerage position on reputed influence; a negative interaction term implies that the effect of brokerage on influence reputation is weakened by a record of taking stands on policy events.

Consistent with hypothesis 2, the metric coefficients in columns 1 and 4 of table 4 show that the association between liaison and itinerant bro-

[13] Note that all of our hypotheses imply one-tailed significance tests; the criticial t-values marked in the tables are chosen accordingly. Statistical tests for the control variables, however, should be two-tailed. For ease of exposition, we highlight coefficients based on one-tailed tests only, and report the t-values for readers interested in converting to two-tailed tests.

TABLE 2

METRIC AND STANDARDIZED OLS REGRESSIONS PREDICTING INFLUENCE VOTES IN THE NATIONAL HEALTH POLICY DOMAIN WITH INFORMATION BROKERAGE TYPES AND ORGANIZATIONAL CONTROLS FOR GOVERNMENT ORGANIZATIONS

	Liaison (1)	Representative (2)	Gatekeeper (3)	Itinerant (4)	Coordinator (5)
Metric coefficients:					
Brokerage type	.055**	.687**	.660**	1.202**	3.511*
	(3.802)	(3.761)	(3.681)	(5.330)	(1.752)
Event participation	.304	1.244**	1.275**	.243	1.315**
	(.956)	(5.602)	(5.672)	(.947)	(4.741)
Organization's age	.026	−.028	−.028	.020	−.016
	(.380)	(−.394)	(−.395)	(.347)	(−.186)
ln(organization size)	−4.219**	−3.263**	−2.567*	−4.477**	−2.717
	(−3.802)	(−2.453)	(−1.956)	(−3.788)	(−1.708)
% effort devoted to health domain	.111	−.005	.004	.099	.010
	(1.276)	(−.061)	(.047)	(1.359)	(.091)
Constant	60.012**	52.683**	47.154**	59.363**	52.558**
	(5.480)	(5.223)	(4.604)	(6.856)	(4.337)
Standardized coefficients:					
Brokerage type	.677	.454	.436	.766	.262
Event participation	.176	.719	.737	.140	.760
Organization's age	.049	−.051	−.052	.038	−.029
ln(organization size)	−.386	−.299	−.235	−.410	−.249
% effort devoted to health domain	.152	−.007	.006	.137	.013
Adjusted R^2	.649	.646	.640	.746	.490

NOTE.—Three cases are lost because of missing data on the independent variables. The dependent variable is the number of influence votes. $N = 28$; t-values are in parentheses.

*$P < .05$, one-tailed test.

**$P < .01$, one-tailed test.

kerage roles and reputed influence is attenuated for government actors who frequently took stands on policy events. The model predicts that the effect of liaison brokerage (all three actors in different subgroups) on influence reputation (number of nominations as influential) is reduced by .002 ($P < .01$) for every policy event on which an actor takes a public stand. For itinerant brokerage (endpoints share membership in a subgroup while the broker belongs to a different group), the effect on reputed influence is reduced by .034 ($P < .01$) for each additional stand taken on policy events.[14]

In order to give the reader a better sense of the impact of these interactions, we present figures 2 and 3, which depict these effects graphically.

[14] The small magnitude of these interaction effects is due to the scaling of the brokerage and event participation variables. The standardized coefficients (table 4) show that the interactions are quite large relative to the main effects.

TABLE 3

METRIC AND STANDARDIZED OLS REGRESSIONS PREDICTING INFLUENCE VOTES IN THE NATIONAL HEALTH POLICY DOMAIN WITH INFORMATION BROKERAGE TYPES AND ORGANIZATIONAL CONTROLS FOR NONGOVERNMENT ORGANIZATIONS

	Liaison (1)	Representative (2)	Gatekeeper (3)	Itinerant (4)	Coordinator (5)
Metric coefficients:					
Brokerage type	.225**	1.212**	1.151**	2.649**	6.551**
	(5.181)	(4.408)	(3.905)	(4.395)	(2.752)
Event participation	.015	−.041	.004	.147	.133
	(.076)	(−.193)	(.019)	(.761)	(.595)
Organization's age	.045	.137**	.113*	.088	.147*
	(.738)	(2.245)	(1.821)	(1.428)	(2.273)
ln(organization size)	6.512**	5.913**	6.080**	6.725**	6.314**
	(6.230)	(5.377)	(5.440)	(6.236)	(5.447)
% effort devoted to health domain	−.007	.029	.032	.005	.035
	(−.127)	(.545)	(.580)	(.087)	(.616)
Profit-seeking organizations	−43.701**	−45.286**	−45.528**	−47.515**	−47.073**
	(−4.255)	(−4.274)	(−4.202)	(−4.517)	(−4.162)
Constant	−8.401	−11.151*	−11.190**	−11.331*	−12.635*
	(−1.431)	(−1.866)	(−5.440)	(−1.897)	(−1.994)
Standardized coefficients:					
Brokerage type	.448	.396	.364	.360	.258
Event participation	.006	−.017	.002	.063	.057
Organization's age	.059	.179	.149	.116	.192
ln(organization size)	.604	.548	.564	.623	.585
% effort devoted to health domain	−.009	.040	.043	.006	.048
Profit-seeking organizations	−.394	−.409	−.411	−.429	−.425
Adjusted R^2	.541	.511	.491	.510	.452

NOTE.—Six cases are lost because of missing data on the independent variables. The dependent variable is the number of influence votes. $N = 98$; t-values are in parentheses.

*$P < .05$, one-tailed test.

**$P < .01$, one-tailed test.

Using the unstandardized coefficient estimates from table 4 (cols. 1 and 4), the figures plot the predicted number of influence nominations for different combinations of values on brokerage position and event participation, with all other variables evaluated at their means. In the absence of interaction effects, the predicted surface would be a flat plane slicing through the three-dimensional space defined by influence, brokerage, and event participation. The interaction terms have the effect of introducing curvatures to these surfaces. In the region of the plotted surfaces that correspond to actors who rarely take stands on policy events, the slopes are quite steep, showing strong positive effects of both brokerage posi-

TABLE 4

METRIC AND STANDARDIZED OLS REGRESSIONS PREDICTING INFLUENCE VOTES IN THE NATIONAL HEALTH POLICY DOMAIN WITH INFORMATION BROKERAGE TYPES AND ORGANIZATIONAL CONTROLS FOR GOVERNMENT ORGANIZATIONS

	Liaison (1)	Representative (2)	Gatekeeper (3)	Itinerant (4)	Coordinator (5)
Metric coefficients:					
Brokerage type	.140**	−.303	.174	2.165**	−1.093
	(5.731)	(−.801)	(.418)	(6.659)	(−.342)
Event participation	1.077**	.410	.958**	.949**	1.166**
	(3.398)	(1.180)	(2.887)	(3.317)	(4.204)
Brokerage × event participation	−.002**	.097**	.043	−.034**	.576*
	(−3.909)	(2.881)	(1.286)	(−3.574)	(1.795)
Organization's age	.035	.028	−.004	.014	.018
	(.645)	(.434)	(−.055)	(.289)	(.217)
ln(organization size)	−2.849*	−3.781**	−2.349*	−3.251**	−2.448
	(−2.485)	(−3.240)	(−1.801)	(−3.206)	(−1.607)
% effort devoted to health domain	.010	.030	.021	.014	.012
	(.137)	(.398)	(.238)	(.227)	(.119)
Constant	45.353**	57.251**	46.815**	47.318**	50.362**
	(5.132)	(6.445)	(4.637)	(6.098)	(4.337)
Standardized coefficients:					
Brokerage type	1.708	− 200	.115	1.380	−.082
Event participation	.622	.237	.553	.548	.673
Brokerage × event participation	−1.455	.840	.377	−.995	.405
Organization's age	.064	.051	−.007	.025	.033
ln(organization size)	−.261	−.346	−.215	−.298	−.224
% effort devoted to health domain	.014	.042	.029	.020	.016
Adjusted R^2	787	.734	.651	.835	.537

NOTE.—Three cases are lost because of missing data on the independent variables. The dependent variable is the number of influence votes. $N = 28$; t-values are in parentheses.

*$P < .05$, one-tailed test.

**$P < .01$, one-tailed test.

tions on influence.[15] At the opposite end of the event participation scale, on the other hand, the surfaces are essentially flat (actually slightly negative in fig. 2), indicating that occupancy of these brokerage positions is unrelated to influence reputation for government actors who frequently take stands on specific policy events. These findings conform exactly to our prediction that government organizations cannot derive influence

[15] In fig. 1 above, a small region of the predicted surface extends beyond the range of the observed data: at the highest values of liaison brokerage, the predicted number of influence nominations exceeds the observed maximum. For the vast majority of possible combinations of values on the independent variables, however, the regression model yields realistic values for influence reputation.

TABLE 5

METRIC AND STANDARDIZED OLS REGRESSIONS PREDICTING INFLUENCE VOTES IN THE NATIONAL HEALTH POLICY DOMAIN WITH INFORMATION BROKERAGE TYPES AND ORGANIZATIONAL CONTROLS FOR NONGOVERNMENT ORGANIZATIONS

	Liaison (1)	Representative (2)	Gatekeeper (3)	Itinerant (4)	Coordinator (5)
Metric coefficients.					
Brokerage type	.210**	1.266**	1.235**	2.618**	6.207
	(3.425)	(2.893)	(2.517)	(2.896)	(1.532)
Event participation	−.031	−.018	.031	.141	.118
	(−.134)	(−.071)	(.124)	(.583)	(.448)
Brokerage × event participation	.0007	−.002	−.003	.002	.013
	(.364)	(−.160)	(−.216)	(.045)	(.105)
Organization's age	043	.139*	.116*	.088	.145*
	(.685)	(2.216)	(1.819)	(1.407)	(2.186)
ln(organization size)	6.538**	5.869**	6.021**	6.728**	6.347**
	(6.210)	(5.152)	(5.210)	(6.192)	(5.163)
% effort devoted to health domain	−.008	.030	.033	.005	.035
	(−.148)	(.553)	(.592)	(.083)	(.609)
Profit-seeking organizations	−43.798**	−45.100**	−45.236**	−47.523**	−47.268**
	(−4.242)	(−4.208)	(−4.121)	(−4.493)	(−4.102)
Constant	−7.715	−11.432*	−11.585*	−11.245*	−12.475*
	(−1.246)	(−1.826)	(−1.807)	(−1.787)	(−1.904)
Standardized coefficients:					
Brokerage type	.417	.413	.390	.356	.244
Event participation	−.013	−.008	.013	.060	.050
Brokerage × event participation	.052	−.027	−.038	.007	.019
Organization's age	.056	.182	.152	.115	.190
ln(organization size)	.606	.544	.558	.624	.588
% effort devoted to health domain	−.011	.041	.044	.006	.048
Profit-seeking organizations	−.395	−.407	−.408	−.429	−.427
Adjusted R^2	.537	.505	.486	.505	.446

NOTE.—Six cases are lost because of missing data on the independent variables. The dependent variable is the number of influence votes. $N = 98$; t-values are in parentheses.

*$P < .05$, one-tailed test.

**$P < .01$, one-tailed test.

from liaison and itinerant brokerage position unless they are perceived as impartial with respect to policy outcomes.

The results in table 4 are also consistent with our predictions in hypotheses 3–4. Among government actors, the effect of gatekeeper and representative brokerage on influence is not weakened by a record of taking stands on policy events. Indeed, column 2 in table 4 shows that representative brokerage and event participation interact *positively,* that is,

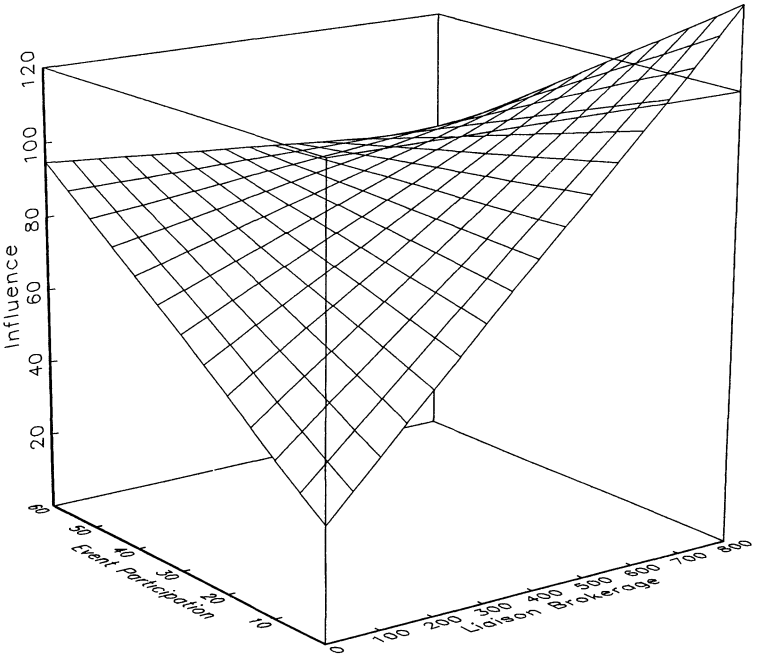

FIG. 2.—Influence, liaison brokerage, and event participation for government organizations ($N = 28$; $I = 30.077 + .140\,B + 1.077\,E - .002\,B \times E$).

brokerage position has a stronger association with influence reputation among actors who take frequent stands. Our theoretical discussion did not predict this finding; we will discuss possible interpretations of this result below.

Table 5 reports the regression models for nongovernment actors, including a dummy variable for profit-seeking versus nonprofit organizations. In hypothesis 4, we predicted that the relationship between the first four types of brokerage position and influence would be unaffected by policy event participation because private-sector actors would not be expected to remain disinterested in their interactions with other actors in the policy domain. Table 5 shows that the results are consistent with this prediction: none of the interaction terms between taking a stand and liaison, gatekeeper, representative, and itinerant brokerage is significantly different from zero at the .05 level.

With respect to our final hypothesis (5), tables 4 and 5 show mixed results. We predicted that, regardless of sector, the effect of coordination brokerage on influence reputation would be enhanced by event participation because an actor with a record of taking stands on policy events will

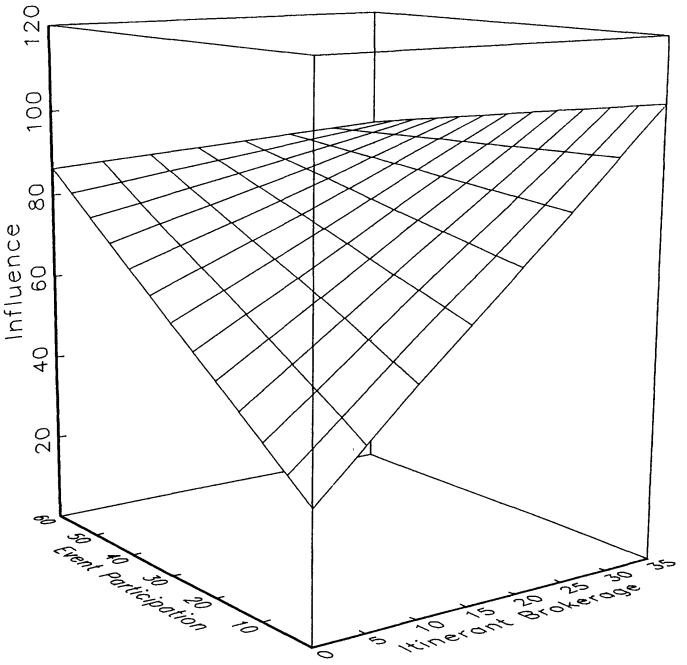

FIG. 3.—Influence, itinerant brokerage, and event participation for government organizations ($N = 28$; $I = 29.289 + 2.165\ B + .949\ E - .034\ B \times E$).

be construed as "locally" impartial by actors in the same subgroup, provided that the stands taken are congenial to the interests of the group. The regression model for government organizations confirms this prediction (table 4, col. 5), while the model for nongovernment actors does not (table 5, col. 5): the interaction term is positive and significantly different from zero ($P < .05$) only in the former model. In the case of nongovernment actors, the association between coordinator brokerage position and influence does not appear to depend on event participation.

To determine whether our measures are better at identifying brokerage positions than measures of general network centrality or "connectedness," we estimated the same regression models using a variety of centrality measures in place of the measures of brokerage position. One way to test for this possibility would be to include our measures along with centrality scores in a regression model of influence reputation. However, brokerage scores are highly correlated with other measures of network centrality (see table 1 above). This is in no way accidental; indeed, in our conception of brokerage, it is necessarily the case. That is, it would be impossible to play the role of intermediary between many pairs of

disconnected others without having large numbers of incoming and outgoing sociometric contacts. We are not, in short, claiming that centrality has nothing to do with the phenomenon we are investigating, only that the particular kind of centrality we refer to as brokerage position interacts in a distinctive way with impartiality. Our test for the uniqueness of the brokerage measures is thus more indirect: we demonstrate that liaison and itinerant brokerage scores interact with event participation in ways that are systematically different from network centrality.[16]

Tables 6 and 7 report estimates for separate regressions of reputed influence on prominence, in-degree, and out-degree, controlling for the same factors as before; tables 8 and 9 report the results with interactions between each of the three centrality measures and event participation. Prominence is equal to the first eigenvector of the communication matrix, normalized by its maximum value (Knoke and Burt 1983); this measure weights each actor's centrality by the centrality of the actors to whom he or she is linked. In-degree is the total number of communication ties received; out-degree is the total number of ties sent (Freeman 1979).

As in tables 2 and 3, all three centrality measures are positively related to influence reputation for both government (table 6) and nongovernment organizations (table 7); in fact, the proportion of variance explained is consistently higher in these regression models than in those using the

[16] We cannot think of a theoretical argument that would predict an interaction between network position and impartiality without invoking the concept of brokerage. Consequently, even if we were to observe an interaction of impartiality with other centrality measures in their effects on influence, we would still conclude that our hypotheses about brokerage were confirmed. Such a finding would merely convince us that our measure was no better than other centrality measures at identifying the structural potential for brokerage. Several reviewers have nonetheless requested that we conduct analyses of the effects of brokerage position net of alternative measures of centrality. This would address the question of whether our particular measures are best suited to testing our theoretical predictions. Because of the high correlations between the brokerage and network centrality measures, however, attempts to separate their effects in the same equation are plagued by multicollinearity. Our strategy for addressing the measurement issue is as follows. Conceptually, the high correlations mean that a large portion of each variable's main effect on influence is common to *both* brokerage and centrality. We therefore allow all of this common part to be allocated to each of the alternative measures in turn and then assess whether the results are consistent with our theoretical predictions regarding their interactions with event participation. While the concept of brokerage implies connections to other actors, connections do not logically imply brokerage relations. Therefore, we argue on logical grounds that the common part of the centrality-brokerage effect should be allocated to brokerage. In tables 2–5, we assign the common variance to brokerage; in tables 6–9 we allocate the common variance to centrality. The fact that the interaction effects do not surface for the centrality measures increases our confidence that the conceptual difference between brokerage and centrality is reflected empirically in our measures.

TABLE 6

METRIC AND STANDARDIZED OLS REGRESSIONS PREDICTING INFLUENCE VOTES IN THE NATIONAL HEALTH POLICY DOMAIN WITH NETWORK CENTRALITY AND ORGANIZATIONAL CONTROLS FOR GOVERNMENT ORGANIZATIONS

	METRIC COEFFICIENTS		
	Prominence (1)	In-degree (2)	Out-degree (3)
Metric coefficients:			
Network position	1.000**	.730**	.851**
	(6.618)	(7.500)	(7.403)
Event participation	.200	.068	.087
	(.908)	(.324)	(.411)
Organization's age	.011	.039	−.003
	(.213)	(.835)	(−.072)
ln(organization size)	−2.169**	−.618	−2.828**
	(−2.256)	(−.684)	(−3.162)
% effort devoted to health domain	.025	.009	.027
	(.399)	(.162)	(.467)
Constant	15.644	7.430	22.606**
	(−1.692)	(.822)	(2.842)
Standardized coefficients:			
Network position	.801	.868	.872
Event participation	.116	.039	.050
Organization's age	.020	.073	−.006
ln(organization size)	−.199	−.057	−.259
% effort devoted to health domain	.035	.013	.038
Adjusted R^2	.806	.836	.833

NOTE.—Three cases are lost because of missing data on the independent variables. The dependent variable is the number of influence votes. $N = 28$; t-values are in parentheses.

*$P < .05$, one-tailed test.

**$P < .01$, one-tailed test.

brokerage measures.[17] But table 8 shows that the interaction between standard centrality measures and taking a stand does not exhibit the pattern we observed for brokerage position. Specifically, none of the interaction terms for government organizations is significant at the .05 level; in other words, there is no reliable evidence that the relationship between influence reputation and centrality for these actors is affected by their tendency to take stands on policy events.

Because we wish to compare these results with respect to the size of effect rather than in terms of statistical significance, tables 2–9 report the effects of brokerage position, network centrality, event participation, the interaction terms, and the controls in standard deviation units. Notice

[17] Part of the difference in variance explained results from the fact that the estimates in tables 2, 3, 4, and 5 are disaggregated by brokerage type, leading to lower variances for the brokerage measures than for the centrality measures in tables 6 and 7. Re-

TABLE 7

METRIC AND STANDARDIZED OLS REGRESSIONS PREDICTING INFLUENCE VOTES IN THE NATIONAL HEALTH POLICY DOMAIN WITH NETWORK CENTRALITY AND ORGANIZATIONAL CONTROLS FOR NONGOVERNMENT ORGANIZATIONS

	Prominence (1)	In-degree (2)	Out-degree (3)
Metric coefficients:			
Network position	.823**	.829**	.735**
	(5.463)	(7.387)	(5.587)
Event participation	−.100	−.259	−.121
	(−.501)	(−1.405)	(−.605)
Organization's age	.133*	.098*	.117*
	(2.283)	(1.834)	(2.015)
ln(organization size)	5.317**	4.741**	5.399**
	(4.972)	(4.826)	(5.102)
% effort devoted to health domain	.053	.026	.044
	(1.035)	(.559)	(.871)
Profit-seeking organizations	−39.882**	−34.376**	−39.604**
	(−3.878)	(−3.638)	(−3.872)
Constant	−32.677**	−22.827**	−28.497**
	(−5.119)	(−4.394)	(−4.743)
Standardized coefficients:			
Network position	.473	.609	.486
Event participation	−.043	−.110	−.051
Organization's age	.174	.128	.153
ln(organization size)	.493	.439	.500
% effort devoted to health domain	.071	.035	.060
Profit-seeking organizations	−.360	−.310	−.357
Adjusted R^2	.553	.629	.558

NOTE.—Six cases are lost because of missing data on the independent variables. The dependent variable is the number of influence votes. $N = 98$; t-values are in parentheses.

*$P < .05$, one-tailed test.

**$P < .01$, one-tailed test.

that, in each of the regression models using brokerage position among government actors, the beta weight for the interaction term ranks either first or a close second in magnitude. In the liaison and itinerant brokerage regressions for government organizations (table 4), the interaction terms ($\beta = -1.45$; $\beta = -.995$) are 85% and 72% as large, respectively, as the largest effects, that is, those of brokerage position ($\beta = 1.708$; $\beta = 1.380$). The corresponding figures for the interactions in the models using

gressing influence on total brokerage, i.e., the sum of the scores for all five types (see n. 9 above), yields an R^2 of .71 for government organizations and .55 for nongovernment. Our goal, in any case, is to test a set of theoretical predictions about the relationship between brokerage position and influence, not to provide a predictive model of influence.

TABLE 8

METRIC AND STANDARDIZED OLS REGRESSIONS PREDICTING INFLUENCE VOTES IN THE NATIONAL HEALTH POLICY DOMAIN WITH NETWORK CENTRALITY AND ORGANIZATIONAL CONTROLS FOR GOVERNMENT ORGANIZATIONS

	Prominence (1)	In-degree (2)	Out-degree (3)
Metric coefficients:			
Network position	1.015**	.743**	.915**
	(5.991)	(6.902)	(6.951)
Event participation	.337	.329	.581
	(.482)	(.381)	(1.083)
Network × event participation	−.181	−.002	−.005
	(−.207)	(−.312)	(−1.002)
Organization's age	.012	.040	.001
	(.229)	(.825)	(.026)
ln(organization size)	−2.114*	−.568	−2.545**
	(−2.079)	(−.606)	(−2.713)
% effort devoted to health domain	.021	.003	.007
	(.313)	(.041)	(.114)
Constant	14.615	6.122	17.644*
	(1.368)	(.604)	(1.883)
Standardized coefficients:			
Network position	.812	.883	.938
Event participation	.195	.190	.336
Network × event participation	−.090	−.163	−.348
Organization's age	.022	.074	.002
ln(organization size)	−.194	−.052	−.233
% effort devoted to health domain	.029	.004	.010
Adjusted R^2	.797	.830	.833

NOTE.—Three cases are lost because of missing data on the independent variables. The dependent variable is the number of influence votes. $N = 28$; t-values are in parentheses.

*$P < .05$, one-tailed test.

**$P < .01$, one-tailed test.

prominence, in-degree, and out-degree are 11%, 18%, and 37%, respectively (see table 8).

Although we made no predictions in our theoretical section concerning interactions between network centrality and event participation among nongovernment organizations, we note that the results for these actors are the converse of the pattern we observed for government actors: while there are no apparent interactions between brokerage and taking a stand in the private sector, table 9 reveals that all three centrality measures interact positively with event participation in their effects on influence reputation. Given our argument that private-sector actors are expected to pursue particularistic goals in the policy domain, this result is not surprising: it suggests that nongovernment organizations are better able

TABLE 9

METRIC AND STANDARDIZED OLS REGRESSIONS PREDICTING INFLUENCE VOTES IN THE NATIONAL HEALTH POLICY DOMAIN WITH NETWORK CENTRALITY AND ORGANIZATIONAL CONTROLS FOR NONGOVERNMENT ORGANIZATIONS

	Prominence (1)	In-degree (2)	Out-degree (3)
Metric coefficients:			
Network position	.619**	.682**	.571**
	(3.420)	(5.092)	(3.570)
Event participation	−.896*	−.782**	−.744*
	(−1.989)	(−2.423)	(−1.841)
Network × event participation	.017*	.011*	.012*
	(1.964)	(1.960)	(1.767)
Organization's age	.110*	.076	.097*
	(1.888)	(1.426)	(1.666)
ln(organization size)	5.564**	4.970**	5.649**
	(5.247)	(5.101)	(5.351)
% effort devoted to health domain	.039	.014	.032
	(.766)	(.308)	(.630)
Profit-seeking organizations	−39.536**	−34.428**	−39.698**
	(−3.904)	(−3.700)	(−3.927)
Constant	−23.664	−16.418**	−21.124**
	(−3.041)	(−2.704)	(−2.911)
Standardized coefficients:			
Network position	.356	.500	.377
Event participation	−.383	−.334	−.318
Network × event participation	.442	.328	.364
Organization's age	.144	.100	.127
ln(organization size)	.516	.461	.524
% effort devoted to health domain	.053	.019	.043
Profit-seeking organizations	−.357	−.311	−.358**
Adjusted R^2	.566	.640	.486

NOTE.—Six cases are lost because of missing data on the independent variables. The dependent variable is the number of influence votes. $N = 98$, t-values are in parentheses.

*$P < .05$, one-tailed test.

**$P < .01$, one-tailed test.

to promote their private agendas to the extent that they have extensive connections both to government actors and to other private-sector actors. The fact that this interaction does not appear in analyses using brokerage scores provides indirect evidence that brokerage position is empirically as well as conceptually distinct from network centrality.

DISCUSSION

The analyses presented here largely support our hypotheses concerning the role of brokerage position in the U.S. health policy domain. To begin with, regression analyses without interaction terms consistently revealed

a positive association between occupancy of various types of brokerage and influence reputation among both government and private-sector actors (hypothesis 1; see tables 2 and 3). However, this finding in itself does not distinguish between brokerage position and more conventional measures of network centrality, all of which appear to enhance an actor's perceived influence (see tables 6 and 7).

The interaction between our brokerage measures and actors' patterns of event participation tells a different story. At high values of event participation, the effects of brokerage position on influence became zero, or trivially small, for government organizations. In other words, government actors with a record of taking stands on many policy events derive less influence, and in the extreme, zero influence, from liaison and itinerant brokerage positions than government actors with a record of impartiality (hypothesis 3; see table 4). This finding supports our argument that the power of the state derives in part from a structural position that mediates the flow of information in the policy-making process, but that this form of power vanishes if government actors publicly endorse specific policy initiatives. Note however that organizations *without* brokerage positions that stretch over various interest clusters apparently get influence *only* by taking stands on policy events. Therefore, as bases of influence, activism and "outside" brokerage appear to interfere with one another. Although a related argument was formulated by Gould (1989) and Padgett and Ansell (1993) for other social settings, our findings provide more direct evidence that power based on brokerage is incompatible with the overt pursuit of an agenda.[18]

We also predicted that the converse would hold for representative and gatekeeper brokerage, that is, government influence derived from these positions would not be attenuated by event participation (hypothesis 3). Our analyses confirmed this prediction, and in fact showed that taking stands on policy events actually augments the effect of representative brokerage for government organizations (table 2). We argued earlier that government actors should be expected to take stands on some policy events, namely, those that pertain directly to their role as public servants. It is possible that the positive interaction for representative brokerage—which, in this case, corresponds to a government actor mediating commu-

[18] Because our data are cross-sectional, we cannot rule out the possibility that influence reputation causes actors to occupy brokerage positions rather than the converse. Clearly, since organizations will find it in their interest to communicate with influential actors, some types of network position—e.g., degree centrality—are likely to increase as a result of perceived influence. But given the results we observed for the liaison and itinerant brokerage types, we find it implausible that the causal arrow runs only from influence to network position. It is difficult to see why influential actors would be more likely than other actors to lie on two-step paths between members of other clusters when they rarely take stands on events, but no more likely to lie on such paths

nication from a government organization to a nongovernment organization—reflects the influence accruing to government actors who defend the role of other state actors in the policy process.[19] However, our data on policy-event participation are not sufficiently fine grained to corroborate this interpretation; we would need to know whether the particular events on which these actors took a stand were consequential for the government's role as a servant of the public interest.

Finally, our prediction that coordinator brokerage would interact positively with event participation (hypothesis 5) met with only partial support from the data: in the government sector, occupancy of coordinator positions is associated with greater influence when actors take stands on numerous policy events, whereas nongovernment actors who take stands on policies derive neither more nor less influence from coordinator brokerage than those who do not.

This prediction was motivated by the argument that event participation signals impartiality with respect to an actor's own interest group, even as it is perceived as partisan behavior by actors outside the group. One reason we did not observe a statistically reliable estimate of an interaction between event participation and coordinator brokerage in the private sector may be that our partitioning of actors into subgroups does not guarantee complete consensus (i.e., agreement on policy events) within interest clusters. In analyses not reported here, we found that the level of consensus is higher within the two government clusters than within the private-sector clusters; this suggests that event participation is more likely to lead to a perception of "local impartiality" for government actors than for nongovernment actors.

CONCLUSION

Central to the concept of a policy domain is the idea that the network of communication among consequential actors is critical for the representation of interests and the formulation of effective policies. We have built on this idea by proposing that occupants of what we call "brokerage positions" will be influential in policy-making to the degree that they facilitate communication among actors who would not otherwise interact.

when they take frequent stands. Indeed, if influence reputation and event participation jointly affected occupancy of liaison and itinerant brokerage position, we would expect the interaction to be positive. The absence of a reasonable theoretical alternative to our argument reinforces our confidence in the causal relationships we have posited.

[19] The logic of this interpretation implies that the interaction should be more positive for representative brokerage than for gatekeeping, because in the latter case communication is initiated by an actor in the private sector. The fact that we did not observe a statistically significant coefficient for the interaction of gatekeeping brokerage and event participation is consistent with this argument.

But to fulfill this role, actors must be perceived as relatively impartial with respect to policy initiatives; consequently, the role of broker devolves on government organizations that refrain—publicly, at least—from taking sides on policy events. Insofar as brokerage position is associated with perceived influence for such actors, we infer that they actually do perform this function; we also conclude, however, that this form of influence is contingent on the degree to which government actors remain uncommitted to policy agendas. The result is a paradox of state power: an influential position in the policy domain surrenders its influence when its occupants pursue specific goals. Moreover, this paradox represents an instance of what appears to be a fairly general phenomenon: actors whose structural position bridges "synapses" in a social network derive an advantage from this position only as long as they do not openly try to use this advantage.

Although our data were collected under the Carter administration, we think that our theory provides insights into the process of national policy-making in general, and into the possibilities for health policy in the 1990s in particular. Our findings suggest a sobering consideration regarding the implications of government-led health care reform. Although the federal government may succeed in overhauling the national health care system, it may only be able to do so by sacrificing its privileged position as a broker of disparate interests in the health policy arena. If the already tarnished image of government organizations as servants of the public interest is further eroded in the eyes of powerful health care actors, the domain may fragment and the possibility of coordination and negotiation concerning future policy issues will deteriorate. Events surrounding the initial efforts of the Clinton administration to push for a managed competition health care system provide a glimpse of this difficulty: complaining that the administration has excluded physicians from policy discussions, the traditionally staid AMA abandoned its usually discreet lobbying approach and organized the equivalent of a mass protest in Washington in March 1993 in an effort to reenter the policy arena.[20] Formal announcement of the White House health reform plan in September 1993 immediately provoked massive mobilizations of interest groups across the health care landscape.[21] Reform-minded government leaders, it appears, face a real dilemma: much as they might like to promote significant policy changes, doing so might undermine the very process by which consensus on such changes is built.

[20] "Doctors Plan Protest in Capital over Health Care," *New York Times* (March 22, 1993).

[21] See, e.g., "The Lobbyists Converge: The Pressure Is on from Amateurs and Pros," *New York Times* (September 24, 1993); "Doctors Rebel over Health Plan in Major Challenge to President," *New York Times* (September 30, 1993).

APPENDIX

TABLE A1

PARTIAL BROKERAGE SCORES BY ORGANIZATION CLUSTER FOR ORGANIZATIONS IN THE NATIONAL HEALTH POLICY DOMAIN

	b_O	b_{IO}	b_{OI}	w_O	w_I	t
Mental health (N = 12):						
American Academy of Child Psychiatry	1.386	2.185	2.505	.188	.328	6.592
American Psychiatric Association	17.932	10.659	13.139	.404	2.063	44.198
American Psychological Association	62.718	22.545	20.709	2.406	2.140	110.518
Association for the Advancement of Psychology	24.706	14.723	14.436	1.896	1.586	57.347
Children's Defense Fund	31.942	9.105	9.377	1.818	.331	52.574
Mental Health Association	12.630	5.071	7.437	.539	.923	26.601
National Women's Health Network	21.843	3.961	3.769	.864	.214	30.652
National Coalition of Hispanic Mental Health and Human Service Organizations	4.525	6.040	3.129	.183	.482	14.360
National Council of Community Mental Health Centers	7.990	9.062	8.127	1.125	1.433	27.737
National Association of Community Health Centers	63.182	9.807	11.376	3.208	.714	88.287
National Association of State Alcohol and Drug Abuse Directors	.062	.592	1.538	.000	.405	2.597
Alcohol, Drug Abuse, and Mental Health Administration	16.941	11.624	13.422	.680	1.568	44.234
Consumers (N = 16):						
American Dietetic Association	46.668	2.280	4.088	2.418	.019	55.473
American Nurses' Association	233.802	40.995	47.529	17.193	5.479	345.000
National League for Nursing	26.113	6.074	8.147	2.110	1.780	44.224
NAACP	33.383	7.525	10.600	1.414	.901	53.823
National Farmers' Union	8.520	2.609	2.511	.816	.368	14.823
National Health Law Program	19.034	4.485	7.041	.992	.899	32.451
Robert Wood Johnson Foundation	124.838	21.290	15.251	5.941	1.732	169.053
AFL-CIO	37.364	7.985	10.547	.805	1.321	58.021
AFSCME	22.723	5.255	5.248	1.126	.412	34.765
Service Employees International Union, AFL-CIO	2.050	1.315	1.127	.247	.640	5.379
American Association of Colleges of Nursing	3.706	.545	.256	.254	.000	4.762

American Health Planning Association	32.139	6.390	4.919	3.616	.585	47.649
National Association of Counties	33.659	8.023	12.913	1.620	1.672	57.887
United States Conference of Mayors	23.689	6.745	8.206	1.088	1.640	41.369
Office of the Assistant Secretary for Health	248.676	26.133	37.422	14.343	1.843	328.419
Health Resources Administration	130.247	20.564	20.909	8.312	2.275	182.307
Finance (N = 19):						
AARP/National Retired Teachers' Association	39.095	10.940	7.112	2.272	.772	60.191
National Council of Senior Citizens	19.642	4.655	4.533	.248	.380	29.458
Washington Business Group on Health	15.640	5.934	5.931	.464	1.213	29.183
Blue Cross and Blue Shield Associations	162.597	40.805	30.724	16.694	3.671	254.491
Hospital Corporation of America	1.676	.689	.773	.137	.000	3.275
UAW	32.889	7.598	6.045	2.557	.360	49.449
American Health Care Association	16.905	6.084	2.952	1.215	.552	27.708
American Hospital Association	33.055	14.166	11.037	2.225	2.612	63.094
Federation of American Hospitals	30.580	11.126	7.758	2.642	1.344	53.449
Group Health Association of America	18.562	6.850	6.113	1.479	1.109	34.114
Health Insurance Association of America	15.274	7.740	5.739	1.043	.892	30.689
National Council of Health Care Services	99.948	31.476	21.802	8.461	3.671	165.358
National Conference of State Legislatures	23.499	6.187	6.141	1.900	.259	37.986
National Governor's Association	37.058	11.278	10.872	1.930	.498	61.635
Health Care Financing Administration	257.782	53.791	42.169	24.470	3.671	381.885
House Subcommittee on Health—Democratic party and staff	165.547	24.037	38.091	14.158	2.066	243.900
House Subcommittee on Health—Republican party and staff	144.418	25.513	27.564	12.664	1.567	211.727
Senate Subcommittee on Health—Democratic party and staff	282.732	36.763	43.294	22.953	1.621	387.366
Senate Subcommittee on Health—Republican party and staff	181.310	25.119	35.985	16.120	1.176	259.710
Health professionals (N = 15):						
American Academy of Pediatrics	75.449	8.612	9.972	4.220	.626	98.880
American Academy of Physician Assistants	2.203	.181	.169	.156	.000	2.709
American Association of Nurse Anesthetists	.000	.020	.000	.000	.000	.020
American Chiropractic Association	2.616	.000	.059	.114	.000	2.789
American College of Obstetricians and Gynecologists	8.749	1.299	1.519	.180	.251	11.998
American Dental Association	52.506	5.037	4.151	2.647	.150	64.491
American Medical Association	252.573	34.604	37.831	8.686	3.921	337.616
American Osteopathic Association	4.191	.059	.038	.284	.000	4.572
College of American Pathologists	1.989	.314	.876	.016	.168	3.363

TABLE A1 (*Continued*)

	b_O	b_{IO}	b_{OI}	w_O	w_I	t
Renal Physicians' Association	.760	.000	.000	.018	.000	.778
Chamber of Commerce of the United States	20.341	3.572	1.287	1.282	.115	26.597
Planned Parenthood Federation of America	23.193	1.633	2.000	1.152	.000	27.978
Association of American Medical Colleges	167.311	15.434	15.944	11.008	.740	210.437
Council of Teaching Hospitals	9.193	1.253	1.823	.909	.000	13.178
Federal Trade Commission	67.423	21.499	22.206	4.706	4.186	120.020
Abortion (N = 2):						
National Abortion Rights Action League	7.664	.718	.175	.223	.000	8.780
National Urban League	25.704	1.173	3.522	1.940	.000	32.339
Public health (N = 4):						
American College of Preventive Medicine	39.857	3.067	11.736	1.669	.267	56.596
American Public Health Association	125.258	12.375	17.191	6.814	.267	161.904
Association of Teachers of Preventive Medicine	.277	.104	.032	.000	.000	.414
Association of State and Territorial Health Officials	4.037	.497	.465	.217	.000	5.216
Government 1 (N = 6):						
Coalition for Health Funding	222.888	.000	.318	17.457	.000	240.662
National Academy of Sciences Institute of Medicine	147.879	4.024	2.218	8.788	.048	162.957
Health Services Administration	85.917	2.572	.968	4.923	.028	94.407
House Subcommittee on Labor and HEW Appropriations—Republicans	395.383	4.486	6.391	20.963	.107	427.330
Senate Subcommittee on Labor and HEW Appropriations—Democrats	466.617	5.212	6.140	24.128	.020	502.118
Senate Subcommittee on Health and Scientific Research—Republicans	423.235	7.046	6.295	24.423	.082	461.083
Targeted disease 1 (N = 11):						
American Association for Dental Research	.494	.236	.261	.048	.000	1.039
American College of Cardiology	5.291	.228	.347	.124	.000	5.989
American Society of Hematology	1.390	.318	.468	.126	.000	2.302
Endocrine Society	2.861	.762	1.213	.193	.234	5.263
American Cancer Society	26.835	2.548	3.493	.845	.183	33.904
American Diabetes Association	21.977	4.452	5.378	.602	.817	33.225
American Heart Association	21.142	2.779	2.824	.948	.393	28.086
American Social Health Association	1.295	.000	.000	.153	.000	1.448

Candlelighters Foundation	3.744	.587	.198	.066	.000	4.595
Friends of Eye Research, Rehabilitation, and Treatment	1.312	.556	.497	.296	.000	2.661
National Institute of Dental Research	5.277	2.238	4.348	2.566	.000	14.429
Health research (N = 13):						
American Federation for Clinical Research	.494	.291	.213	.000	.000	.998
American Society for Microbiology	8.639	2.229	1.191	.350	.000	12.408
Society for Investigative Dermatology	.000	.350	.470	.018	.106	.944
Environmental Defense Fund	3.141	1.929	1.554	.166	.000	6.791
American Association of Dental Schools	14.543	.072	.050	.692	.000	15.357
Director of National Institutes of Health	429.257	86.479	82.310	32.773	9.001	639.815
National Cancer Institute	18.624	7.873	5.377	1.803	1.943	35.619
National Institute on Aging	22.370	7.314	2.687	1.066	.083	33.520
National Institute of Allergy and Infectious Diseases	19.409	9.590	17.039	3.569	5.000	54.607
National Institute of Arthritis, Metabolism, and Digestive Diseases	35.869	8.719	10.955	2.914	.926	59.383
National Institute of Environmental Health Sciences	5.031	2.175	2.605	.399	.696	10.905
National Institute of General Medical Sciences	4.530	2.924	2.486	.329	1.902	12.172
National Institute of Neurological Communicative Disorders and Stroke	18.949	2.655	1.810	.819	.000	24.233
Targeted disease 2 (N = 3):						
American Gastroenterological Association	.083	.000	.000	.000	.000	.083
Citizens for the Treatment of High Blood Pressure	20.753	.743	.378	.404	.000	22.279
National Kidney Foundation	64.661	1.893	2.610	4.063	.000	73.226
Targeted disease 3 (N = 11):						
American Speech-Language-Hearing Association	5.008	2.939	1.771	.213	.091	10.021
Arthritis Foundation	5.313	1.415	1.325	.184	.115	8.352
Cystic Fibrosis Foundation	14.493	7.433	9.719	1.457	2.455	35.558
Epilepsy Foundation of America	25.740	10.085	9.248	.970	.856	46.899
Joint Council of Allergy and Immunology	.752	.000	.000	.000	.000	.752
National Association for Retarded Citizens	13.679	6.836	11.183	.409	.944	33.051
National Foundation for Ileitis and Colitis	11.033	1.966	3.967	.161	.155	17.282
National Hemophilia Foundation	4.770	.471	.866	.252	.000	6.359
National Society for Autistic Children	6.515	2.999	3.648	.240	.717	14.120
United Cerebral Palsy Associations	7.410	3.480	3.915	.173	.575	15.553
National Institute of Child Health and Human Development	55.335	11.814	10.448	2.923	.282	80.801

TABLE A1 (*Continued*)

	b_O	b_{IO}	b_{OI}	w_O	w_I	t
Drug industry (N = 7):						
Hoffman-La Roche, Inc.	7.575	4.321	3.233	.097	.000	15.226
Merck and Company	2.689	2.162	1.632	.159	.000	6.642
Pfizer Pharmaceuticals	3.428	1.779	2.109	.062	.000	7.378
Upjohn Company	33.190	7.561	8.035	1.814	.000	50.601
Pharmaceutical Manufacturers Association	25.209	6.188	6.458	.901	.000	38.755
FDA Commissioner and staff	179.945	21.051	21.674	11.558	.000	234.228
FDA Bureau of Drugs	111.053	13.609	18.668	10.003	.000	153.333
Food (N = 3):						
Consumer Federation of America	43.627	3.904	3.246	2.410	.000	53.187
Community Nutrition Institute	16.126	2.959	.657	1.546	.000	21.289
FDA Bureau of Food	24.202	1.235	4.717	1.808	.000	31.962
Government 2 (N = 4):						
Office of the Secretary of Health and Human Services	646.300	13.559	7.032	84.624	.000	1751.510
Office of Management and the Budget	180.016	.786	.797	8.721	.000	190.320
White House Office	144.434	.582	.578	7.633	.000	153.226
House Subcommittee on Health and the Environment—Democrats	738.372	6.123	3.655	37.053	.000	785.199
Isolates (N = 9):						
Medical Library Association	5.328	.494	.590	.378	.000	6.789
National Rehabilitation Association	10.075	2.000	.000	1.420	.000	13.495
National Union of Hospital and Health Care Employees, RWDSU, AFL-CIO	3.467	.937	.948	.173	.103	5.629
United Mine Workers	64.265	3.169	4.400	2.450	.000	74.285
American Association of Colleges of Pharmacy	4.135	.628	.765	.301	.000	5.828
American Association of Professional Standards Review Organizations	1.709	.177	1.429	.232	.111	3.658
American Insurance Association	.669	.000	.000	.000	.000	.669
Health Industry Manufacturers Association	5.961	.000	.000	.394	.000	6.354
National Association of Home Health Agencies	9.681	1.936	2.811	1.824	.111	16.363

REFERENCES

Adams, J. Stacy. 1976. "The Structure and Dynamics of Behavior in Organizational Boundary Roles." Pp. 1175–99 in *Handbook of Industrial and Organizational Psychology,* edited by Marvin D. Dunnette. Chicago: Rand McNally.

———. 1980. "Interorganizational Processes and Organizational Boundary Activities." *Research in Organizational Behavior* 2:321–55.

Aldrich, Howard. 1982. "The Origins and Persistence of Social Networks: A Comment." Pp. 281–93 in *Social Structure and Network Analysis,* edited by Peter V. Marsden and Nan Lin. Beverly Hills, Calif.: Sage.

Aldrich, Howard, and Diane Herker. 1977. "Boundary Spanning Roles and Organization Structure." *Academy of Management Review* 2:217–30.

Anderson, Charles W. 1979. "Political Design and Representation of Interests." Pp. 271–97 in *Trends toward Corporatist Intervention,* edited by Philippe C. Schmitter and Gerhard Lehmbruch. Beverly Hills, Calif.: Sage.

Baker, Wayne E. 1984. "The Social Structure of a National Securities Market." *American Journal of Sociology* 89:775–811.

Blalock, Hubert M. 1967. *Toward a Theory of Minority Group Relations.* New York: Wiley.

Blok, Anton. 1974. *The Mafia of a Sicilian Village.* New York: Harper & Row.

Bonacich, Edna. 1973. "A Theory of Middleman Minorities." *American Sociological Review* 38:583–94.

Burt, Ronald S. 1976. "Positions in Networks." *Social Forces* 55:93–122.

———. 1977. "Power in a Social Topology." *Social Science Research* 6:1–83.

Carlos, Manuel L., and Bo Anderson. 1981. "Political Brokerage and Network Politics in Mexico: The Case of the Dominance System." Pp. 169–87 in *Networks, Exchange and Coercion,* edited by David Willer and Bo Anderson. New York: Elsevier.

Carruthers, Bruce G. 1991. "State-building and Market-making: The Politics of Public Debt in the English Financial Revolution, 1672–1712." Ph.D. dissertation. University of Chicago, Department of Sociology.

Eisenstadt, S. N., and L. Roniger. 1984. *Patrons, Clients and Friends: Interpersonal Relations and the Structure of Trust in Society.* Cambridge: Cambridge University Press.

Freeman, Linton C. 1977. "A Set of Measures of Centrality Based on Betweenness." *Sociometry* 40:35–41.

———. 1979. "Centrality in Social Networks: Conceptual Clarification." *Social Networks* 1:215–39.

Friedman, Raymond A., and Joel Podolny. 1992. "Differentiation of Boundary Spanning Roles: Labor Negotiations and Implications and Role Conflict." *Administrative Science Quarterly* 37:28–47.

Galaskiewicz, Joseph. 1979. *Exchange Networks and Community Politics.* Beverly Hills, Calif.: Sage.

———. 1982. "Modes of Resource Allocation: Corporate Contributions to Nonprofit Organizations." Pp. 235–54 in *Social Structure and Network Analysis,* edited by Peter V. Marsden and Nan Lin. Beverly Hills, Calif.: Sage.

———. 1985. *Social Organization of an Urban Grants Economy.* New York: Academic Press.

Galaskiewicz, Joseph, and Karl R. Krohn. 1984. "Positions, Roles, and Dependencies in a Community Interorganizational System." *Sociological Quarterly* 25:527–50.

Gamson, William A. 1966. "Reputation and Resources in Community Politics." *American Journal of Sociology* 72:121–31.

Gould, Roger V. 1989. "Power and Social Structure in Community Elites." *Social Forces* 68:531–52.

Gould, Roger V., and Roberto M. Fernandez. 1989. "Structures of Mediation: A Formal Approach to Brokerage in Transaction Networks." *Sociological Methodology* 19:89–126.

Heclo, Hugh. 1978. "Issue Networks and the Executive Establishment." Pp. 87–124 in *The New American Political System,* edited by Anthony King. Washington, D.C.: American Enterprise Institute.

Heinz, John P., Edward O. Laumann, Robert H. Salisbury, and Robert L. Nelson. 1990. "Inner Circles or Hollow Cores? Elite Networks in National Policy Systems." *Journal of Politics* 52:356–90.

Hunter, Floyd. 1953. *Community Power Structure.* Chapel Hill: University of North Carolina Press.

Jordan, A. Grant. 1981. "Iron Triangles, Wooly Corporatism and Elastic Nets: Images of the Policy Process." *Journal of Public Policy* 1:95–123.

Knoke, David, and Frank Burleigh. 1989. "Collective Action in National Policy Domains: Constraints, Cleavages, and Policy Outcomes." *Research in Political Sociology* 4:187–208.

Knoke, David, and Ronald S. Burt. 1983. "Prominence." Pp. 195–222 in *Applied Network Analysis,* edited by Ronald S. Burt and Michael J. Minor. Beverly Hills, Calif.: Sage.

Knoke, David, and Edward O. Laumann. 1982. "The Social Organization of the National Health Policy Domain." Pp. 255–270 in *Social Structure and Network Analysis,* edited by Peter V. Marsden and Nan Lin. Beverly Hills, Calif.: Sage.

Knoke, David, and Franz Urban Pappi. 1991. "Organizational Action Sets in the U.S. and German Labor Policy Domains." *American Sociological Review* 56: 509–23.

Kochan, Thomas A. 1975. "Determinants of the Power of Boundary Units in an Interorganizational Bargaining Relation." *Administrative Science Quarterly* 20: 434–52.

———. 1980. "Collective Bargaining and Organizational Behavior Research." *Research in Organizational Behavior* 2:129–76.

Laumann, Edward O., and David Knoke. 1987. *The Organizational State: Social Choice in National Policy Domains.* Madison: University of Wisconsin Press.

Laumann, Edward O., and Franz U. Pappi. 1976. *Networks of Collective Action: A Perspective on Community Influence Systems.* New York: Academic Press.

Laumann, Edward O., David Knoke, and Yong-Hak Kim. 1985. "An Organizational Approach to State Policy Formation: A Comparative Study of Energy and Health Domains." *American Sociological Review* 50:1–19.

Litvak, Isaiah A. 1982. "National Trade Associations: Business-Government Intermediaries." *Business Quarterly* 47:34–42.

Lomnitz, Larissa Adler. 1977. *Networks and Marginality: Life in a Mexican Shantytown.* New York: Academic Press.

Marsden, Peter V. 1982. "Brokerage Behavior in Restricted Exchange Networks." Pp. 201–18 in *Social Structure and Network Analysis,* edited by Peter V. Marsden and Nan Lin. Beverly Hills, Calif.: Sage.

Mayer, Adrian C. 1966. "The Significance of Quasi-Groups in the Study of Complex Societies." Pp. 97–122 in *The Social Anthropology of Complex Societies,* edited by Michael Banton. London: Tavistock.

Padgett, John F., and Christopher K. Ansell. 1993. "Robust Action and the Rise of the Medici, 1400–1434." *American Journal of Sociology* 98:1259–1319.

Pfeffer, Jeffrey, and Anthony Leong. 1977. "Resource Allocations in United Funds: Examination of Power and Dependence." *Social Forces* 55:775–90.

Prensky, David. 1986. "Interorganizational Structure and Organizational Participation in a National Policy Domain." Ph.D. dissertation. University of Chicago, Department of Sociology.

Provan, Keith. 1983. "The Federation as an Interorganizational Linkage Network." *Academy of Managment Review* 8:79–89.
Provan, Keith, Janice Beyer, and Carlos Kruybosch. 1980. "Environmental Linkages and Power in Resource-Dependence Relations between Organizations." *Administrative Science Quarterly* 25:200–225.
Rogers, Everett M., and Rekha Agarwala-Rogers. 1976. *Communication in Organizations*. New York: Free Press.
Ruggie, Mary. 1992. "The Paradox of Liberal Intervention: Health Policy and the American Welfare State." *American Journal of Sociology* 97:919–44.
Schlozman, Kay Lehman, and John T. Tierney. 1986. *Organized Interests and American Democracy*. New York: Harper & Row.
Spath, Helmuth. 1980. *Cluster Analysis Algorithms*. London: Ellis Harwood.
Steffensmeier, Darrell J. 1986. *The Fence: In the Shadow of Two Worlds*. Totowa, N.J.: Rowman & Littlefield.
Tierney, John T. 1987. "Organized Interests in Health Politics and Policy-making." *Medical Care Review* 44:89–118.