The Structure and Stability of Lobbying Networks in Washington

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Abstract

In this paper, we use data from 499,838 semiannual reports filed under the Lobbying Disclosure Act (LDA) of 1995 to investigate the degree to which networks of lobbyists are linked with each other or operate independently as cliques, and to measure the stability of network characteristics over time. Each lobbying network is linked by individuals who report lobbying activity in one of 77 government-defined issue areas listed on LDA reports. For each of 32,045 lobbyists who have registered in any six-month reporting period from 1998 to 2007, we use social network analysis (SNA) techniques to estimate the centrality of each issue area. The time-series nature of our data set allows us to assess the dynamics of issue area centrality over time. We find that lobbying networks are remarkably stable over time, though we identify a few notable outliers that indicate that events outside the lobbying networks can affect their basic structure. Further, for each issue area, we calculate lobbyists' specialization and the proportion of for-hire contract lobbyists, and find that both specialization and contract lobbying are highly correlated to lobbying network centrality.

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Introduction

Students of interest group politics have long considered the consequences of the size, scope, and structure of the system of organized interests with theoretical models borrowed from fields as diverse as industrial market economics, population ecology, and biological evolution. We re-conceive the system of organized interests in Washington as a network of individual lobbyists linked by their advocacy activities in and across substantive policy domains. Since at least Heclo (1978) the importance of such networks has long been recognized, though to date there has been little evidence to reveal structural patterns empirically across policy domains and time. In this paper, we use the universe of publicly reported activity over a ten year period to analyze and visualize the social ties that serve as the foundation of information exchange among more than 30,000 lobbyists. Using data derived from a half-million semiannual reports filed under the Lobbying Disclosure Act (LDA) of 1995, we use social network analysis to investigate the degree to which networks of lobbyists are linked with each other or operate independently as cliques, and to measure the stability of network characteristics over time.

First, we summarize the power-law distribution of lobbyists' activities across the full set of 77 policy domains defined by the LDA. Second, we demonstrate that this distribution contributes to predictable linkages among domains, with some policy areas being highly central to the overall network structure and others being peripheral. Further, we show that the relatively central and peripheral policy domains are populated by different types of lobbyists. Lobbyists at the center of the lobbying world tend to be policy specialists hired under contract, and those further from the center tend to be policy generalists working in-house. Finally, we show that the network of lobbyists is predominantly stable over time, though it is interspersed with a few unusually volatile domains that experienced dramatic shifts in public attention. As a result, we

not only empirically uncover a consistent and predictable affiliation network of lobbyists, but we argue that such social ties are responsive to events and actors outside the network.

The Interest-Group System as an Evolving Social Network

As folk wisdom in Washington goes, a lobbyist is only as good as her Rolodex. Though this "it's-who-you-know" insight rings cliché, it underscores a relevant theoretical premise. The study of interest groups rests on the assumption that the system of private organized interests is an intermediary that links citizens, firms, social groups, and other elements of civil society to the formal institutions of government. The interest group system, then, may be conceived as a network of principals, interests, resources, and agents (Laumann and Knoke 1987; Knoke 1990; Heinz et al 1993; Carpenter, Esterling, and Lazer 1998). The network is populated by thousands of organized interests, each of which has (1) multiple principals, constituencies, or patrons; (2) variable interests in a range of existing or emerging policy issues; (3) variable resources to mobilize in an effort to influence and monitor public policy decisions; and (4) numerous individual lobbyists, each of whom may have existing and evolving social relations with other policy elites. Thus, interest groups are embedded within communication and resource-exchange networks that link latent social groups to authoritative policymakers.

Within this macro-level network of private organizations and institutional decision makers, interest groups and their lobbyists self-organize into policy subsystems. Policy subsystems emerge from the organizational need for division of labor and the proliferation of domain-specific expertise. With a few notable exceptions, the study of interest groups has generally focused on the interactions of one or a few of these domains in order to make inferences about behavior at the system level (Baumgartner and Leech 1998). Yet, separate policy domains may from time to time be interrelated because principals and patrons have

multiple and variable interests. For instance, a health insurance provider may have a direct interest in the regulation of financial services in addition to its interest in health policy. Consequently, policy decisions and exogenous events in one domain—such as the de-regulation of the financial services industry—may indirectly affect the actors, interests, resources, and social relations, in another domain, such as financial firms' impact on health care costs. We should expect such interrelatedness between multiple actors with substantively differentiated interests across several domains to generate a complex, multidimensional, and hierarchical social network.

Additionally, the complex network of otherwise loose connections between lobbyists should be dynamic and subject to exogenous forces that could fundamentally alter its underlying structure. Baumgartner and Jones (1993) have found that the rise and fall of policy issues on the national agenda reveal patterns of remarkable stability over time, only to be periodically interrupted by rapid, unpredictable extreme events that bring about major change. In the long run, complex systems like governments and economies are limited in their ability to respond to external pressure or events. Actors within the system can only process a limited amount of information, and their collective attention to policy problems can only be marshaled to a few select topics at any given time (Jones and Baumgartner 2005). Applied to lobbying networks, these principles would lead us to expect similar patterns of stability and change among lobbyists, regardless how loosely linked these lobbyists may be.

The study of lobbying and policy processes has long been fascinated with understanding those long-standing relations among outside actors and government officials that have been variously described as "policy whirlpools," "iron triangles," "policy subsystems," "systems of limited participation," or "issue networks" (see Baumgartner and Leech 1998 for a review). We

attempt here to provide the broadest possible empirical overview to understand the structure of relations among interest groups and lobbyists in Washington.

The Distribution of Lobbyists across Policy Domains

We begin our empirical investigation with a focus on individual lobbyists' social ties with each other, defined by their activities in the same policy domains. The LDA requires all organizations and lobbying firms to report their lobbying activities semiannually, including estimates of expenditures (or income, in the case of firms for hire), the names of individual lobbyists, the policy issues they focused on, and the federal agencies or legislative chamber that they contacted. The reports have proven to be a rich data source to estimate the size, scope, structure, and policy agendas of the interest group system in Washington (Baumgartner and Leech 2001; Leech et al 2005; Baumgartner, LaPira, and Thomas 2008). In this paper we use the entire universe of lobbying reports on file with the Senate Office of Public records from 1998 through 2007, which was collected and organized by the Center for Responsive Politics. In all, we generated lobbying activity levels by 77 government-defined issue areas for 32,045 individual lobbyists from 499,838 semiannual reports. Though LDA reports supply only a superficial description of an individual lobbyists' social ties, we can use the pattern of their activities across issue areas to illustrate how information may be spread and processed throughout the system. Because lobbyists may have multiple clients and may be active in multiple issue areas at any point in time, we can link reported activities to illustrate and measure the latent structure of the interest group system as a large social network.

Table 1 shows the number of lobbying reports by issue area for 2007. Just fourteen lobbyists were active on unemployment issues, whereas over 3,800 lobbyists focused on the federal budget and appropriations process. A simple perusal of the data in Table 1 makes clear

that lobbyists are highly clustered into just a few issue areas, a point which is made even clearer in Figures 1 and 2.

[Insert Table 1 about here]

[Insert Figures 1 and 2 about here]

Figure 1 shows the same data as in Table 1 and illustrates that the distribution is an "extreme value" one, characterized by "fat tails." Normally distributed data when portrayed in the manner shown in Figure 1b fall off dramatically; the linear presentation on a semi-log scale indicates an extreme value distribution. Figure 2 presents the data in a manner similar to the "Lorenz curve" distribution of income in society, from which one can calculate a Gini coefficient. If the lobbyists were distributed equally across the issue areas, the data would go up in a straight and steady line at 45 degrees. Instead we see that the first 34 domains are associated with just 10 percent of the lobbying whereas the top three domains generate 20 percent of the reports.[1]

These patterns suggest that, rather than responding independently to diverse policy preoccupations and paying attention to diverse indicators of the policy environment, lobbyists in Washington are embedded in a highly self-contained and self-reflective system of communication, with all watching each other and all watching the same third parties for cues on where they should be involved. This makes sense, of course, but the degree of network centrality in the Washington community has not been demonstrated across the board, and we can do that here. Independent actions by thousands of isolated actors would generate a normal distribution of actions across a sample of policies or policy domains, but actors basing their activities on what they see their colleagues doing would generate an extreme value distribution, as in Figures

[1] The data presented here are for 2007; however, similar distributions are found for each individual time period available.

1 and 2. The data underscore the importance of understanding the network structure of communications in the Washington lobbying community, as this structure is clearly affecting the behavior of lobbyists. It creates, among other things, the tendency for a great majority of issues or issue domains to produce very little activity, but for a few "mega-issues" to dominate the entire system. Understanding the roots of this mal-distribution of lobbying is our goal here.

Of course, there is no reason to expect equal numbers of lobbyists to be active in each issue domain, as the domains were not created with any effort to relate them to relatively equivalent slices of the federal policy universe. After all, the Social Security system would naturally generate more activity than a small program such as Religion; Defense more than Clothing and Textiles. There is no surprise here. But when we look at the data in more detail the degree of concentration is indeed similar to what is observed in virtually all studies of the distribution of lobbying activity, no matter how the domains are defined. Baumgartner and Leech (2001) studied 137 particular issues before Congress and found virtually the same distribution; they were not looking at policy domains as we do here, but rather at specific legislative and regulatory issues on which lobbyists were mobilized. What generates such a distribution? A large literature in the natural and social sciences suggests that it is communications patterns and dense social networks. Clearly, the data suggest a process by which self-reinforcing trends create extreme events that are characteristic of other processes in which networked communications are central. So we look at the network structure of the lobbying community next.

The Structure of the Lobbying Network

Figure 3 shows the overall structure of the lobbying network, first for 1998 (Figure 3A) and then for 2007 (Figure 3B). Graphs for each annual period look similar so we do not produce all of them here.

[Insert Figure 3 about here]

We followed a simple procedure to construct the lobbying networks shown in Figure 3, and replicated our steps in similar graphs that follow. In each figure, a node is a policy domain, and the size of the node represents the number of lobbyists with links to that node from other nodes (e.g., degree; degree is correlated to the number of lobbyists active in the area at $r = 0.98$ however, so the size of the node can be interpreted as the number of lobbyists active there). The dyadic links between the nodes represent the number of lobbyists reporting activity on both nodes, with the total number of lobbyists active in both areas indicated by the width of the connecting edges. Looking at the very top node presented in Figure 3B, we see the node marked BEV, representing all lobbyists reporting activity in the Beverage Industry domain. From Table 1 we know that in 2007 this was 109 lobbyists. The links that emanate from that node indicate the number of those 109 lobbyists also lobbied in any particular other areas; we see lines straight over to CDT (Commodities) and to ACC (Accounting) and to any number of other issue-domains, as is clear from the great number of links connecting the BEV node with dozens of other notes in the graph. In this particular case none of the links is particularly thick, indicating that no single other node was closely linked to this particular domain of lobbying. Lobbyists active in the Beverage industry had a wide range of other connections, with none particularly dominant. Accordingly, the node is placed at the outside of the circle, suggesting that it is not a core or central lobbying hub.

Figure 3 shows the clear dominance of the network by relatively few domains that maintain both a high degree centrality and a high eigenvector centrality (Bonacich 1972, Freeman 1979). In the lobbying network, degree simply corresponds to the total number of adjacent issue areas for each individual policy domain. We use measures of degree centrality to determine both node and edge size in the network graphs. Since the lobbying network is an affiliation network of lobbyists indicating activity in similar areas, not a formal social network of human communication, we use eigenvector centrality for its theoretical applicability. Normalized eigenvector centrality measures the global importance of the issue in the overall network. That is, links between domains with a high degree centrality are more important than those between low degree domains. So, we use the normalized eigenvector to shade issue area nodes in each network graph, with darker nodes reflecting a high level of importance and lighter nodes illustrating less significance.[2]

The largest nodes by size are those with the greatest number of lobbyists, and the thickest lines represent the most common links from area to area. For example, a thick line connects the large area of TAX (Taxation) in the bottom right of Figure 3B to the area of BUD (Budget) to the lower-left in the figure. This presentation makes clear which are the most active areas of the lobbying community (a characteristic which was also apparent in Table 1) and which domains have the most common inter-connections as measured by individual lobbyists who are active in both areas. Figure 3 shows the clear dominance of the network by issue areas such as Budget, Tax, Healthcare and Energy, as they maintain both a high degree and eigenvector centrality.

In each year, a small number of issue-areas (usually the same ones, as we will see below) is responsible for a disproportionate level of total activity. Further, those lobbyists who are

[2] Other measures of centrality (betweenness, closeness, etc.) and measures of core/periphery were also calculated, but in this case correlated almost perfectly with the normalized eigenvector centrality score.

active in these core issue domains are also active in nearly every other issue area. In addition, lobbyists who are active in any one of these issues are often active in the other highly central issue domains. In 2007, 29.2% of the total connections in the overall network that extend through the eight most central issues (Healthcare, Budget, Tax, Homeland Security, Defense, Energy, Environment and Education) exist only between those issue areas.

While it is expected that the majority of links in the network graphs correspond to key issue areas given the skewed distribution of activity shown above, the extreme density of the network is particularly noteworthy[3]. Here, we can see that no single, isolated clique of issues is separate from the core group. Network graphs of other social processes, such as friendship networks in schools, often show distinct patterns or subgroups where there are distinct nodes standing apart from others. In this case, we see an extremely dense structure, even for those issues which are relatively peripheral in the lobbying network overall. Substantively, we can conclude that even those lobbyists who are active on low-visibility niche issues are also active on a wide range of other issues that come before Congress. It may indeed be the case that a single lobbyist is only active in three issues areas (Defense, Homeland Security and Disaster Planning, for example), but at this level of analysis such closed issue cliques are not the norm. This pattern of interconnectedness is even more profound if we look at individual issue areas. In 2007 for example, the 29 lobbyists active in the Apparel, Clothing and Textiles issue area have a total of 261 (non-exclusive) connections to other issue areas.

Finally, when we examine the network over time, a norm of relative stability becomes apparent as no major structural differences (aside from changes in issue centrality) are visible

[3] Note that in the network graphs presented in Figure 3 (and those that follow), the location of the nodes do not necessarily correspond to their theoretical "location" in the network. The algorithm used to produce the disk plot was selected purely for presentation purposes, as multidimensional scaling and related graphing procedures reveal (as expected) high levels of multi-dimensionality that are not easily illustrated in two-dimensional space.

between 1998 and 2007. We examine the over-time stability more closely below and identify two policy domains that run counter to the overall pattern, but comparing Figure 3A and 3B makes clear that the fundamental structure of the lobbying network changed very little in a decade that experienced a presidential impeachment, a shift in party control of both the White House and Congress, the most significant terrorist attack in American history, two wars, and the beginning of a major economic crisis.

Types of Lobbyists in the Network: Policy Wonks and Hired Guns

Policy domains are largely idiosyncratic in both substance and scope, though clearly we can differentiate between those areas that are central and those outside the core. Next, we ask whether those domains at the core of the system are populated by the same type of lobbyists as those on the edges. We calculate proportional measures of policy specialization and contract lobbying for all 77 policy domains. We might expect that that those domains at the center would be home to policy generalists. Policy issues like taxes and appropriations ought to have lobbyists who also work on other, substantively distinct, issues. Conversely, because these areas are so overcrowded, we might expect the opposite; lobbyists will differentiate themselves by concentrating their practices solely on those highly central domains.

We measure the extent that lobbyists active in each domain are, on average, policy specialists or generalists. For each lobbyist, we operationalize policy specialization as the proportion of the number of clients in that same domain to the number of clients overall; thus each lobbyist could have a specialization score ranging from 0 to 1, with low numbers indicating that only a few of their contracts come from the domain in question and numbers close to one indicating that virtually all of their lobbying is solely within that domain. We then aggregate specialization proportions for each of the 77 issue areas. For each domain, then, this gives an

overall score representing the degree to which those active in that domain tend to be specialists or generalists. The resulting variable has a mean value of 0.215, suggesting that lobbyists spend about 22 percent of their effort within a particular domain, and almost 80 percent in other domains. Of course, this value varies widely (the standard deviation is 0.60), as Figures 4 and 5 illustrate.

[Insert Figures 4 and 5 about here

At the top of Figure 4, we see that the most specialized issue areas include those that may be thought of as narrow in scope, such as "Firearms, Guns & Ammunition" and "Apparel, Clothing & Textiles," as well as seemingly broad issue areas like "Defense," "Torts," and "Trade." The most specialized issue areas also include many of the most active issue areas, an observation confirmed by positive correlation between mean frequency of reports and mean specialization ($r = 0.463$, $p < 0.001$), illustrated graphically in Figure 5. In other words, those lobbyists engaged in highly central policy domains can specialize, doing almost nothing but their core activity, whereas those on the periphery tend to practice in multiple areas. This could be because there is not enough work to sustain them, on average, if they work only in the relatively obscure areas. In any case, it strongly suggests that there are few isolated niches in the Washington lobbying community. Even those lobbyists working in the relatively obscure areas are connected through their other work to many lobbyists and government officials in other domains.

Next, we look at whether central and marginal issue areas are dominated by lobbyists who work in-house, or by those who work under contract at law, lobbying, or public relations firms. The distinction is not theoretically trivial; in-house lobbyists will only have one client at any given time, whereas contract lobbyists may have any number of clients, all with multiple

principals, interests, and resources. Organizations with government affairs offices in DC and full-time registered lobbyists on staff have made long-term institutional investments in building and maintaining the social ties at the heart the lobbying network. Contract lobbyists, however, essentially trade their policy-related social connections on the market. Accordingly, supply and demand forces lead us to expect that for-hire lobbyists will disproportionately inhabit high-centrality domains.

For each year, we calculate the concentration of contract lobbying as the ratio of the for-hire clients to all clients, ranging 0 to 1, and average across all years. Low numbers mean that the domain is dominated by in-house lobbyists and high numbers reflect more action by hired guns.

[Insert Figures 6 and 7 about here]

Figure 6 shows the rank-order of all 77 issue areas by concentration of clients with hired lobbyists, mean = .621; SD = 0.140. A cursory look shows a great deal of variation, ranging from highs over 80% contract lobbying for domains like urban development, Native American affairs, casinos, and defense to lows below 30% for issues including civil rights and liberties, unemployment, and family planning. Figure 7 confirms the expectation that contract lobbying will be more prevalent in high-centrality domains ($r = 0.226$, $p < 0.05$).

Our findings here suggest that the overall lobbying network not only has a structure of durable and variable social ties across issue areas, but also that self-organized issue domains reveal distinct patterns of interest group behaviors. We can say with some confidence that those domains located at the outer edge of the lobbying network are dominated by lobbyists whose activities spread across multiple areas and by those who represent only the interests of their own

immediate employer, while those at the center are those who hang a shingle and represent the interests of the highest bidder.

Network Stability and Change

In Table 1 we showed that the distribution of activity across issue-domains is highly skewed, with just a few cases generating the vast majority of the overall lobbying activity. In Figure 8 we present these same data separately for each year from 1998 to 2007.

[Insert Figure 8 about here]

If one looks down the last series of data points in Figure 8, corresponding to the year 2007, the numbers are the same as those reported in Table 1: 3,802 lobbyists in the area of the Federal Budget, 2,946 active on Health Care, 2,793 on Taxes, 2,128 on Energy, and on down to just 14 in the area of Unemployment. The horizontal lines in Figure 8 show the degree to which the areas of most activity are consistent over time, and making it clear that the patterns are indeed highly stable. The number of lobbyists in all areas grew substantially from 1998 to 2007 but the areas where they were most and least active showed little change.

There are some important exceptions to these general trends, most substantially in the case of Homeland Security, which is clearly shown in the thick grey line in Figure 8: the domain did not exist in the LDA reporting system until 2002 but it quickly grew to be one of the most highly populated lobbying domains, with over 1,300 active lobbyists in 2007. At a much lower level of activity, we also show in a thick black line the case of Accounting. This area saw just 8 lobbyists in 1998, 40 in 1999 and 69 or 68 in 2000 and 2001 respectively. These numbers shifted to 268 in 2002 and remained at much higher levels after that, finishing the series at 142 in 2007. Clearly, policy domains that are relatively obscure at some points can be radically transformed by such things as the Enron scandal and the subsequent congressional activity on the Sarbanes-

Oxley Act, and we might expect continued expansion in this area after the 2008 and 2009 events surrounding financial bailouts and the practices of the banking industry.

Figure 9 shows the same presentation for policy domain eigenvector centrality, and similarly shows that there is more consistency than change in the patterns of which domains are central to the overall lobbying network over time. Patterns are virtually identical to those shown in Figure 8.

[Insert Figure 9 about here]

Figure 10 takes the example of accounting to consider the changes in the structure of a lobbying domain when it moves from a marginal to a (slightly) more central position in the lobbying system.

[Insert Figure 10 about here]

The network graph compares the structure of lobbying in 2001, before the Enron scandal pushed accounting to a much more prominent place on the political agenda, with 2002. The domain shifted from just 68 lobbyists in 2001 to 268 in 2002; the figure shows the policy domains on which these lobbyists were also registered. Most prominent in 2001 were Budget, Tax, Health Care, and Trade, the most prominent issues in the system overall. In 2002, the pattern was not substantially transformed, but thickened, with closer links tying the Accounting domain with virtually all other policy areas.

[Insert Figure 11 about here]

Figure 11 shows equivalent data for the Homeland Security domain in 2002 and then in 2007. Due to the bureaucratic re-shuffling and creation of the Department of Homeland Security (DHS), the issue increases in relative importance because those lobbyists active in the area also have links with virtually all other areas of the political system.

Conclusion

We have given a general overview of the structure of lobbying activities in Washington over the past ten years, making use of newly available and comprehensive data on the areas in which individual lobbyists are active. This allows us to look at not only the areas of relatively great and relatively light lobbying activity, but also to understand the ties that bind the different parts of the lobbying network together. The system is remarkable for its tremendous skew, with just a few issue domains generating the bulk of the activity, but also for the extremely tight connections that tie virtually all areas to one another. The links that provide these ties are individual lobbyists and the firms that employ them.

By reinterpreting the interest group system as an evolving network of affiliated lobbyists, we begin to see a natural structure emerge that can identifies some policy domains for their similarity—such as energy and health—that might otherwise not be distinguished by casual observation. We also show that the system is highly dense, extremely stable, and characterized by domains populated by very different types of lobbyists. Ultimately, we can see that lobbying activity in highly active and important issue areas differs from their less significant counterparts. Our hope is that future investigation may reveal that these distinctions have important implications for democratic processes for policies made on the edge compared to those made at the core.

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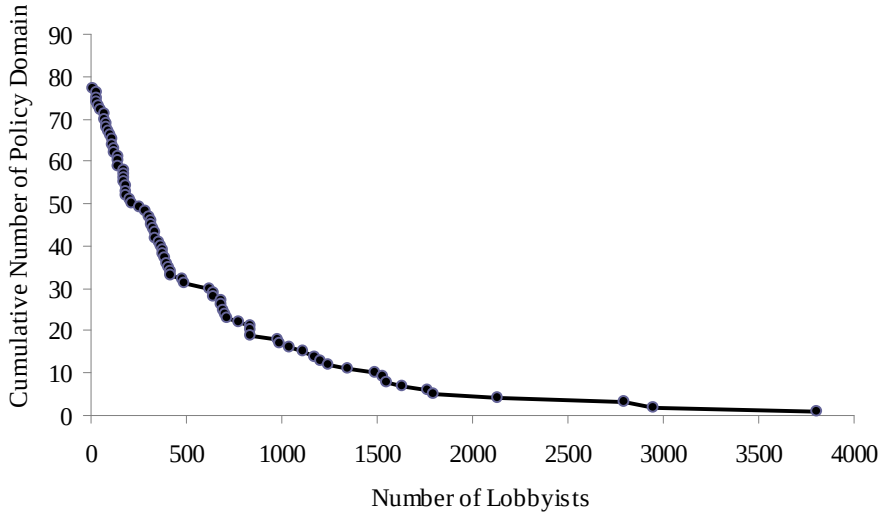
Table 1. Lobbyists by Policy Domain, 2007

Issue Area	Code	Number of Lobbyists	Cumulative Percent
Unemployment	UNM	14	0.03
Apparel, Clothing, & Textiles	APP	29	0.09
Mining, Money & Gold Standard	MON	29	0.15
Religion	REL	34	0.21
Commodities	CDT	43	0.30
Sports & Athletics	SPO	56	0.42
Firearms, Guns & Ammunition	FIR	69	0.55
Welfare	WEL	69	0.69
District of Columbia	DOC	81	0.86
Trucking & Shipping	TRU	83	1.03
Advertising	ADV	89	1.21
Bankruptcy	BNK	97	1.40
Beverage Industry	BEV	109	1.62
Media Information & Publishing	MIA	112	1.85
Alcohol & Drug Abuse	ALC	119	2.09
Constitution	CON	124	2.34
Accounting	ACC	142	2.63
Travel & Tourism	TOU	144	2.92
Postal	POS	147	3.22
Chemical Industry	CHM	170	3.56
Manufacturing	MAN	173	3.91
Aerospace	FAM	174	4.27
Family, Abortion & Adoption	AER	174	4.62
Arts & Entertainment	ART	181	4.98
Animals	ANI	182	5.35
Hazardous & Solid Waste	WAS	187	5.73
Roads & Highways	ROD	207	6.15
Urban Development	URB	212	6.58
Automotive Industry	AUT	255	7.10
Utilities	UTI	285	7.67
Gaming, Gambling & Casinos	GAM	304	8.29
Civil Rights & Civil Liberties	CIV	312	8.92
Tobacco	TOB	318	9.56
Railroads	RRR	330	10.23
Small Business	SMB	341	10.92
Torts	TOR	341	11.61
Veterans Affairs	VET	356	12.33
Real Estate & Land Use	RES	363	13.07

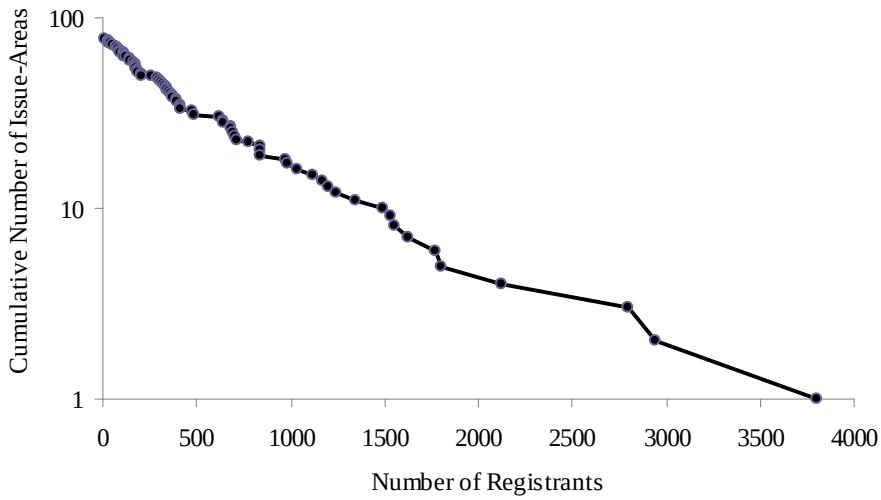
Disaster & Emergency Planning	DIS	374	13.83
Economics & Econ Development	ECN	374	14.58
Marine, Boats & Fisheries	MAR	392	15.38
Computers & Information Tech	CPI	398	16.18
Food Industry	FOO	413	17.02
Indian/Native American Affairs	IND	414	17.86
Fuel, Gas & Oil	FUE	416	18.70
Pharmacy	PHA	480	19.67
Retirement	RET	485	20.65
Housing	HOU	621	21.91
Foreign Relations	FOR	641	23.21
Medical Research & Clinical Labs	MED	647	24.52
Natural Resources	NAT	679	25.89
Consumer Product Safety	CSP	688	27.28
Radio & TV Broadcasting	COM	690	28.68
Law Enforcement & Crime	LAW	701	30.10
Aviation, Airlines & Airports	AVI	711	31.54
Clean Air & Water	CAW	780	33.12
Insurance	INS	837	34.81
Banking	SCI	841	36.52
Science & Technology	BAN	841	38.22
Immigration	IMM	975	40.19
Finance	FIN	988	42.19
Copyright, Patent & Trademark	CPT	1039	44.30
Telecommunications	TEC	1116	46.56
Government Issues	GOV	1169	48.92
Labor, Antitrust & Workplace	LBR	1205	51.36
Agriculture	AGR	1241	53.87
Homeland Security	HOM	1342	56.59
Environment & Superfund	ENV	1493	59.61
Education	EDU	1534	62.72
Transportation	TRA	1551	65.86
Medicare & Medicaid	MMM	1630	69.16
Trade	TRD	1767	72.74
Defense	DEF	1798	76.38
Energy & Nuclear Power	ENG	2128	80.68
Taxes	TAX	2793	86.34
Health Issues	HCR	2946	92.30
Fed Budget & Appropriations	BUD	3802	100.00

Figure 1. Lobbyists by Policy Domain, 2007

A. Frequency

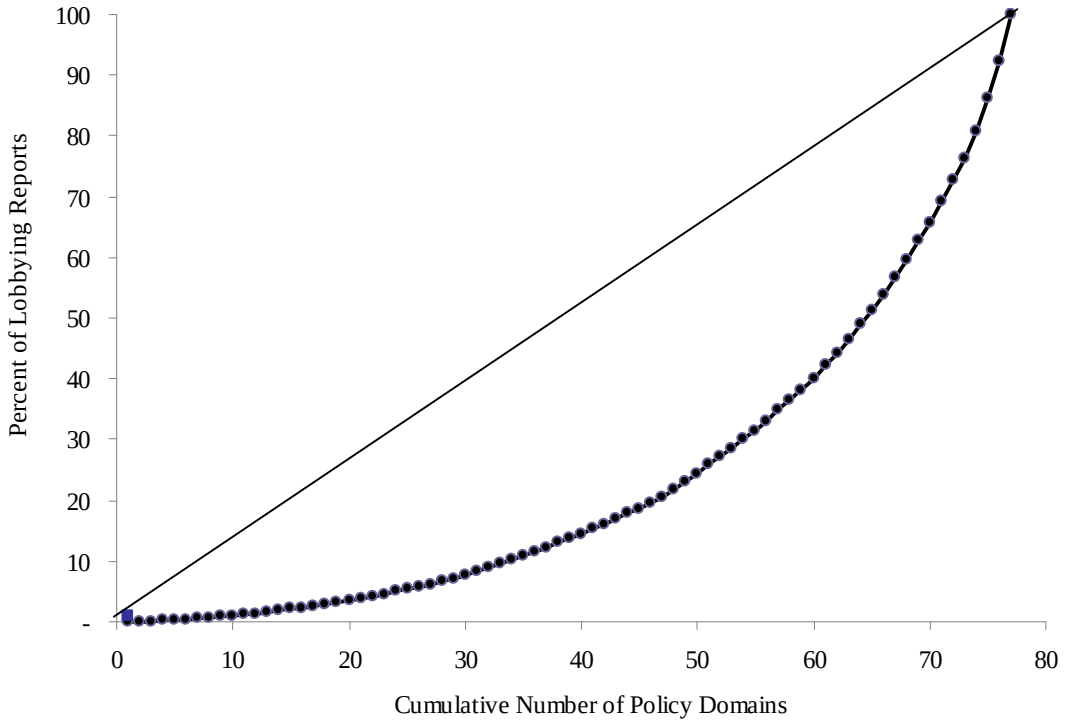


B. Logarithmic Scale



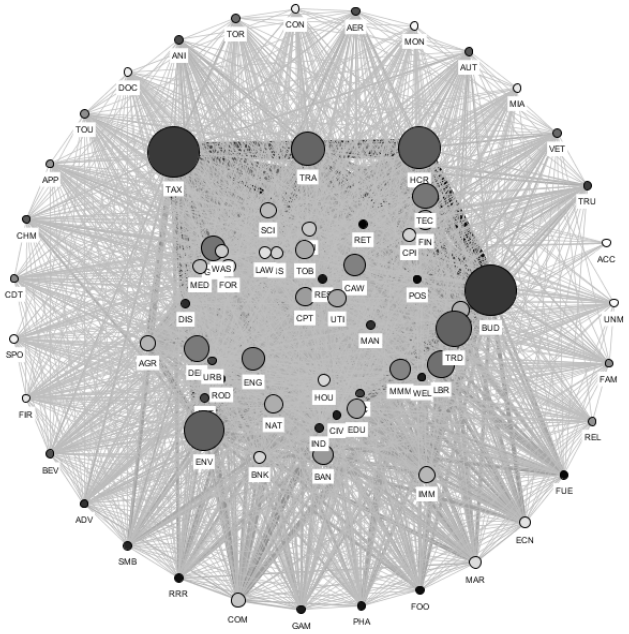
Note: The figure shows the cumulative number of LDA issue areas with at least the indicated number of lobbyists. There are 77 issue areas, and all have at least 14 lobbyists. Thirty areas have at least 500 lobbyists, 10 have more than about 1,500, and one domain has over 3,800. Figure B presents the same data showing that it is linear on a logarithmic scale, indicating an extreme value distribution.

Figure 2. A Small Percent of the Policy Domains Generate a Large Percent of the Lobbying.

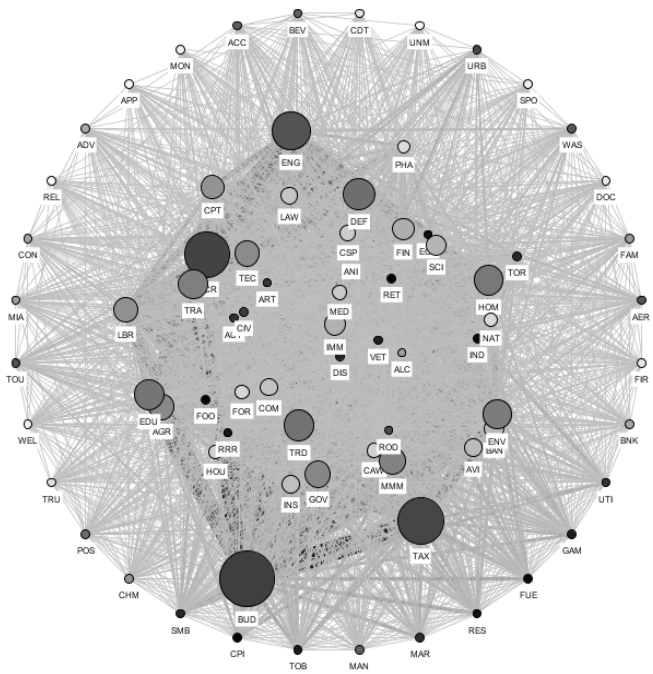


Note: Data are the same from Figure 1, presented as a percentage of the total number of registrations. The diagonal line represents a theoretically equal distribution. The bottom 34 domains, almost half the total, represent just 10 percent of the registrations. The top 13 domains represent half of the total registrations. The top three issues (Taxes, Health Issues, and Budget and Appropriations) represent 20 percent of the total.

Figure 3. The Lobbying Network Structure
A. 1998 (Issue Area N=76; Issue Pair N=2,701)

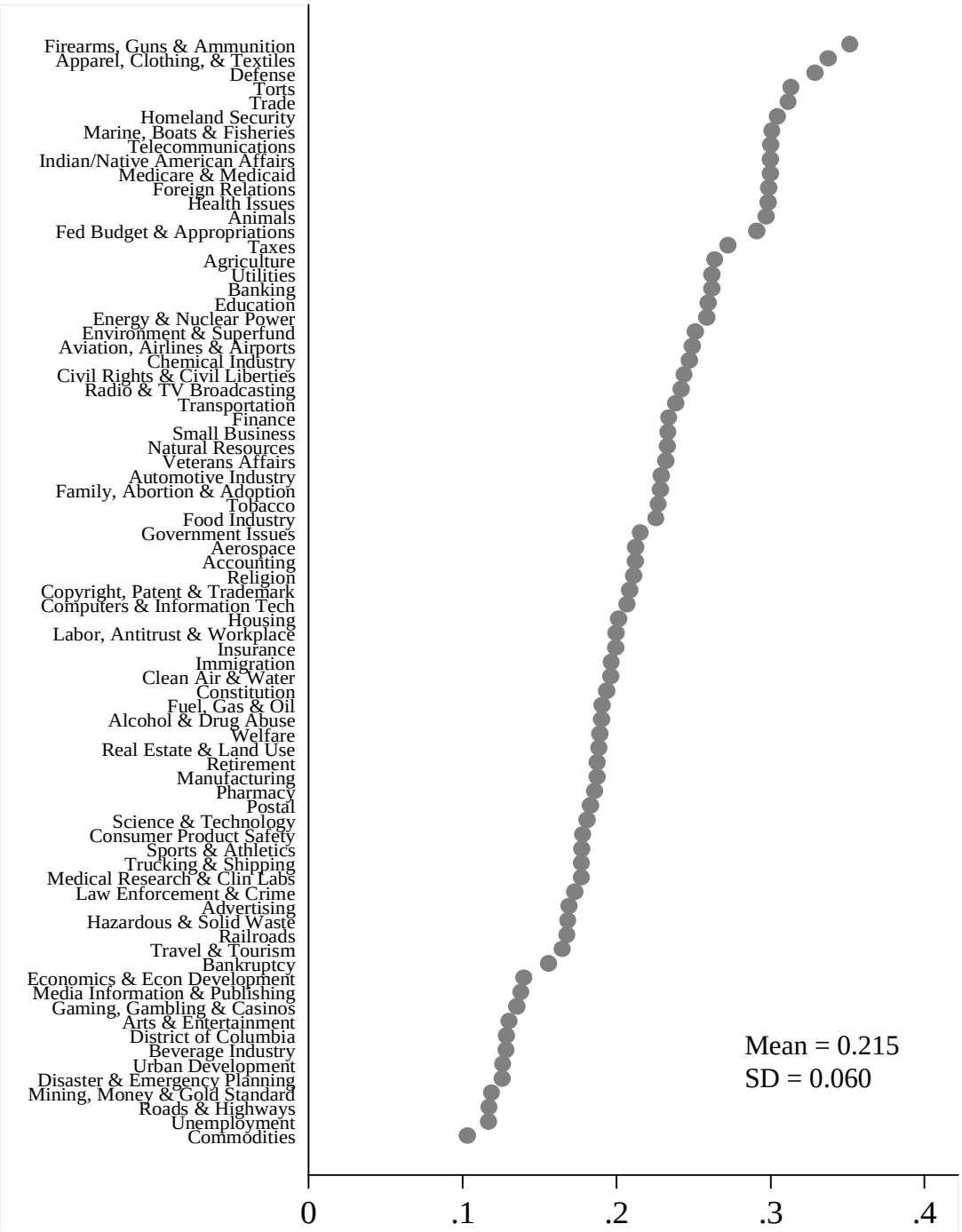


B. 2007 (Issue Area N=77; Issue Pair N=2,802)



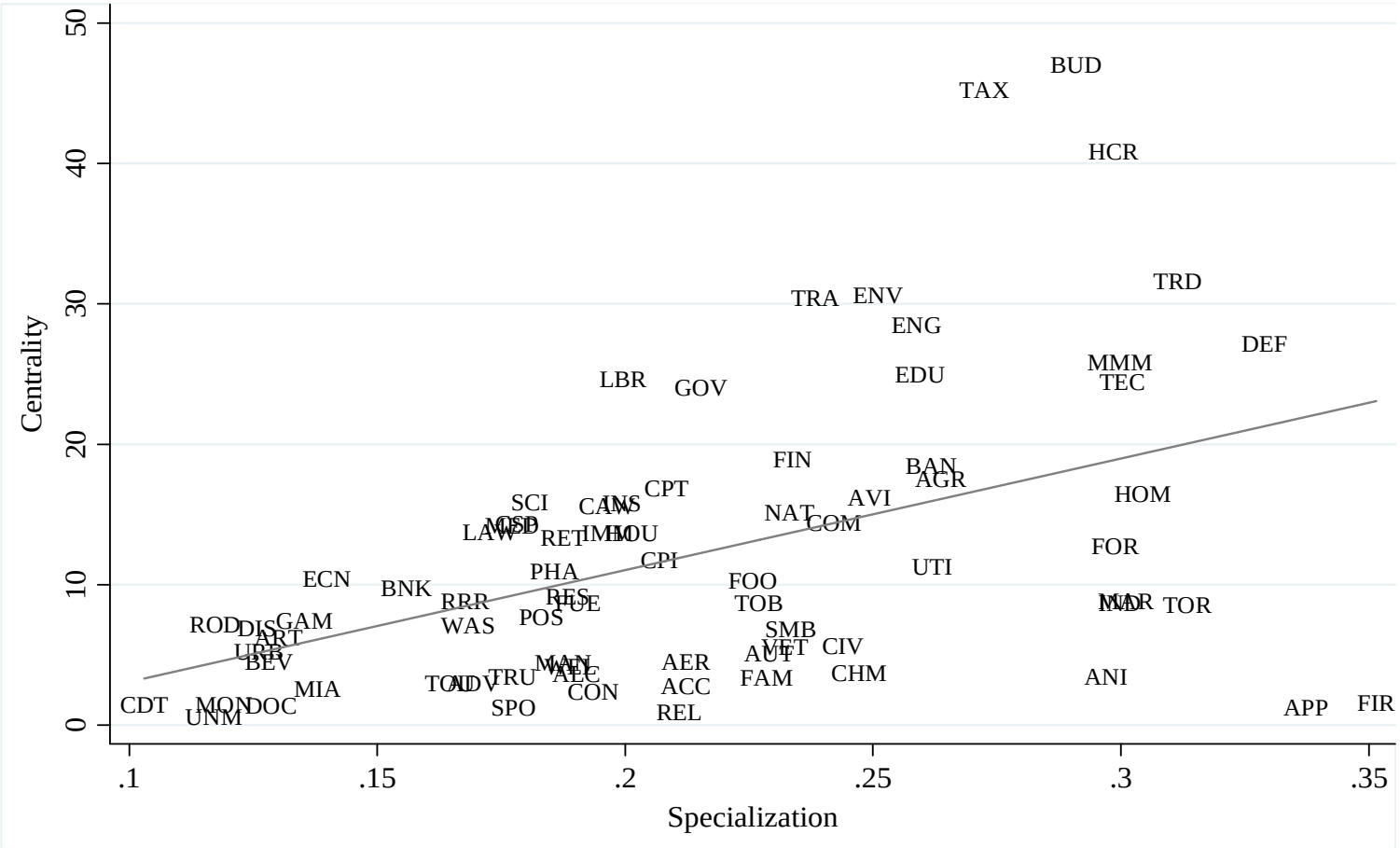
Note: Node size corresponds to degree and color corresponds to normalized eigenvector centrality, with darker shades reflecting higher centrality. Issue areas are policy domains defined by LDA forms, and issue pairs are links between nodes.

Figure 4. Issue Area Ranked by Policy Specialization



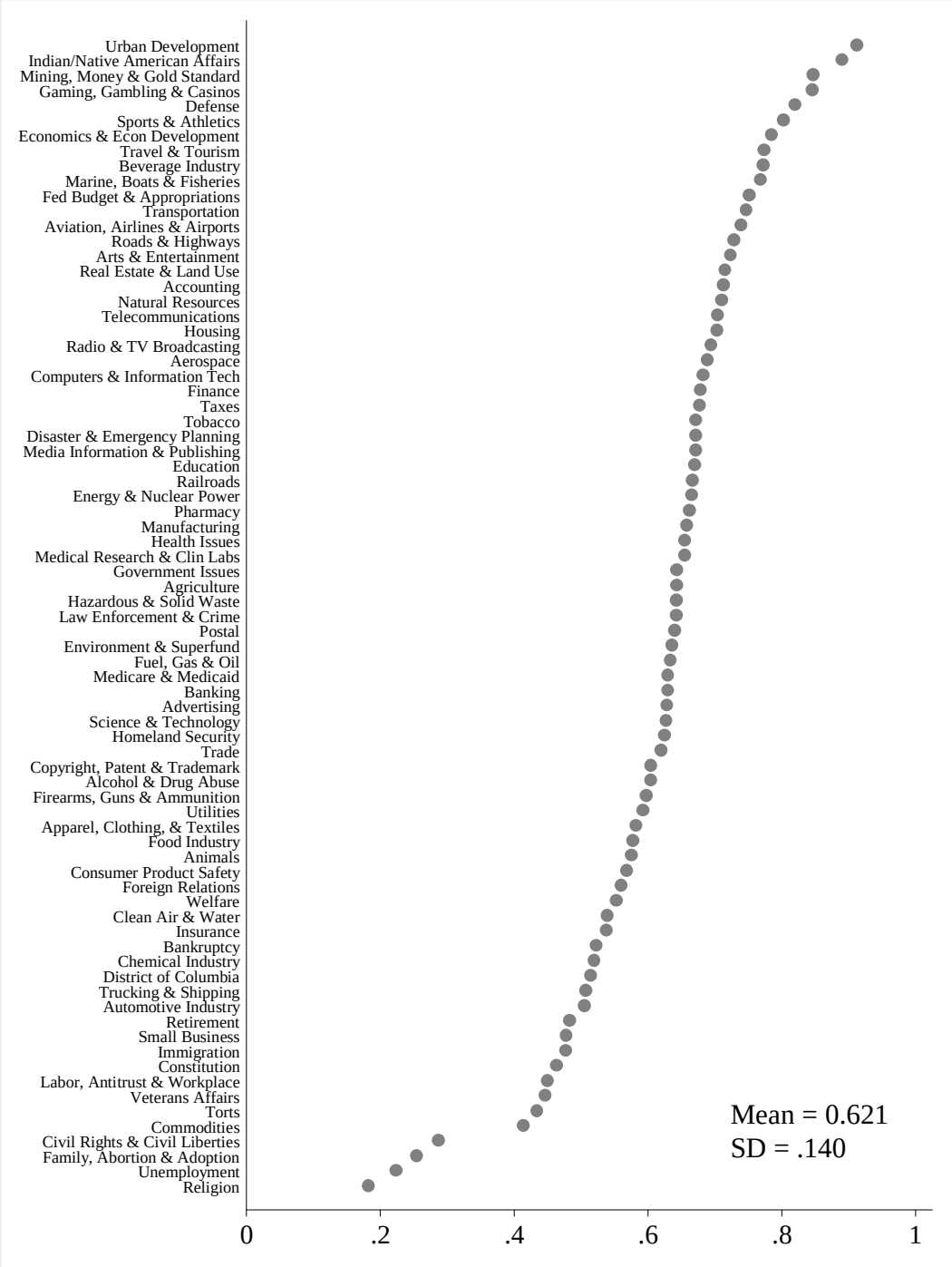
Note: Individual specialization scores range from 0 to 1, with low numbers indicating that only a few of their contracts come from the domain in question and numbers close to one indicating that virtually all of their lobbying is solely within that domain. Aggregated across all 77 issue areas and average across all years, then, the overall score represents the degree to which those active in that domain tend to be generalists (closer to 0) or specialists (closer to 1).

Figure 5. Policy Specialization and Policy Domain Centrality



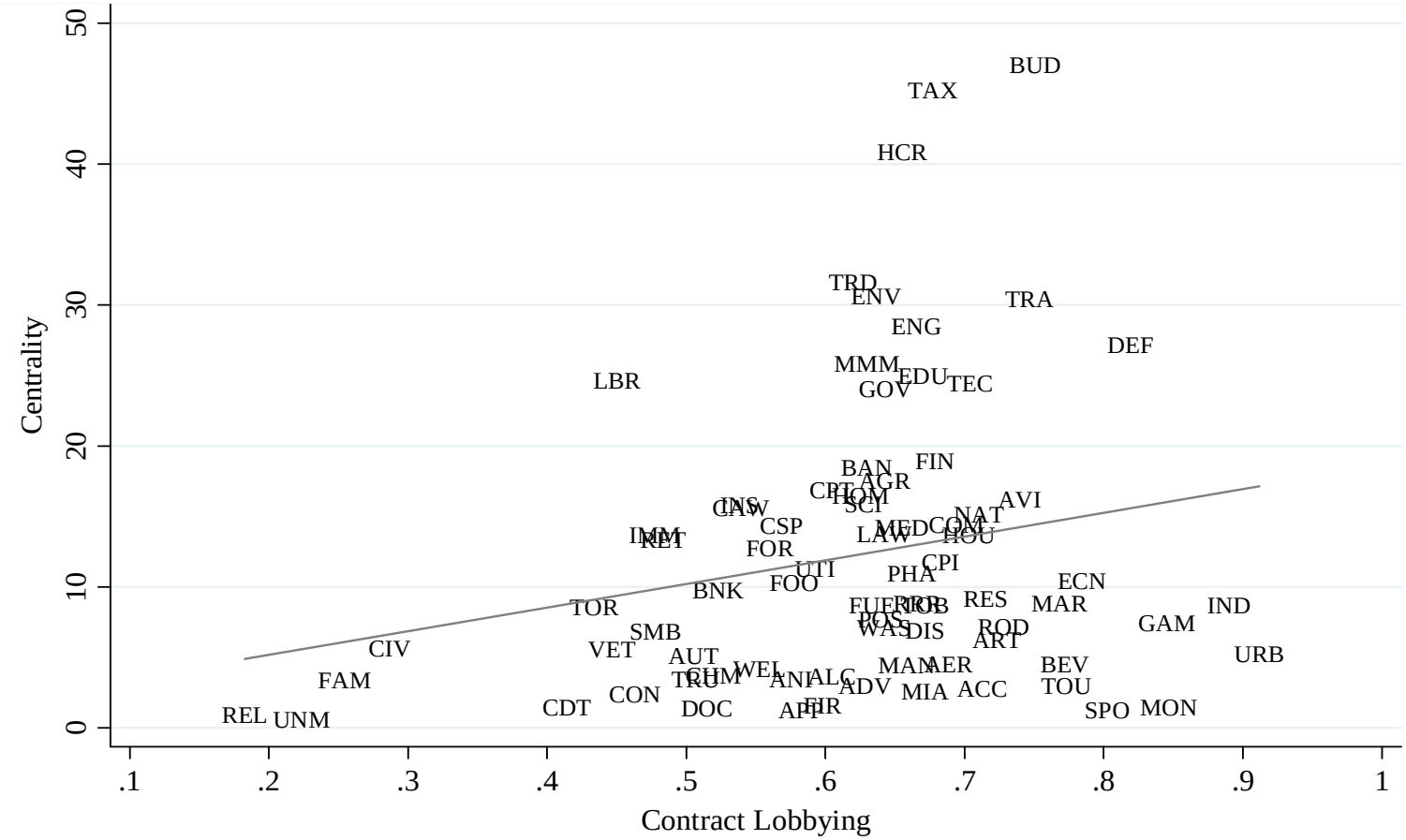
Note: Specialization is the proportion of clients an individual lobbyist represents in each issue area to their total clients, averaged across all lobbyists in each issue area per year. Centrality is the normalized eigenvector, averaged across each issue area per year. $r = 0.463$, $p < 0.001$.

Figure 6. Issue Area Ranked by Contract Lobbying



Note: Contract lobbying is the ratio of the for-hire clients to all clients for all lobbyists active in a policy domain, ranging 0 to 1, and averaged across all years. Ratios closer to zero mean that the domain is dominated by in-house lobbyists, and those closer to one reflect more activity by lobbyists at lobbying, law, or public relations firms.

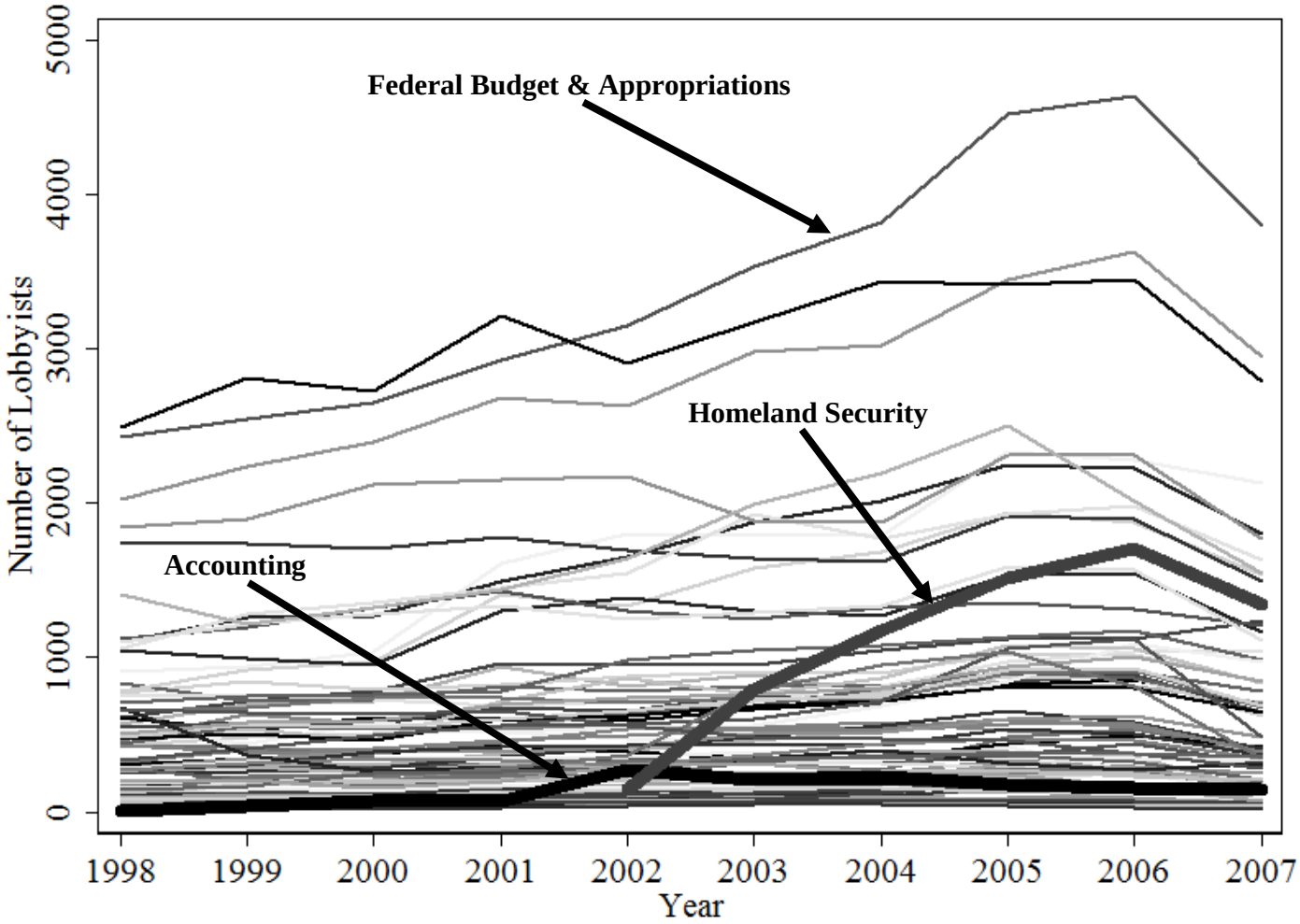
Figure 7. Contract Lobbying and Policy Domain Centrality



Note: Contract lobbying is the proportion of clients that hire contract lobbyists to the proportion of in-house and contract lobbying clients for each issue area, averaged across all years. Centrality is the normalized eigenvector, averaged across each issue area per year.

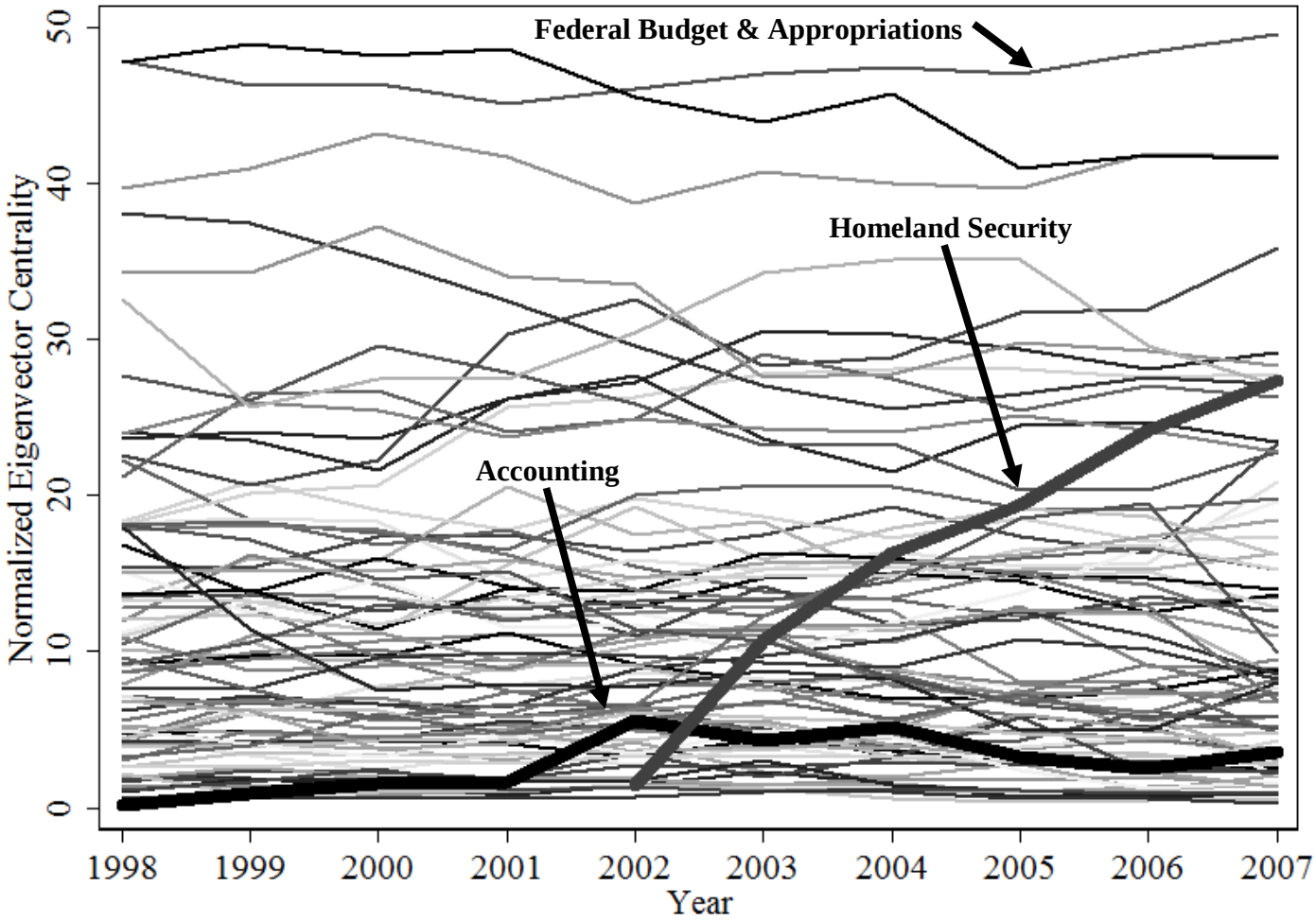
$r = 0.226$, $p < 0.05$

Figure 8. Policy Domain Lobbying Activity, 1998-2007



Note: Each line shows the number of lobbyists reporting activity in all 77 LDA-defined issue areas over the ten-year period.

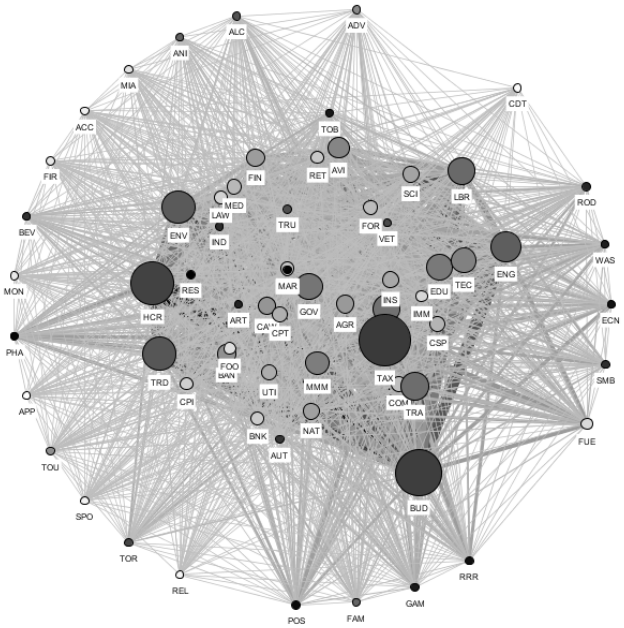
Figure 9. Policy Domain Centrality, 1998-2007



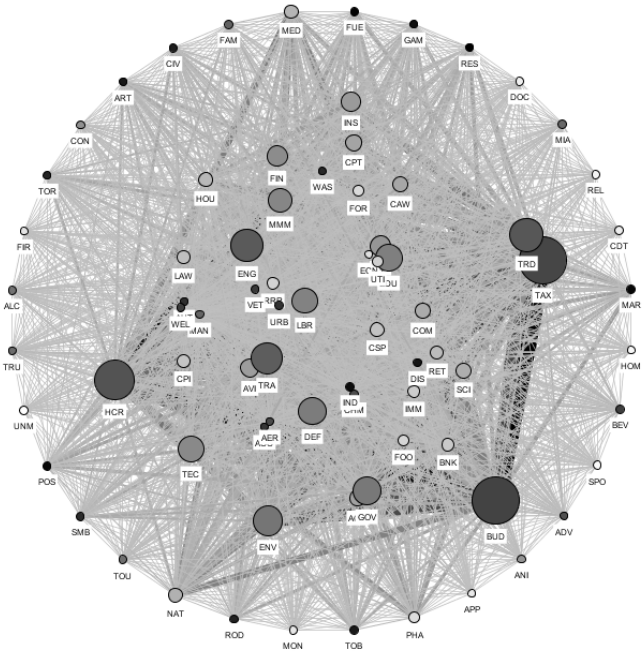
Note: Each line shows the normalized eigenvector centrality for all 77 LDA-defined issue areas over the ten-year period.

Figure 10: The Accounting Domain Network

A. Before Enron: 2001 (Issue Area N=66; Issue Pair N=2,072)



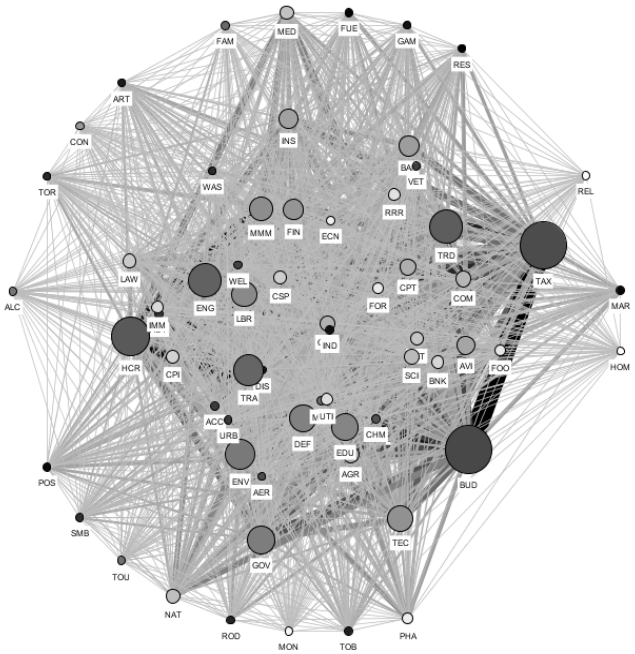
B. After Enron: 2002 (Issue N=77; Issue Pair N=2,820)



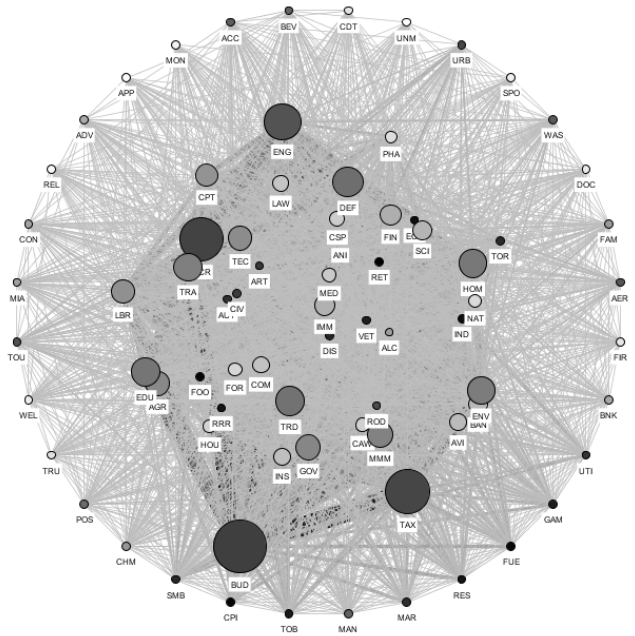
Note: Node size corresponds to degree and color corresponds to normalized eigenvector centrality, with darker shades reflecting higher centrality. Issue areas are policy domains defined by LDA forms, and issue pairs are links between nodes.

Figure 11: The Homeland Security Domain Network

A. Before DHS: 2002 (Issue Area N=64; Issue Pair N=1,995)



B. After DHS: 2007 (Issue Area N=77; Issue Pair N=2,802)



Note: Node size corresponds to degree and color corresponds to normalized eigenvector centrality, with darker shades reflecting higher centrality. Issue areas are policy domains defined by LDA forms, and issue pairs are links between nodes.