## Original Article

# The two worlds of lobbying: Washington lobbyists in the core and on the periphery

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**Abstract**    For decades, political scientists have had two divergent views on lobbyists in Washington. On the one hand they focus on the privileged access of a few groups in balkanized issue niches, and on the other they observe highly inclusive lobbying campaigns where hundreds of lobbyists vigorously compete for policymakers' attention. Not surprisingly, these disparate observations lead to contradictory conclusions about lobbying tactics, relations with relevant policymakers and the nature of interest group influence. In this article, we make a simple, yet novel, empirical observation: these seemingly incongruent observations of lobbying at the micro level are not inconsistent when we uncover the structure of lobbyists' interactions at the macro level. That is, both views are correct, depending on the policy context. Using data from 248 543 Lobbying Disclosure Act reports filed between 1998 and 2008 – which consists of 1 557 526 observations of 32 700 individual lobbyists reporting activity in 78 issue areas – we reveal that the Washington lobbying community has a fundamental and stable core–periphery structure. We then document how the empirically derived core–periphery mapping is a superior way to differentiate bandwagon or niche policy domains. As transaction cost theory suggests, we find that policy domains in the core have more in-house lobbyists and more revolving door lobbyists. And, on average, lobbyists active in core domains represent a greater diversity of interests and tend to be policy generalists. The converse is also true. Highly specialized contract lobbyists drift toward those sparsely populated domains in the periphery where they may focus on obscure policy minutiae, relatively free from public scrutiny. Our findings have important implications for the study of lobbying and interest representation. In Washington, there are really two worlds of lobbying. The first world, where most lobbying attention is directed, is one in which we see a great deal of inter-connectedness and interest diversity. The second world, home to an overwhelming majority of policy domains, cultivates niche lobbying and policy balkanization. That these two worlds exist simultaneously is precisely why observers fail to agree on what 'typical' or 'average' lobbying is. We believe that this is why the political science literature on

interest groups have been contradictory for so long. The abstract core–periphery structure we uncover also has important practical implications for influence in Washington. At first glance, those highly competitive policy domains in the core appear to embody the pluralistic ideal. However, we show that these conditions give interest groups the incentive to hire revolving door lobbyists, who sell access to former employers – not highly specialized expertise – at a premium. Existing lobbying disclosure and revolving door regulations do little to level the playing field. Washington's most powerful interests know they need to staff up with large numbers of former government officials if they want to stick out in the crowd. Indeed, it appears to be one of the most effective ways to find a seat at the center of the conversation.

The literature on interest group relations with government has long been conflicted because scholars and journalists alike have focused on two seemingly contradictory states of affairs: close relations among small numbers of lobbyists and government insiders on obscure, technical issues such as agriculture, transportation and telecommunications regulation – that is, those characterized by iron triangles, policy subsystems and interest niches – and occasions where a large, diverse and pluralistic set of interest groups engage policymakers on highly salient issues like the federal budget, taxes and health-care reform. These very different observations of lobbying led Baumgartner and Leech (1998) to emphasize the contradictory nature of much of the literature on lobbying. Such internal contradictions and a lack of a common theoretical framework remains one of the most notable features of the literature (Hojnacki *et al*, 2012).

We compare lobbying at the center of the Washington lobbying network to lobbying on the periphery of the system and show that numerous systematic differences characterize those active in the core as compared with those working on the fringes. This core–periphery structure helps explain differences – such as the role of the policy expert versus that of the former official with many personal connections – that are sometimes treated as puzzles in the literature. Our goal is to move the literature forward in appreciating the different roles lobbyists play when they are active in the different worlds of lobbying. Core and periphery lobbying trigger different processes that demand different types of skills, connections and expertise.

Observers point to virtual feeding frenzies where thousands of lobbyists participate in high-profile issues like health-care reform, which calls into question the existence of impregnable iron triangles. Such instances can be traced to the rapid and steady growth of the interest group system in Washington over many decades (Berry, 1999). Though interest group scholars are concerned about this growth because it is not

evident that all interests are represented equally (Schlozman and Tierney, 1983; Walker, 1991; Baumgartner and Leech, 2001; Baumgartner *et al,* 2009), Salisbury (1990) pointed out what he called the interest group paradox: as the overall number of groups in Washington increases, each individual group's ability to influence any single issue or policy domain will be diminished. With so much competition, individual groups struggle to prove to lawmakers that they can offer some tangible electoral benefits (Hansen, 1991). As a result, a 'hollow core' where no single group or subset of elite groups dominate characterizes the Washington interest group system (Heinz *et al,* 1993).

Alternatively, some interest group scholars stress how groups differentiate themselves by occupying relatively walled-off issue niches. Browne (1990) introduced the idea that groups strive to differentiate themselves in Washington by establishing a balkanized niche 'characterized by obsessive focus on a single facet' of policy (p. 489). A host of empirical evidence has accumulated to show that groups indeed gravitate toward issues and policy domains that are sparsely populated so that they may have a greater impact on the policy process (Gray and Lowery, 1996, 1997; Hojnacki, 1997; Haider-Markel, 1997; Heaney, 2004a). Heaney (2004b, 2014) goes so far as to show that one of the primary strategic functions of an interest group is to create unique identity as a way to maximize their perceived policy expertise and to minimize competition.

Yet there is little reason to think that lobbying is an either/or phenomenon. Baumgartner and Leech (2001) not only find that a large majority of issues draw attention from relatively few groups, but also show that a handful of issues involved the overwhelming majority of interest group activity. Patterns of interest group activities suggest that lobbying strategies – establishing a niche or jumping on a 'policy bandwagon' – are a function of the political context as much as they are the group's internal motivations: 'Two issues with relatively similar objective scopes may attract greatly different levels of attention in a self-reinforcing process characterized by cue-taking and imitation' (Baumgartner and Leech, 2001, p. 1206). Low-salience niche lobbying is indeed quite a different beast than that which occurs more in the limelight.

This distinction is not new, but to date we have no way to explain why lobbying on niche issues like agriculture and on big issues like comprehensive health-care reform is so different, other than their obvious substantive dissimilarities. So, how exactly should we distinguish between policy domains that are home to niches and those that produce policy bandwagons?

We contend that making generalizations about the extreme cases of highly competitive lobbying is just as misleading as drawing sweeping conclusions about niche lobbying based solely on studies of selected low-salience issues. Yet such generalizations are characteristic of the literature. Our goal here is to document the policy domain differentiation and interest niche partitioning that occurs on the fringes, and to identify which domains attract high levels of interest competition. Neither picture by itself is an accurate view of the system. Rather than seek a single

model that predicts an 'average' type of lobbying, we instead seek to empirically uncover the conditions that generate both bandwagons and niches.

The article proceeds as follows. First, we lay out a number of expectations about lobbyists and their activities that stem from the literature to test whether our analysis exposes genuine bandwagon and niche domains. Second, we describe our data, which allows us to reach generalizable conclusions about the structure of the entire Washington lobbying system over 11 years. Third, we map a network structure of the Washington interest group system based on lobbyists and their issue affiliations (Carpenter *et al*, 1998; Carpenter *et al*, 2004; Grossmann and Dominguez, 2009). Finally, as a validation, we test our expectations using both theoretically deduced and empirically derived categorizations of policy domains. We show that our network model is superior in explaining differences about lobbyists and their representational activities. We conclude that a latent core–periphery network structure helps explain points of confusion in the accumulated literature on lobbying and make suggestions for future research.

## Core and Periphery in Washington Lobbying

We offer a straightforward empirical solution to the problem of distinguishing between policy domains that may be characterized by niche or bandwagon issues. We contend that individual policy domains do not differ simply on their subject matter or the on the government's role in distributing related benefits. Rather, they can be categorized according to their location in affiliation networks that consider all lobbying activity simultaneously.

Large, dense networks like the ones we unearth from Lobbying Disclosure Act (LDA) reports – where 78 'issue areas' are informally affiliated with each other given activity by individual lobbyists – are typically characterized by a core–periphery structure (Wasserman and Faust, 1994). The core–periphery partitioning of dense networks implies a 'network that cannot be subdivided into exclusive cohesive subgroups or factions, although some actors may be much better connected than others. The network … consists of just one group to which all actors belong to a greater or lesser extent' (Borgatti and Everett, 1999, p. 376). Simply observing cross-sectional descriptive statistics by domain – such as the number of lobbyists or interest groups engaged in them – does not offer a meaningful way to differentiate those few actors that are better connected.

Intuitively, we expect a network consisting of thousands of lobbyists representing thousands of interest organizations simultaneously vying for attention from a single federal government to follow this pattern. Policy domains are distinct in their subject matter, but they are still part of a single interest group system to which all lobbyists belong. Precisely which domains are at the core and which are on the periphery, however, is *not* intuitive. Rather than imposing some theoretical categorization from

on high, we instead allow lobbyists' issue activity to empirically reveal the core and periphery, perhaps in unexpected ways.

Accordingly, our primary expectation is that the issue area affiliation network will consist of a few core domains and a large majority of peripheral domains. This answers our question: Does the Washington influence network indeed break down into a core–periphery structure? If not, then of course we have nothing to add. But if so, and if this is a consistent element of the structure year after year then any description of lobbying needs to take this latent structure into account.

A fundamental core-periphery structure is meaningless if we do not also show that domains on the margin are more in line with niche lobbying, and those at the core are characterized by high levels of inclusiveness and competitiveness. Individual lobbyists are often ignored in the study of lobbying influence, though it is logical that the type of lobbyist that an interest group employs is a key to influence (Lowery and Marchetti, 2012).[1]

Transaction cost theory suggests that interest groups engaged in highly competitive core domains will manage their human resources – their lobbyists – very differently than those active in peripheral domains. Williamson (1981) suggests that firms decide how to interact with their environment based on two key factors: metering and asset specificity. Metering is the degree to which firms must monitor employees, contractors, vendors and so on. Asset specificity refers to how specialized a person's skill set is for the task the organization demands.

In the case of interest groups, the environment is the core-periphery location of the policy domain in the network, and the interaction is the type of individual lobbyist deployed to represent its interests. And there are two basic characteristics that distinguish individual lobbyists that fit the monitoring and asset specificity concepts well: (i) whether or not lobbyists work as in-house employees or as for-hire contract lobbyists, and (ii) whether or not they have significant experience in government before becoming lobbyists.

Following the transaction cost approach, we should observe different types of lobbyists and different representational activities in core and peripheral domains.

**Hypothesis 1a:** In-House Lobbyists Hypothesis: In-house lobbyists employed directly by the clients they represent will be more active in core domains, and contract lobbyists will be more active on peripheral domains.

Simply, groups will deploy in-house lobbyists to core domains because those issues require closer monitoring. By definition, core domains garner the lion's share of attention by all lobbyists in the system. Issues on the periphery that focus on a single facet of policy, though, will typically demand only marginal attention. It follows then, that groups seeking to strategically allocate resources will only hire a harder-to-monitor contract lobbyist on retainer to focus on these niche issues that attract less attention from government day in and day out.

The second basic distinction among lobbyists is whether they have gone through the so-called revolving door between government and the private sector, or if they came to their positions more conventionally as experts in an industry, as activists in a movement or some similar path.

**Hypothesis 1b:**   Revolving Door Lobbyists Hypothesis: Lobbyists with significant previous government employment will be more active in core domains than in peripheral domains.

In the lobbying network, a lobbyist's government experience is a general asset that is useful across all domains. Because core domains will be crowded, groups will strategically hire lobbyists with access to key government connections so that their message may be heard above the others (Blanes i Vidal *et al*, 2013). Revolving door lobbyists are more valuable to interest group clients for their access and insider knowledge than for their subject matter expertise, a highly specific human resource asset (LaPira and Thomas, 2014).

Just as there are two key types of lobbyists, LDA reports also reveal two basic ways to distinguish lobbyists' representational activities: (i) their portfolio of clients, and (ii) the issues on which they lobby. Lobbyists may or may not represent clients from a variety of latent social, economic and demographic groups. That is, they may work for any number of clients, and those clients may hail from a single industry or from a variety of sectors.

**Hypothesis 2a:**   Client Diversity Hypothesis: Lobbyists who represent a greater diversity of client interests will be more active in core domains than in peripheral domains.

Lobbyists who solely represent, say, pharmaceutical manufacturers have more asset specificity than those who maintain a client book consisting of agribusiness, banking, defense contractors and pharmaceutical manufacturers. Intuitively, we can expect these lobbyists to be active in different policy domains. Simply, those lobbyists who represent a single industry or narrow policy space are more likely to find themselves active exclusively on the periphery.

The same logic applies to lobbyists who develop specialized technical expertise in a specific policy domain, or may be policy generalists. For instance, a locomotive engineer-turned-lobbyist with expertise on railroad safety regulations will focus exclusively on that narrow slice of transportation policy. But a lobbyist seeking to extract rents may do so simultaneously on a farm bill, a defense reauthorization, omnibus appropriations legislation and a must-pass tax reconciliation bill.

**Hypothesis 2b:**   Policy Generalization Hypothesis: Lobbyists who are active on a greater variety of policy issues are more likely to be active in core domains than those who specialize on one or a few issues.

Lobbyists who specialize on specific policy domains are precisely those who should be intuitively expected to occupy a niche. By definition, niche lobbying is done by specialists who concentrate on a particular issue. Conversely, policy generalists who spread their activities across multiple issue areas will be simultaneously active in more domains, and by being active in multiple domains they are more likely to be in the core.

Underscoring all of these expectations is our key contribution to the literature: identifying which policy domains are home to niche issues and which are subject to policy bandwagons is not obvious. Thus, we proceed to create an affiliation network of lobbyists across many policy domains and then compare our empirically derived core–periphery domains to an alternative, theoretically deduced set of policy domains that reflect different government functions.

## Data on Washington Lobbyists and Their Activities, 1998–2008

To test our theory, we conduct the broadest possible empirical analysis of lobbyists' choices to become involved in some issues rather than others. We use a new data set of 248 543 LDA reports filed from 1998 to 2008, disaggregated into 1 557 526 unique events where one of 32 700 lobbyists[2] are affiliated with one of 78 issue areas.[3]

The LDA requires all organizations and lobbying firms to report their lobbying activities semi-annually,[4] 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 chambers that they contacted. If, in a given time period, they (i) are employed or retained by an organization engaged in lobbying activities, (ii) make more than one lobbying contact a client's behalf, and (iii) spend at least 20 per cent of their time engaged in lobbying then they are required to report their lobbying with the Clerk of the House or the Secretary of the Senate.[5] Lobbyists must report the name of their clients (which may be the organization itself or a firm retained by the client), the issue areas and specific bills and regulatory issues on which they were active, and whether they were employed as a 'covered official' in the federal government in the 20 years before the report.

While our reading of the literature rests on the assumption that substantively differentiated policy domains organize the interest group system, the LDA operationalizes domains as bureaucratic 'issue area' categories that do not follow a librarian's taxonomic logic of mutually exclusive and substantively exhaustive categories. They cover general areas (that is, Trade, Government Issues), policy instruments (that is, Taxes), economic industries (that is, Pharmacy, Finance, Beverage Industry), government programs and services (that is, Medicare and Medicaid, Postal, Utilities) and others areas of varying specificity (that is, Religion, Retirement, Clean Air and Water, Indian/Native American Affairs). Without clear boundaries and varying scope, these categories are clearly not ideal. Yet since no

feasible or comparable alternative exists, we must accept that the problem of non-mutually exclusive categories is endemic to any use of LDA issue areas for research on lobbying activity.[6]

Fortunately, network analysis methods enable us to proceed. The core–periphery detection algorithm we employ treats categories as highly interrelated, supporting the analysis of overlapping and redundant categories (Borgatti and Everett, 1999). Social network analysis is intended to organize and visualize data that is not otherwise meaningfully structured by some central authority, such as with scientific citation patterns. In addition, as we show, categories that may appear to substantively overlap to an outside observer do not necessarily occupy the same location within the network, giving us confidence that our empirically uncovered structure is a reliable reflection of lobbyists' perceptions of their issue activities. That is, lobbyists perceive these otherwise analytically problematic issue areas to be the domains in which they engage in policy influence, and they report accordingly. If lobbyists are active in multiple, substantively overlapping issue areas then they disclose that fact. Our social network analysis, then, allows us to empirically uncover the degree to which these issue areas in fact overlap in the minds of lobbyists.

One further caveat remains: when filing LDA reports, lobbyists may choose just one or several issue areas on which to report activity even though they engage in the same lobbying activities. For example, it may be that a particular lobbyist working on reducing food import tariffs reports activity in both relevant categories (that is, Food Industry and Trade), just one category or neither. In addition, the issue areas are not operationally defined in relevant LDA guidance documents. Even worse, lobbying clients or their firms may even strategically report activity in one relevant category and not another in an effort to avoid detection by competitors, policymakers or the media. Taken together, these problems introduce measurement error into the LDA reporting data, which can be especially problematic when we configure the data in a relational database.

We remain confident that our data set is a reliable expression of the latent structure of the interest group system for two reasons. First, in the statutorily required 2013 Government Accountability Office audit of LDA compliance, more than 80 per cent of lobbyists were able to provide at least some documentation supporting their issue area codes even though the law does not require them to maintain records (GAO, 2013). Moreover, the GAO did not find any evidence that any lobbyists failed to comply with the law. In addition, a 2013 commercial survey of lobbyists found that less than 7 per cent of lobbyists thought completing the forms to be very or extremely challenging (Columbia Books, 2013). Second, as we show below, the networks that we derive from these data are extremely dense, suggesting that measurement error associated with idiosyncratic interpretations of the LDA issue area definitions or strategic misreporting would generate data inconsistent with our hypotheses, as they would tend toward being random in that case.

Finally, a simple review of the LDA reporting categories makes clear that some topics appear to be overarching ones while others are highly specific. In particular,

the domains of Budget, Taxation and Government Operations could easily be seen to affect virtually the entire lobbying system, whereas policy- or industry-specific domains may not. In our delineation of core and peripheral issue domains, we do indeed identify Taxes, Federal Budget and Appropriations, and Government Issues as highly central to the entire system. This, however, is an unavoidable element of the LDA reporting system, and these domains are not the only highly central ones; in fact, most of the domains we identify as central are issue-specific, such as Health Issues, Defense and Transportation.

In sum, the data set on which we rely for the analysis here is imperfect. Its extensive nature and the ability to investigate the co-occurrences of lobbying in diverse domains allows us to make a significant advance in understanding the structure of lobbying in diverse areas of the Washington lobbying system despite the flaws of the reporting process.

For all of the 32 700 individual lobbyists in our data set, then, we can know how many reports they filed, whether they were a covered official, whether they were hired as a consultant or were employed directly by the client, how many of the issue areas in which they were active and how many clients they represented.[7] In addition, the Center for Responsive Politics (CRP) aggregates lobbying clients by economic industries (94 of which are represented in our data set), thus we can also account for the diversity of economic interests that a lobbyist represents.

Table 1 summarizes the types of lobbyists and their activities by issue area. First, *in-house lobbyists* are coded 1 = employed directly for the LDA client, and 0 = contract lobbyist employed by a consulting firm. The majority of lobbyists (60.3 per cent) were primarily employed as in-house lobbyists, with just over one-third working under contract, meaning the overwhelming number of lobbyists are employees of the interest organization they represent.

Second, *covered official* status is coded 1 = 'covered official' and 0 otherwise, according to information listed on individual lobbying disclosure reports.[8] Of the census of lobbyists, 13.0 per cent list covered official information.[9] Most media

**Table 1:** Lobbyists and their activities, 1998–2008

|  | Proportion | SD |
|---|---|---|
| *Types of lobbyists (n = 32 700 lobbyists)* |  |  |
| Percentage of in-house lobbyists | 0.60 | 0.49 |
| Percentage of covered officials | 0.13 | 0.34 |
| *Representation activities (n = 78 LDA issue areas)* |  |  |
| Client diversity | 0.69 | 0.11 |
| Policy generalization | 0.16 | 0.06 |

*Note*: Data for types of lobbyists are dummy variables calculated from the population of all lobbyists. The percentage of covered officials is a dummy variable based on aggregation of official position information as listed on individual disclosure reports. Data for representation activities are averages across all years from 1998 through 2008 for each issue area.
*Source*: Compiled by the authors from CRP lobbying database.

accounts of the lobbying industry tend to focus on the revolving door and contract lobbyists (dramatically referred to as 'hired guns'), though this summary suggests most lobbyists in Washington have no government experience and work directly for their clients as government affairs employees.

We not only distinguish between contract or in-house lobbyists and those with or without high-level government experience, but we can also describe lobbyists' representational activities across issue areas by summarizing their clients' industries. First, to examine the breadth of interests represented by lobbyists, we generate a summary measure of *client diversity* using CRP's classification of clients into economic industries. Specifically, we calculate an annual, normalized Shannon's *H* entropy score for each issue domain (LaPira and Thomas, 2014; Boydstun *et al*, forthcoming; see Shannon, 1948). Issue areas with an entropy score approaching 1 have a very diverse client base (for example, clients evenly represent all existing industries), whereas those close to 0 will be narrower in their economic scope (for example, clients only represent one or a few existing industries). For instance, the Environment and Superfund issue area has an entropy score of 0.81, reflecting a relatively high diversity of economic interests. This is not surprising because so many industries – from crop farming to transportation to manufacturing – are all subject to environmental regulation. Alternatively, the Beverage Industry issue area has an entropy score of 0.34. This issue tends to attract attention only from industries linked by supply and distribution chains – such as beverage manufacturers, importers, distributors and retailers – and some consumer or health advocacy groups.

The final characteristic of LDA issue areas that we report is a summary measure of *policy generalization*. This statistic represents the average proportion of lobbyists' activities in all LDA issue areas. Proportions theoretically equal to 1 would indicate that all lobbyists active in the given issue area are also active in all other issue areas. Conversely, proportions closer to 0 indicate that lobbyists active in the given issue area are not engaged in the remaining issue areas.[10] Thus, the overall score represents the degree to which those lobbyists active in that domain tend to be policy specialists (closer to 0) or generalists (closer to 1). The mean issue area had a policy generalization value of 0.164 (SD = 0.059). The issue area that reflects the most policy specialization were Unemployment = 0.078 and Mining, Money and Gold Standard = 0.105, whereas those populated by generalists included Defense = 0.324 and Indian/Native American Affairs = 0.341. Thus, lobbyists active on unemployment issues are not active on many other issues, but those lobbying for defense are probably engaged in several other domains.

## The Core–Periphery Structure of the Lobbying Network

Our primary expectation is that the interest group network will generate a latent structure consisting of a single group partitioned with a small number of closely connected issue areas at the core and the majority of issue areas at the periphery. Our unit of analysis to construct the network is the issue area-issue area dyad, where issue areas are nodes and
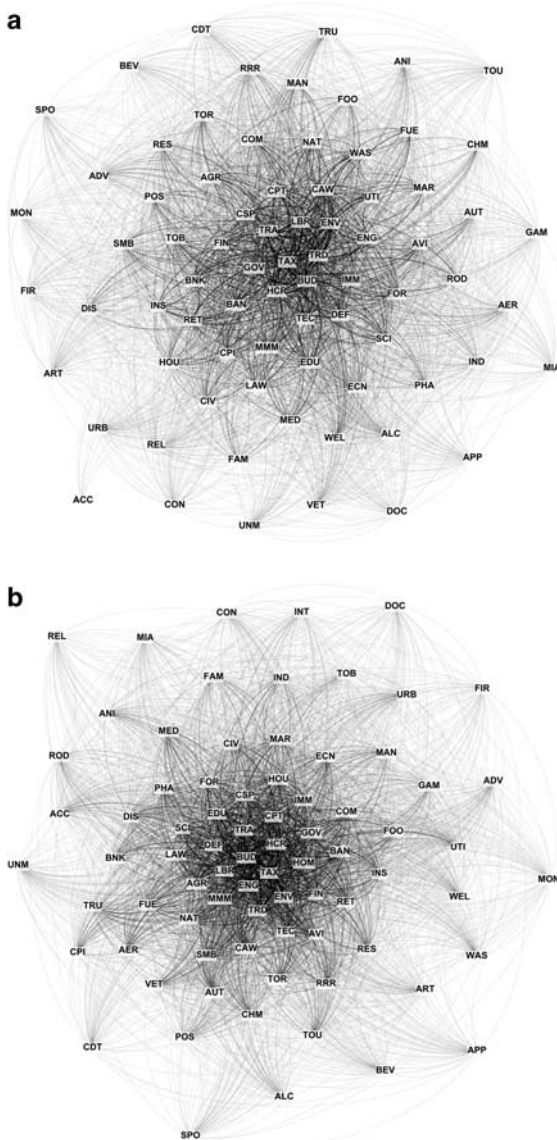
**Figure 1:** The interest group system as an affiliation network of issue areas. (**a**). 1998 (issue area nodes = 76); (**b**). 2008 (issue area nodes = 78).
*Note*: Nodes are the issue areas defined by LDA forms and edges are individual lobbyists that are active in corresponding domains. Connections between issue areas with less than 100 lobbyists linking them together are omitted for presentation. Graphs for other years appear similar and are therefore not included here.

lobbyists' affiliations are the edges that connect them. Figure 1 visualizes precisely the expected structure of the lobbying network, first for 1998 and then for 2008.[11]

We followed a simple procedure to construct the one-mode issue area affiliation networks from the full LDA data set shown in Figure 1.[12] A notable visual feature of these graphs is the density of connections between issues. The average density is 0.955, meaning less than 5 per cent of the theoretically possible issue area connections fail to make an actual connection. In other words, all but four or five issue areas are tied to each other at any given time. Clearly, these issue area affiliation networks exist as single groups, as predicted.

The extremely dense network graph shown in Figure 1 suggests a core–periphery structure is evident, yet to more systematically identify this structural feature we need to account for the nearly twofold increase in number of LDA reports filed in 2008 to those filed in 1998. In effect, we need to control for an inflation effect of LDA reports over time. Affiliation networks can be proportionally reduced by simply eliminating ties between nodes – in our case, numbers of lobbyists connecting issue areas – below some reasonable threshold. In other words, we can eliminate ties between issue areas that have very few lobbyists active in both, but keep ties between issue areas with many lobbyists active in both, and lose very little information. To do this, we first calculate an *LDA report multiplier* as the frequency of LDA reports filed in a given year divided by the frequency of LDA reports in 1998, and follow a simple procedure to adjust each annual network.[13] We can then generate reduced networks for each year as if they were equivalent to the amount of overall lobbying activity in 1998.

The results produce much clearer network visualizations in Figure 2. Corresponding network metrics are included in Appendix B for reference. Now we can unmistakably see that a handful of issue areas – including Federal Budget and Appropriations (BUD) – form a tightly knit center, whereas a large number of issue areas are located on the fringes, only moderately connected to the rest of the system.

But our intent here was not to describe arbitrarily reduced networks, but to identify issue areas in the core and the periphery. Now that we have equivalent networks, we use a one-mode categorical core–periphery block model algorithm to identify core issue areas (Borgatti and Everett, 1999). This technique partitions lobbyists (actors) who are active in the most active issue areas (events), and the issue areas that are most frequently mentioned by the most active lobbyists from those lobbyists and issue areas who are less active.

Very few issue areas are detected in the core, $mean_{core} = 7.73$ (SD = 1.42). On average, about 10.2 per cent of the issue areas in any network are located in the core. Only four issue areas – Federal Budget and Appropriations (BUD), Health Issues (HCR), Taxes (TAX) and Trade (TRD), are located in the core in all 11 years. Of course, the common thread among these domains is that they are primarily under the jurisdiction of Congress's 'money' committees, the tax-writing and appropriations panels in both chambers. Given the annual budget process in Congress, it should be no surprise that these areas garner most of the lobbying attention, or that these are the domains with the greatest number of links to other substantive policy domains.
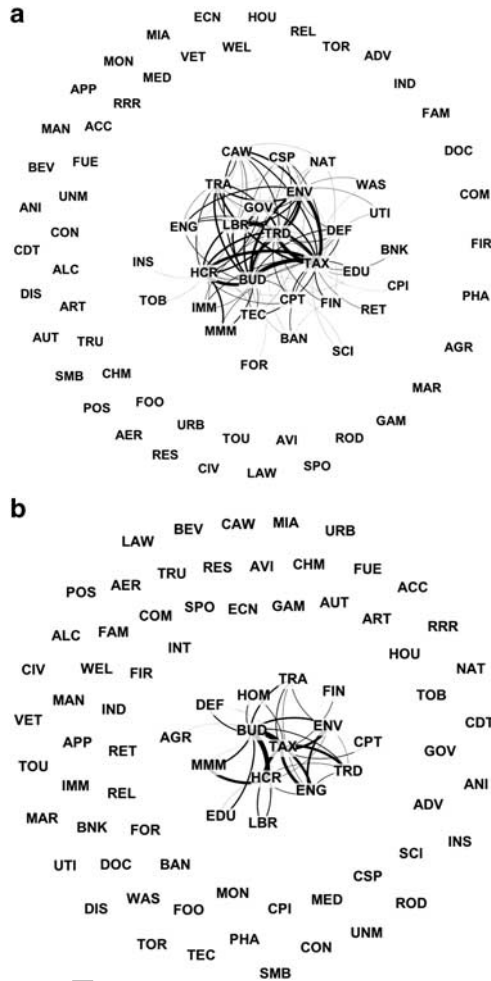
**Figure 2:** Reduced issue area affiliation network. (**a**). 1998 (issue area nodes = 76); (**b**). 2008 (issue area nodes = 78).
*Note*: Nodes are the issue areas defined by LDA forms and edges are individual lobbyists that are active in corresponding domains above the cutpoint threshold. Graphs for other years appear similar and are therefore not included here. The procedure utilized to generate these reduced networks is described in Appendix B.

Figure 3 shows the results of our efforts to detect a consistent core over time. For each year, it identifies those policy domains that fall into the core. All 12 domains that appear in the core at least once are included, and darker shadings indicate those policy domains with the highest levels of coreness. The Borgatti and Everett (1999)

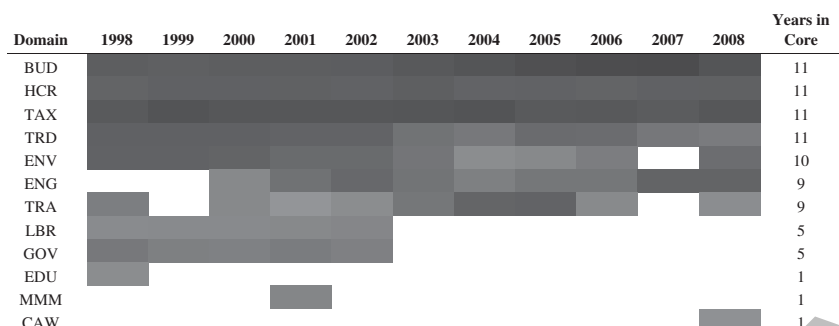| Domain | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | Years in Core |
|--------|------|------|------|------|------|------|------|------|------|------|------|---------------|
| BUD | | | | | | | | | | | | 11 |
| HCR | | | | | | | | | | | | 11 |
| TAX | | | | | | | | | | | | 11 |
| TRD | | | | | | | | | | | | 11 |
| ENV | | | | | | | | | | | | 10 |
| ENG | | | | | | | | | | | | 9 |
| TRA | | | | | | | | | | | | 9 |
| LBR | | | | | | | | | | | | 5 |
| GOV | | | | | | | | | | | | 5 |
| EDU | | | | | | | | | | | | 1 |
| MMM | | | | | | | | | | | | 1 |
| CAW | | | | | | | | | | | | 1 |

**Figure 3:** Issue areas detected in core, 1998–2008.
*Note*: Any shading indicates presence in the core for each year. For presentation purposes, darker shading indicates higher values of 'coreness' above the minimum continuous threshold for inclusion in the core. See Appendix B for methods used to calculate core membership.

algorithm calculates a continuous 'coreness' measure and specifies the number of issue areas to be included as members of the core (see Appendix B for more detail). Our identification of the core is relatively generous, as we include issue areas that are members of the core at least once in the 11-year time period. Even with this rather liberal interpretation of what issues are in the core, our primary expectation holds: most issues never appear in the core; very few are consistently in the core.

## Lobbyists and Interest Representation in the Core and the Periphery

Now that we have uncovered the latent structure of the lobbyist affiliation network, we can investigate the types of lobbyists and their representational activities in both worlds of lobbying. For each of the 78 issue areas, we generate a dummy *core–periphery* variable where core = 1 for each unique issue area identified in the core in any year ($n = 12$), and 0 for issue areas always identified in the periphery ($n = 66$).

In addition, as a validation check on our empirically derived core issue areas, we develop an alternative theoretical identification for issue areas. That is, based solely on LDA issue area descriptions, we classify issue areas based on its *government function*, where primary = 1 ($n = 14$) for each issue area that applies to those functions where the federal government is chiefly or exclusively responsible. Primary government functions include issue areas that are central to federal government functions, such as Taxes, Budget and Appropriations, Foreign Relations and Immigration. To be clear, these issue area identifications are intended to serve as an alternative straw man theory of what is central and peripheral to government.

Issue areas coded secondary $= 0$ ($n = 64$) are those that regulate specific industries or products (Agriculture; Banking and Food Industry), address particular social problems or specific government programs (Medicare and Medicaid, Consumer Product Safety, Welfare) or deal with highly specialized areas of civil litigation (Bankruptcy, Civil Rights and Civil Liberties, Copyright, Patent and Trademark). Using this coding scheme, we identify a roughly equivalent number of primary issue areas as we detected in the core of the network. Note that four of these hand-coded issue areas were also empirically detected in the core: Taxes, Federal Budget and Appropriations, Trade, and Government Issues. The full list of issue areas categorized by government function can be found in Appendix C.

By doing this, we adopt the naïve assumption that lobbyists may perceive some LDA issue areas as topically broad enough to attract many lobbyists, and some as substantively narrow as to only attract those with a peculiar regulatory or legal specialty. The budget and appropriations process applies to all sectors of the economy; finance issues apply primarily to *Wall Street* and its regulation. Of course, the definition of issues themselves that would fit them into these categories is subject to the political process (Baumgartner and Jones, 1993). We do not suggest that these kind of *ex ante* classification schemes are ideal, only that it is reasonable to assume that lobbyists perceive some issue areas as broad and some as narrow. Rather than our systematic core–periphery detection, we ask do the poorly defined LDA issue areas – not the core and periphery – actually trigger what appears to be bandwagons and niches?

For Hypotheses 1 and 2, we report results from difference in means tests in Table 2 for both the theoretically deduced government function and network analysis-detected core–periphery issue areas.

When issue areas are classified based on their government functions, we fail to reject the null hypothesis for three of our four descriptive variables. On the contrary, our hypothetical expectations match issue areas much better when categorized by the network's structure. We can reject the null hypothesis for all four of the LDA issue area-level variables when comparing core and periphery domains.

## In-house/contract lobbyists (Hypothesis 1a)

Lobbyists who work directly for their clients are more likely to be active in the core, whereas lobbyists hired as consultants are disproportionately active in periphery issue areas. The proportion of in-house lobbyists is statistically significant, 7.2 per cent greater in the core than in the periphery, but merely 2.7 per cent higher (and not statistically significant) in primary issue areas than in the secondary ones. This finding is consistent with the logic of niche partitioning and transaction costs, where organized interests strategically outsource lobbying to contract lobbyists that

**Table 2:** Interest representation in Washington's core and periphery

| | Government function | | | | Network structure | | | |
|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | DF | t | Core | Periphery | DF | t |
| Percentage of in-house lobbyists | 65.82 (11.32) | 64.02 (13.19) | 76 | 0.47 | 68.51 (4.03) | 63.58 (13.72) | 65.5[a] | 2.40* |
| Percentage of covered officials | 10.09 (1.96) | 9.37 (2.27) | 76 | 1.10 | 10.55 (1.26) | 9.31 (2.31) | 29.3[a] | 2.67* |
| Client diversity | 0.74 (0.13) | 0.62 (0.11) | 76 | 3.42** | 0.77 (0.10) | 0.62 (0.11) | 76 | 4.24** |
| Policy generalization | 0.20 (0.10) | 0.16 (0.04) | 14.3[a] | 1.84 | 0.23 (0.06) | 0.15 (0.05) | 76 | 4.48** |
| Issue areas | 14 | 64 | | | 12 | 66 | | |

[a]Welch's estimated degrees of freedom for unequal variance used to calculate *t*.
*Note*: $N = 78$ LDA issue areas. Primary and secondary government functions were manually coded based on issue area descriptions and are listed in Appendix C. Core and periphery issue areas were empirically detected from lobbyists' affiliations. Reported values are means across issue areas with standard deviations in parentheses. Covered official status in our analysis is based on official position information as listed in corresponding individual disclosure reports within each issue area. Statistical significance of difference in means tests indicated as **$P<0.01$; *$P<0.05$.

require less monitoring for issues on the periphery. In turn, they can allocate internal government relations staff to issues in the more salient, competitive domains that demand greater attention. This relatively simple marginal cost–benefit calculation applies when we empirically detect the core and periphery in the lobbyist affiliation network, but not when we distinguish issue areas by government function alone.

### Revolving door lobbyists (Hypothesis 1b)

On average, core issue areas are home to 11.7 per cent more covered official lobbyists than those in the periphery. Primary government-function issue areas have, on average, 7 per cent more covered officials as well, but this difference in means is not statistically significant. These results suggest that interest organizations active in core domains strategically seek the competitive advantage of those who have key connections inside government. In the relatively crowded, highly competitive domains that attract the majority of attention, interest groups exploit revolving door lobbyists' personal and professional connections to former employers.

Not only do different types of lobbyists occupy the core and the periphery, but those lobbyists engage in measurably different representation activities in each.

### Client diversity (Hypothesis 2a)

As measured by our entropy score, we can reject the null hypothesis that lobbyists' clientele diversity is greater on average in both primary function domains and in core domains. The differences in means do not appear to show much of a difference for either the theoretical or the empirical categorization. Yet, entropy is difficult to interpret because the formula allows for variations in both the count of clients and the number of industries they represent. Primary government function domains have an average score of 0.74, which is about 16 per cent greater than secondary issue areas; similarly, core domains have a mean 0.77 entropy score, or 19 per cent higher than those on the fringes. Because these calculations are based on 94 CRP industries represented in our data set, a 16 per cent mean difference amounts to roughly 17.2 more industries represented than in secondary issue areas, if we assume equal levels of overall lobbying activity (which entropy treats as a variable, not a constant). Likewise, a 19 per cent mean difference translates to about 20.7 additional industries represented in the core than in the periphery. As expected, lobbyists with less asset specificity jump on the core domain bandwagons. They necessarily have a greater diversity of clients than their niche-partitioned counterparts on the fringes.

### Policy generalization (Hypothesis 2b)

Finally, lobbyists active in core domains are simultaneously active in more domains overall. The same is not true for primary and secondary government function issue areas. The issue niche politics that we expect in peripheral issue areas are home to more specialized, asset-specific lobbyists. LDA issue areas in the core consist of generalists who are simultaneously lobbying on nearly two-thirds (64 per cent) more issue areas than the relatively specialized lobbyists representing clients in the periphery. Taken together, lobbyists in core issue areas were simultaneously active in an average of 1.6 additional issue areas per year, whereas lobbyists engaged in the periphery were active in fewer than one issue additional area annually (0.98). The relative specialization we see in the periphery is precisely the kind of policy differentiation we would expect to observe in niche issues.

All told, this series of difference in means comparisons for types of lobbyists and lobbying activities provide substantial evidence that the different kinds of interest group politics occur simultaneously, depending on where we look. If instead we categorize issue areas by what appears to functional differences, we fail to see differences in interest group behaviors as transaction cost theory would suggest, save one measure of interest representation. We conclude that those issue areas identified by the core–periphery detection routine are not simply artifacts, and that our technique provides an empirical solution to a significant theoretical debate in the interest group literature.

## Implications for Lobbying and Interest Representation

Using the tools of social network analysis with data from the full census of lobbying activities in Washington for more than a decade, we have looked at some old issues of interest group politics through an innovative analytical lens. Perhaps the greatest value in these tools is that they allow us to look comprehensively at the global structure of the Washington influence community rather than at only a small part of it, as has been more common in previous studies. In perhaps the seminal study of the structure of interest group politics, Heinz *et al* (1993) found policy domains consisting only of hollow cores, not tightly knit inner circles. Our results suggest that the picture they paint is not so much wrong as it is incomplete.

Instead, when we look at the full census of lobbyists, we find two very different worlds of influence peddling in Washington. Whereas many have noted the privileged access and extraordinary power of individual lobbyists working within obscure policy subsystems, others have pointed to huge lobbying campaigns where thousands of rank-and-file lobbyists interact with the nation's political leadership in high-profile and well-publicized debates. We simply offer an empirical means to identify where to expect these very different political contexts. The first world, where most lobbying attention is directed, is one in which we see a great deal of interconnectedness and interest diversity. The second world, home to an over-whelming majority of policy domains, cultivates niche lobbying and policy balkanization.

That these two worlds exist simultaneously is precisely what has made it difficult for political scientists to generalize about 'typical' or 'average' lobbying. We believe this is why the literature on lobbying has often been so internally contradictory. No wonder political scientists draw such different conclusions about interest group politics when they study such disparate events.

The normative implications are clear. Highly specialized lobbyists drift toward to those sparsely populated domains in the periphery where they can focus on obscure policy minutiae, relatively free from public scrutiny. These fringe domains and the niche lobbying they invite yield a system that 'does not promote open and freewheeling discussion of all relevant policy ideas and alternatives', but that instead generates fragmented and inconsistent policy outputs (Browne, 1990, p. 504). Contract lobbyists leverage these conditions to generate profit in pursuit of public policy. In 2012, the top 20 lobbying firms alone reported taking in more than US$350 million in lobbying receipts.[14]

Alternatively, the network core appears to match images of interest group pluralism at their most optimistic, as domains in the core are home to the greatest diversity of interests. Yet such a conclusion would be misleading, as a select few revolving door lobbyists take advantage of their connections to former employers. The dominant Washington lobbying firms and organizations with sophisticated internal government relations operations are able to retain those lobbyists with the

access and inside information drawn from experience working in government. Thus, it should be no surprise that corporations who invest heavily in revolving door lobbyists in core domains like taxes see such large returns on their investments (see Richter *et al*, 2009).

## Acknowledgements

## Notes

1  Previous analysis (see Baumgartner and Leech, 2001; Leech *et al* 2005) suggests that using either lobbyists or groups as the unit of analysis makes little empirical difference, yet for our purposes lobbyist-issue area dyads are the only way to map affiliations between issue areas, as they reflect the actual unit of disclosed lobbying activity. Each lobbying disclosure report lists as many or as few individual lobbyists per issue area, and some lobbyists are often listed in multiple issue areas. This variation allows us to disaggregate the reports and create a relational database where lobbyists are the unit of analysis. We do not propose that analyzing lobbyists rather than interest organizations would fundamentally alter the relationships we uncover.

2  The raw data set was collected and organized by the CRP. We manually corrected clear errors in collection affecting approximately 200 000 issue-area reports in 2000 and 2002, among other small errors. For analysis purposes, we also drop observations corresponding to individuals who acted as both in-house and contract lobbyists during the time period (3126 lobbyists).

3  The original LDA form in 1996 included only 74 issue areas, and 4 more were added to the list over time. Two issues areas were added in 1997, and two more were added during our study: Homeland Security (HOM) in 2002 and Intelligence (INT) in 2007. A full list of LDA issue areas with their three-letter codes is included in Appendix A, along with the total number of report mentions.

4  Under the LDA, reports were filed semi-annually between 1998 and 2007. Quarterly reporting began in 2008 following revisions made under the Honest Leadership and Open Government Act of 2007. We drop data from the first and third quarters of 2008 to maintain consistency with the prior period.

5  This statutory definition most certainly undercounts the number of lobbyists in Washington, as many policy advocates maintain that they do not engage in 'lobbying activities' according to the LDA.

6  Leech *et al* (2005) link LDA issue areas with the Policy Agendas Project topic system, but this approach prevents analysis of the full census of lobbying activity because only 56 issue areas were sufficiently good fits with the policy subtopic codes.

7  Not all of the 32 700 lobbyists were active throughout the entire 11-year period. On average, 10 936.9 (SD = 1118.34) individual lobbyists reported actively lobbying per year.

8  We consider a lobbyist as reporting covered status when 'official position' information is listed on individual reports. We exclude observations that are recorded as 'N/A', 'None' and 'Not applicable' (with variations in capitalization). This information is aggregated by lobbyist to calculate a population-level statistic (reported in Table 1), while our subsequent analysis considers this information as listed on individual reports (that is, by issue area).

9  These are raw data from all LD-2 forms filed with the Secretary of the Senate, which underreports revolving door lobbying (LaPira and Thomas III, 2014). We assume underreporting errors are distributed equally across issue areas.

10 By definition, all lobbyists were active in at least one issue area, thus this value approaches 0 asymptotically. The number of issue areas varied by year, with 76 from 1998 to 2001 (4 years), 77 from 2002 to 2006 (5 years) and 78 from 2007 to 2008 (2 years), thus in theory the lowest possible value is $(4(1/76)+5(1/77)+2(1/78))/11 = 0.01302$.

11 Network visualizations for each annual period appear similar, therefore we do not produce all of them here.

12 See Appendix B for more detailed methodological procedures used in this article, along with additional network metrics that do not directly address the core–periphery derivation.

13 Appendix B reports these multipliers and provides further detail regarding the reduction procedure.

14 Data were obtained from www.opensecrets.org/lobby/top.php?showYear=2012&indexType=l on 18 March 2013.

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# Appendix A

## LDA reports by issue area

**Table A1:** Total number of LDA report-mentions

| Issue area | Code | Number of report-mentions |
|---|---|---|
| Accounting | ACC | 3956 |
| Advertising | ADV | 3162 |
| Aerospace | AER | 6782 |
| Agriculture | AGR | 28 342 |
| Alcohol and Drug Abuse | ALC | 4272 |
| Animals | ANI | 3963 |
| Apparel, Clothing and Textiles | APP | 1718 |
| Arts and Entertainment | ART | 4441 |
| Automotive Industry | AUT | 5769 |
| Aviation, Airlines and Airports | AVI | 19 773 |
| Banking | BAN | 23 094 |
| Bankruptcy | BNK | 12 691 |
| Beverage Industry | BEV | 1883 |
| Chemical Industry | CHM | 6410 |
| Civil rights and Civil Liberties | CIV | 10 103 |
| Clean air and Water | CAW | 24 646 |
| Commodities | CDT | 1369 |
| Computers and Information Technology | CPI | 12 118 |
| Constitution | CON | 2866 |
| Consumer Product Safety | CSP | 19 475 |
| Copyright, Patent and Trademark | CPT | 26 196 |
| Defense | DEF | 73 601 |
| Disaster and Emergency Planning | DIS | 7836 |
| District of Columbia | DOC | 1780 |
| Economics and Economic Development | ECN | 11 458 |
| Education | EDU | 42 225 |
| Energy and Nuclear Power | ENG | 51 898 |
| Environment and Superfund | ENV | 55 220 |
| Family, Abortion and Adoption | FAM | 5776 |
| Federal Budget and Appropriations | BUD | 161 693 |
| Finance | FIN | 28 347 |
| Firearms, Guns and Ammunition | FIR | 2485 |
| Food Industry | FOO | 13 379 |
| Foreign Relations | FOR | 17 837 |
| Fuel, Gas and Oil | FUE | 10 372 |
| Gaming, Gambling and Casinos | GAM | 6711 |
| Government Issues | GOV | 34 824 |
| Hazardous and Solid Waste | WAS | 9101 |
| Health Issues | HCR | 89 453 |
| Homeland Security | HOM | 21 082 |

**Table A1:** (*Continued*)

| Issue area | Code | Number of report-mentions |
|---|---|---|
| Housing | HOU | 18 639 |
| Immigration | IMM | 20 910 |
| Indian/Native American Affairs | IND | 16 712 |
| Insurance | INS | 19 901 |
| Intelligence | INT | 325 |
| Labor, Antitrust and Workplace | LBR | 35 432 |
| Law Enforcement and Crime | LAW | 19 728 |
| Manufacturing | MAN | 5741 |
| Marine, Boats and Fisheries | MAR | 14 119 |
| Media Information and Publishing | MIA | 2410 |
| Medical Research and Clinical Labs | MED | 13 383 |
| Medicare and Medicaid | MMM | 48 711 |
| Mining, Money and Gold Standard | MON | 1543 |
| Natural Resources | NAT | 24 463 |
| Pharmacy | PHA | 11 220 |
| Postal | POS | 6939 |
| Radio and TV Broadcasting | COM | 17 422 |
| Railroads | RRR | 8669 |
| Real Estate and Land Use | RES | 10 644 |
| Religion | REL | 1279 |
| Retirement | RET | 20 207 |
| Roads and Highways | ROD | 6608 |
| Science and Technology | SCI | 20 401 |
| Small Business | SMB | 10 274 |
| Sports and Athletics | SPO | 1183 |
| Taxes | TAX | 114 765 |
| Telecommunications | TEC | 34 377 |
| Tobacco | TOB | 7804 |
| Torts | TOR | 14 153 |
| Trade | TRD | 62 801 |
| Transportation | TRA | 59 088 |
| Travel and Tourism | TOU | 2622 |
| Trucking and Shipping | TRU | 3744 |
| Unemployment | UNM | 1474 |
| Urban Development | URB | 6367 |
| Utilities | UTI | 11 705 |
| Veterans Affairs | VET | 6921 |
| Welfare | WEL | 6735 |

# Appendix B

## Lobbyist affiliation network methods and metrics

This appendix supplements the network methodological discussion in the manuscript to explain in greater detail how the annual lobbying affiliation networks were constructed and reduced to control for lobbying activity inflation and to derive comparable core–periphery structures over time.

### *Issue area affiliation networks*

Generating the one-mode issue area affiliation networks involved a series of simple procedures outlined below. For each year, the full LDA data set was contracted into a standard 'edge-list' text file where observations included all unique lobbyist-issue area pairs and corresponding frequencies of occurrence in the data set. These edge lists were imported into Pajek using the txt2pajek utility and the networks transformed from very large two-mode networks (where all lobbyists and all issue areas are nodes) to the one-mode issue area affiliation networks pictured above. Core–periphery analysis was completed using the corresponding continuous core–periphery function in UCINET with the 'minres' algorithm, which produces a continuous value of 'coreness' and specifies the number of issues areas that meet the threshold for core membership. Table A1 reports the frequency of LDA reports and number of issue area nodes for each annual network. In addition, a series of standard network analysis descriptive statistics (including density, average degree and average weighted degree) are also reported. These statistics and all network graphs were created using Gephi visualization software (Table B1).

**Table B1:** Full issue area affiliation network metrics

| Year | Frequency of LDA reports | Issue area nodes | Density | Average degree | Average weighted degree |
|------|--------------------------|------------------|---------|----------------|-------------------------|
| 1998 | 15 569 | 76 | 0.92 | 69.3 | 7100.2 |
| 1999 | 17 215 | 76 | 0.95 | 71.6 | 9600.9 |
| 2000 | 17 358 | 76 | 0.96 | 72.3 | 9308.1 |
| 2001 | 18 773 | 76 | 0.95 | 70.9 | 7830.8 |
| 2002 | 20 654 | 77 | 0.96 | 72.9 | 8340.5 |
| 2003 | 23 165 | 77 | 0.96 | 72.7 | 7954.7 |
| 2004 | 24 648 | 77 | 0.97 | 73.3 | 9206.0 |
| 2005 | 27 112 | 77 | 0.96 | 72.6 | 10 245.6 |
| 2006 | 27 627 | 77 | 0.96 | 73.3 | 11 285.2 |
| 2007 | 28 726 | 78 | 0.96 | 74.1 | 12 616.0 |
| 2008 | 27 697 | 78 | 0.96 | 73.7 | 11 574.1 |

**Table B2:** Reducing the lobbying affiliation network

| Year | Network reduction formula values | | | Reduced network metrics | | |
|------|------------------------|----------------------------------|------------------|-------------------|----------------------------|----------------|
| | LDA report multiplier | Average maximum number of edges | Edge cutpoint | Average degree | Average weighted degree | Core nodes |
| 1998 | 1.00 | 439.0 | 439 | 2.7 | 1893.5 | 9 |
| 1999 | 1.11 | 578.5 | 640 | 1.9 | 1873.3 | 7 |
| 2000 | 1.11 | 548.8 | 612 | 2.1 | 1976.3 | 9 |
| 2001 | 1.21 | 479.5 | 578 | 1.8 | 1600.3 | 10 |
| 2002 | 1.33 | 477.6 | 634 | 1.5 | 1371.4 | 9 |
| 2003 | 1.49 | 488.4 | 727 | 1.0 | 1057.7 | 7 |
| 2004 | 1.58 | 540.3 | 855 | 1.0 | 1094.7 | 7 |
| 2005 | 1.74 | 604.3 | 1052 | 0.8 | 1105.4 | 7 |
| 2006 | 1.77 | 650.4 | 1154 | 0.8 | 1137.0 | 7 |
| 2007 | 1.85 | 700.5 | 1292 | 0.7 | 1214.6 | 5 |
| 2008 | 1.78 | 633.9 | 1128 | 0.9 | 1281.8 | 8 |

### Reduction procedure and reduced issue area affiliation networks

Table B2 reports the values we utilize to reduce the lobbying affiliations to adjust for over time increases in lobbying activity, as well as network metrics of these reduced networks for each year. The reduction procedure is as follows. First, we calculate an *LDA report multiplier* as the frequency of LDA reports filed in a given year divided by the frequency of LDA reports in 1998. Second, we calculate the average maximum number of edges as the mean number of ties that a given issue area has to its most frequently connected issue area pair. That is, for each year, each issue area has a maximum, mean and minimum number of connections to all other issue areas. Consider this hypothetical example: Accounting (ACC) may have a maximum 100 lobbyist-ties to Taxes (TAX), but a minimum of 0 ties to Immigration (IMM), whereas Federal Budget and Appropriations (BUD) may have a maximum 2500 ties to Taxes (TAX) and a minimum of 25 to Unemployment (UNM). Because minimum (and mean) values may be zero-inflated, we chose to use the maximum number of connections in order to reduce the networks for comparison. For each network year, we then calculated the mean of this value across issue areas.

Next, we simply multiplied the average maximum number of edges by the initial report multiplier. The resulting edge cutpoint is the threshold number of edges for each issue area below which edges were deleted to reduce the network. Thus, for the 1999 network, we eliminated ties between issue areas that had less than $(17\,215_{1999\ \text{LDA Reports}}/15\,569_{1998\ \text{LDA Reports}})*(578.47_{\text{avg. number of maximum edges}}) = 640$ edges. Thus, for any issue area pair that had less than 640 lobbyists active in 1999, we eliminated those ties.

This process was repeated for each year, with annual cut-points listed in Table B2. The result is a series of 11 annual networks that are proportional to the overall

amount of lobbying activity. Table B2 also reports the average degree, average weighted degree and the number of nodes empirically derived to be included in the core, for each reduced network (Table B2).

# Appendix C

**Table C1:** Issue areas by government function and network structure

| Issue area | Code | Government function | Network structure |
| --- | --- | --- | --- |
| Constitution | CON | Primary | Periphery |
| Defense | DEF | Primary | Core |
| District of Columbia | DOC | Primary | Periphery |
| Economics and Economic Development | ECN | Primary | Periphery |
| Federal Budget and Appropriations | BUD | Primary | Core |
| Foreign Relations | FOR | Primary | Periphery |
| Government Issues | GOV | Primary | Core |
| Homeland Security | HOM | Primary | Periphery |
| Immigration | IMM | Primary | Periphery |
| Indian/Native American Affairs | IND | Primary | Periphery |
| Intelligence | INT | Primary | Periphery |
| Law Enforcement and Crime | LAW | Primary | Periphery |
| Taxes | TAX | Primary | Core |
| Trade | TRD | Primary | Core |
| Accounting | ACC | Secondary | Periphery |
| Advertising | ADV | Secondary | Periphery |
| Aerospace | AER | Secondary | Periphery |
| Agriculture | AGR | Secondary | Periphery |
| Alcohol and Drug Abuse | ALC | Secondary | Periphery |
| Animals | ANI | Secondary | Periphery |
| Apparel, Clothing and Textiles | APP | Secondary | Periphery |
| Arts and Entertainment | ART | Secondary | Periphery |
| Automotive Industry | AUT | Secondary | Periphery |
| Aviation, Airlines and Airports | AVI | Secondary | Periphery |
| Banking | BAN | Secondary | Periphery |
| Bankruptcy | BNK | Secondary | Periphery |
| Beverage Industry | BEV | Secondary | Periphery |
| Chemical Industry | CHM | Secondary | Periphery |
| Civil Rights and Civil Liberties | CIV | Secondary | Periphery |
| Clean Air and Water | CAW | Secondary | Core |
| Commodities | CDT | Secondary | Periphery |
| Computers and Information Technology | CPI | Secondary | Periphery |
| Consumer Product Safety | CSP | Secondary | Periphery |
| Copyright, Patent and Trademark | CPT | Secondary | Periphery |
| Disaster and Emergency Planning | DIS | Secondary | Periphery |
| Education | EDU | Secondary | Core |
| Energy and Nuclear Power | ENG | Secondary | Core |

**Table C1:** (*Continued*)

| Issue area | Code | Government function | Network structure |
|---|---|---|---|
| Environment and Superfund | ENV | Secondary | Core |
| Family, Abortion and Adoption | FAM | Secondary | Periphery |
| Finance | FIN | Secondary | Periphery |
| Firearms, Guns and Ammunition | FIR | Secondary | Periphery |
| Food Industry | FOO | Secondary | Periphery |
| Fuel, Gas and Oil | FUE | Secondary | Periphery |
| Gaming, Gambling and Casinos | GAM | Secondary | Periphery |
| Hazardous and Solid Waste | WAS | Secondary | Periphery |
| Health Issues | HCR | Secondary | Core |
| Housing | HOU | Secondary | Periphery |
| Insurance | INS | Secondary | Periphery |
| Labor, Antitrust and Workplace | LBR | Secondary | Core |
| Manufacturing | MAN | Secondary | Periphery |
| Marine, Boats and Fisheries | MAR | Secondary | Periphery |
| Media Information and Publishing | MIA | Secondary | Periphery |
| Medical Research and Clinical Labs | MED | Secondary | Periphery |
| Medicare and Medicaid | MMM | Secondary | Core |
| Mining, Money and Gold Standard | MON | Secondary | Periphery |
| Natural Resources | NAT | Secondary | Periphery |
| Pharmacy | PHA | Secondary | Periphery |
| Postal | POS | Secondary | Periphery |
| Radio and TV Broadcasting | COM | Secondary | Periphery |
| Railroads | RRR | Secondary | Periphery |
| Real Estate and Land Use | RES | Secondary | Periphery |
| Religion | REL | Secondary | Periphery |
| Retirement | RET | Secondary | Periphery |
| Roads and Highways | ROD | Secondary | Periphery |
| Science and Technology | SCI | Secondary | Periphery |
| Small Business | SMB | Secondary | Periphery |
| Sports and Athletics | SPO | Secondary | Periphery |
| Telecommunications | TEC | Secondary | Periphery |
| Tobacco | TOB | Secondary | Periphery |
| Torts | TOR | Secondary | Periphery |
| Transportation | TRA | Secondary | Core |
| Travel and Tourism | TOU | Secondary | Periphery |
| Trucking and Shipping | TRU | Secondary | Periphery |
| Unemployment | UNM | Secondary | Periphery |
| Urban Development | URB | Secondary | Periphery |
| Utilities | UTI | Secondary | Periphery |
| Veterans Affairs | VET | Secondary | Periphery |
| Welfare | WEL | Secondary | Periphery |