Delegating Representation: The Influence of Lobbyists on Client Legislative Behavior *

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Abstract

What influence do lobbyists have on the behavior of interest groups? When representing multiple clients, lobbyists must balance time and credibility constraints with the need to adequately represent each client. We argue that lobbyists resolve these competing incentives by targeting policies that benefit large subsets of their clients, at the cost of a more individualized legislative strategy. We test our theory using an original dataset of intergovernmental lobbying in California. We find high levels of similarity in lobbying behavior among municipalities represented by the same lobbying firm, even when accounting for differences in municipalities' demographic, fiscal, and geographic characteristics. Using a stacked difference-in-differences design, we find that when these governments change lobbying firms, the structure of their lobbying behavior changes as well. Our findings highlight the role of lobbyists in structuring their clients' actions and the principal-agent problems inherent in contract lobbying.

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1 Introduction

What role do lobbyists have in shaping the political agenda of their clients? Interest groups hire lobbyists to advocate for their policy preferences (Kersh 2000). Professional lobbyists are hired for their expertise and personal relationships (Blanes i Vidal, Draca and Fons-Rosen 2012; Bertrand, Bombardini and Trebbi 2014), for their ability to efficiently monitor legislative and regulatory activity (Drutman and Hopkins 2013; Leech et al. 2013), and for their strategic advice on how best to exert influence over the policymaking process (Drutman 2015; Kersh 2000). Due to this expertise, lobbyists are often delegated substantial autonomy in determining the lobbying behavior of their clients (Kersh 2000; Drutman 2015; Tyllström and Murray 2021).

Lobbyists, however, are unlikely to perfectly represent the interests of their clients. Interest groups regularly hire external, contract lobbyists to advocate on their behalf. Furthermore, clients are unlikely to perfectly monitor lobbyist activity (Stephenson and Jackson 2010; Lowery and Marchetti 2012). Lobbyists face distinct profit, credibility, and policy incentives (Kersh 2000; Hirsch et al. 2023; Ellis and Groll 2024). These incentives create the potential for agency problems between client-principals and lobbyist-agents. Lobbyists' expertise and discretion over lobbying actions may distort policy outcomes away from what clients would prefer given perfect compliance.

These potential problems can be amplified when lobbyists represent multiple interest groups. Many lobbying firms represent multiple clients both within and across industries (Drutman 2015; Strickland 2020). When these external lobbyists represent multiple clients, this delegation turns into a common agency problem. Due to time and credibility constraints, lobbyists are limited in the number of distinct actions they can take. Additionally, lobbyists may try to avoid taking actions that pit their clients interests against one another.

In this paper, we explore the implications of multi-client lobbying on interest group behavior. We argue that when lobbyists represent multiple clients, they target legislation that benefits large subsets of their clients. This strategy avoids conflicts between clients

and allows lobbyists to advocate for multiple clients with a single action. Using a simplified formalization of the lobbyist's decision problem, we explore the implications of this strategy on client behavior. First, the theory predicts high levels of homogeneity in lobbying behavior among clients represented by the same lobbyist and low levels of similarity between clients represented by different lobbyists. Next, we expect that when clients change lobbyists, their behavior should change as well. In particular, their lobbying actions should look less like clients represented by their old lobbyist and more like those represented by their new lobbyist. Finally, the theory predicts that clients represented by lobbyists with large portfolios will engage in less distinctive lobbying behavior compared to clients represented by lobbyists with small portfolios. The size of a lobbyist's portfolio should be inversely related to the the individualized nature of their clients' lobbying behavior.

We test these predictions using an original data set of lobbying actions taken by municipalities in California. Municipalities provide a useful test case for the theory. First, municipalities engage in a substantial amount of lobbying and often outspend other interest group sectors in lobbying at the state level (Payson 2020*a*). Second, these actors provide a bounded and broadly comparable set of clients for which lobbying contracts and data on underlying characteristics are readily available.

To confirm whether expectations about the informational advantage and influence of lobbyists from the existing literature apply to our sample of municipal government clients, we collected a sample of 174 contracts between California municipalities and the lobbying firms they hired in 2023. These contracts often contain a detailed summary of the services to be rendered by a lobbyist, allowing insight into the role of these professionals in the policy making process. These contracts confirmed that lobbyists are often hired for their informational value—monitoring legislative and administrative processes and alerting clients to the legislation that warrants their attention. Moreover, many contracts specified that lobbyists are expected to help clients better understand their *own* policy needs and to develop a legislative agenda on which lobbying actions will be based. The delegation granted to

these lobbyists allows for the possibility of an agency problem between lobbyists and local government clients.

Next, using disclosure reports, we constructed a dataset of both the lobbying firms representing California municipalities and the state legislation these municipalities lobbied between 2003 and 2022. Our data captures more than 250 municipalities represented by more than 100 distinct lobbying firms. Using these reports, we construct a bill-municipality-level data set consisting of over 70,000 lobbying actions.

We use this data to test predictions from our theory. First, we find that local governments that share a lobbying firm lobby on a more similar set of bills than do those represented by different firms. This relationship persists even when we account for differences in underlying demographic, fiscal, political, and geographic characteristics. Next, we explore how behavior changes when municipalities' representation changes. Using a stacked difference-in-differences design, we find that when a municipality changes lobbying firms, the municipality's behavior becomes less similar to that of clients represented by their previous lobbying firm and more similar to that of the clients represented by their new lobbying firm. Finally, we examine how the number of clients in a lobbyists' portfolio affects the uniqueness of an individual client's lobbying behavior. As the number of clients a lobbyist represents increases, the bills their clients lobby become less distinct.

Our findings highlight the potential agency costs associated with delegating representation to lobbyists. Lobbyists informational advantage and substantive expertise enables them to shape client behavior in subtle ways that may align with their own credibility and profit incentives. This delegation may still benefit clients overall. In the absence of a lobbyist, clients would need to commit substantial resources to effectively monitor and target legislation; however, these findings highlight that lobbyists are not simply "transmission belts" for their clients' interests (Kersh 2000).

2 Lobbyists as Imperfect Agents

Professional lobbyists serve as an intermediary between legislators and clients. For legislators, lobbyists provide an important screening function—signaling the viability of policies or the credibility of interest groups to legislators (Ainsworth and Sened 1993; Hirsch et al. 2023). Often the value ascribed to lobbyists by clients corresponds to these relationship with legislators. An empirical literature exploring the characteristics of individual lobbyists highlights the role of their personal connections to legislators and expertise in explaining variation in lobbyist revenue (Bertrand, Bombardini and Trebbi 2014; Blanes i Vidal, Draca and Fons-Rosen 2012; McCrain 2018).

An equally important relationship is the one between lobbyists and their clients. Clients hire lobbyists because they often prove valuable in influencing government policymaking (Baumgartner et al. 2009, p. 208). Beyond relationships with government officials, lobbyists serve as a crucial source of information for these clients. A key role of lobbyists is to monitor legislative and administrative processes for issues or opportunities that may affect their clients' interests (Drutman and Hopkins 2013; Leech et al. 2013). Although clients can engage in monitoring themselves, doing so is costly. Lobbyists' specialization in these tasks can make them more efficient information gatherers (Stephenson and Jackson 2010). Furthermore, lobbyists provide their clients with strategic advice on how to present and advocate for their interests in the policymaking process, for example whom to lobby and what testimony to present (Drutman 2015; Kersh 2000).

Due to this significant informational advantage, lobbyists are often delegated substantial autonomy in determining the lobbying actions and strategies of their clients (Kersh 2000; Drutman 2015). Although clients may sometimes hire lobbyists to help advance particular legislation, external lobbyists are more commonly tasked with advocating for broad interests, such as opposing new regulation of a particular industry (Espinosa 2021). In representing broad client interest, lobbyists have substantial discretion to identify which policies will affect their clients and to determine which issues to prioritize and which lobbying actions to take

(Kersh 2000, pp. 240-245).[1] Lobbyists, therefore, have significant influence over the options presented to their clients and thus over the actions that are subsequently lobbied.

The incentives of professional lobbyists and their clients, however, may not always align. Lobbyists face profit, credibility, and policy incentives that may differ from those of their clients (Kersh 2000; Hirsch et al. 2023; Ellis and Groll 2024). Lobbyists may also have ideological interests that influence the advice they give to clients (Stephenson and Jackson 2010). Lobbying firms often maintain partisan ties (Furnas, Heaney and LaPira 2019), and their actions may be constrained by their long term need to maintain these ties.

The informational advantage, discretion, and incentives of professional lobbyists produce a potential agency problem between client-principals and the lobbyist-agents to which they delegate their representation (Lowery and Marchetti 2012). Incentive misalignments, for example, can manifest in the level of effort a lobbyist exerts in advocating on behalf of their client. Profit and credibility motives can mean that "the marginal benefit to the client of an additional unit of lobbyist effort exceeds the marginal benefit to the lobbyist of investing that effort," or vice versa (Stephenson and Jackson 2010, p. 8). The lobbying options presented to and effort taken on behalf of a client may not perfectly correspond to the actions a client would take themselves if fully informed. Competing interests can sometimes lead lobbyists to take positions at odds with the interests of their clients (Holyoke 2022). As clients face difficulty monitoring and evaluating the success (or lack there of) of a lobbyist's efforts, these problems can persist despite the potential costs to a lobbyist's reputation (Lowery and Marchetti 2012).

These problems are amplified when the lobbyist represents multiple clients. Professional lobbyists often represent multiple clients within the same general industry (Drutman 2015; Strickland 2020). These within-lobbyist coalitions can be beneficial. Coalitions that represent a diverse set of interests can be more effective at getting items on the legislative agenda (Lorenz 2020). Similarly, larger coalitions can lead to higher levels of success (Heaney and

[1]See also Tyllström and Murray (2021) for evidence that public affairs consultants similarly influence the political agendas of their clients.

Lorenz 2013). However, when coalition members are represented by the same lobbyist, new delegation problems emerge. When a lobbyist represents multiple clients, this turns into a common agency problem (Bernheim and Whinston 1986). Here the lobbyist serves as the agent to multiple client-principals (Ainsworth and Sened 1993; Groll and Ellis 2014). Although these actors may share a broad set of goals, specific interests may vary between clients.

Lobbyists face constraints in their ability to effectively represent multiple clients. First, lobbyists have limited resources and time with which to represent their clients. Access to legislators is both costly and limited (i Vidal, Draca and Fons-Rosen 2012). Even when firms employs multiple lobbyists, lobbyists are often limited in the number of actions they can take. Lobbyists must be selective in who they represent in order to be valuable to legislators (Hirsch et al. 2023; Groll and Ellis 2014). This constrains which actions a lobbyist can credibly take.

Second, lobbyists that represent multiple clients may try to avoid pursing actions that divide their client-base. A lobbyist representing a single client can pursue whichever actions brings that client the highest benefit. When a lobbyist represents multiple clients, the set of possible actions becomes constrained. Lobbyists face both formal and informal prohibitions against pursuing interests that benefit one client while harming another.[2] The risk of shirking can make clients wary to hire a lobbyist who represents an opposing interests (Strickland and Chakravadhanula 2024). Consequently, lobbyists are often limited to actions that either benefit all clients or that are neutral with respect to other clients.

Both of these constraints affect how lobbyists represent their clients' interests. We expect that when lobbyists represent multiple clients within a similar industry, they can resolve these difficulties by pushing clients to lobby on similar sets of actions. This serves a dual purpose. First, bills that benefit all clients avoid conflicts between clients with differing interests.

[2]Lobbyists do sometimes represent clients on competing sides of an issue (Strickland and Crosson 2022; Goldstein and Bearman 1996). However, some lobbying contracts specify that a firm may not represent clients with divergent interests. For example, Long Beach, California, was represented by the lobbying firm Arc Strategies in 2023. The contract between these two entities reads that "The Legislative Representative(s) [Arc Strategies] shall not have other clients with competing interests with the City, including any cities, agencies, or special authorities in southern California" (p. 20).

Second, these bills satisfy multiple client-principals with a single action—helping lobbyists overcome their resource constraints.

To understand the implications of this strategy on client behavior, we utilize a simplified formalization of the lobbyist's decision process. Assume that there are N potential clients, $C_1, C_2 \ldots C_N$. Let $\mathcal{P} \subset \{0,1\}^N$ be the set of potential policies that can be lobbied. A policy, $\vec{p}$, is an N-length vector where each entry corresponds to a client. If a policy $\vec{p}$ is lobbied, the benefit to client i is $u_i(\vec{p}) = \mathbf{1}\{p_i = 1\} \cdot \frac{1}{\sum_{j=1}^{N} p_j}$. A client only benefits from a policy if it targets them ($p_i = 1$). Furthermore, as the number of clients benefiting from a policy increases, the benefit to each individual client decreases.

Consider a lobbyist that represents a subset of $n < N$ clients. We assume that the lobbyist wants to maximize the utility of her portfolio of clients but is limited in the number of policies that she can lobby.[3] What policies should the lobbyist target? An individual client benefits most from a policy that only targets them; however, these policies provide no benefit to the lobbyist's other clients. The lobbyist can maximize her utility by targeting policies that benefit as many of her clients as possible, while minimizing the number of non-clients targeted. These policies benefit each individual client slightly less; however, they maximize the utility of the client portfolio.

This lobbying strategy has three observable implications for the lobbying behavior of the clients. First, we should observe higher levels of similarity among clients represented by the same lobbying firm compared to clients represented by different firms. As the lobbyist targets policies that benefit large subsets of her clients, similarity in lobbying behavior within firm should be high. Conversely, when clients are represented by different lobbying firms, the similarity in the bills they lobby should be relatively low. As the clients of each lobbyist are different, the bills they target will be as well. Consequently, within-lobbyist similarity should be much higher than across-lobbyist similarity.

[3]Let P denote the set of policies lobbied. Formally, we define the lobbyists utility as $u_L = \sum_{i=1}^{n} \sqrt{\sum_{\vec{p} \in P} u_i(\vec{p})}$. The lobbyists prefers her clients to equally share the benefit of a policy than for one client to get all of the benefit and the rest none.

Second, when clients switch lobbying firms their behavior should look less like the clients represented by their old lobbyist and more like the clients represented by their new lobbyist. Lobbyists' strategies are dependent on the composition of their portfolio. A single client benefits from any policy that targets them; however, the policies their lobbyist pursues will depend on the other members of the portfolio. When a client changes lobbyists, they become part of a new portfolio of clients. As the lobbyist's strategy is portfolio dependent *and* the portfolios between the new and old lobbyist differ, the switcher's lobbying behavior will change.

Finally, the uniqueness of a clients' lobbying behavior should decrease the more clients their lobbyist represents. There are two mechanisms driving this relationship. First, as the number of clients represented by the lobbyist increases, a larger share of the pool of clients is represented by the same lobbyist. Within-lobbyist, similarity in behavior is high. Consequently, larger portfolios lead to higher average levels of similarity in lobbying behavior. Second, as the number of clients increases, the number of potential policies that benefit all clients decreases. A client, C_i, benefits from policies where $p_i = 1$. For a single client, there are 2^{N-1} potential policies that satisfy this condition. For n clients, there are instead only 2^{N-n} policies available that benefit all group members. Consequently, the choice set of potential policies is limited by the number of members the group has to represent. As the lobbyist has fewer policies to target, the uniqueness of their behavior will decrease.[4]

3 Local governments as lobbying clients

To test our predictions, we focus on lobbying of the California legislature by municipalities in the state. This case is particularly well-suited to testing for the influence of lobbyists. Local governments offer a readily identifiable universe of lobbying clients affected by similar legis-

[4]This aspect of the mechanism is conditional on their being a limited policy choice set. If all potential policies are available to the lobbyist, they will only lobby policies that benefit exclusively their group members. When $\mathcal{P}$ is a subset of all policies, however, lobbying actions may also benefit non-group members. This will reduce uniqueness of lobbied policies.

lation. Moreover, the underlying characteristics of these municipalities are easily observed from publicly available data, allowing us to proxy for local interests that might otherwise explain similarities in lobbying behavior across clients. Documents detailing the selection and contracting process between local governments and their lobbyists are also often publicly available, providing additional insight rare among corporate clients (e.g., Drutman and Hopkins 2013).

A growing body of work seeks to explain intergovernmental lobbying. This work suggests that local governments often seek to secure funds and maintain legal autonomy from state legislatures (Weir, Wolman and Swanstrom 2005; Gamm and Kousser 2013) and that the decision to lobby is often predicted by fiscal need and preference incongruence between levels of government (Goldstein and You 2017; Gordon 2019; Payson 2020*b*). In a majority of states, at least a quarter of cities lobby their state government (Payson 2022, p. 24). This lobbying activity provides a robust sample with which to test our claim. This is particularly true in California where local governments often outspend other interest group industries on lobbying (Payson 2022, p. 13) and where granular lobbying data is readily accessible.[5] In a given legislative session in California, local governments lobby between a quarter and a third of all bills introduced.

4 Data

4.1 Lobbying contracts

As a first step, we turn to qualitative evidence from contracts between municipalities and their lobbyists. We collected contracts between California municipalities and their lobbying firms pertaining to services rendered in 2023. These contracts are particularly valuable as they often outline why a lobbying firm has been retained and the specific tasks that lobbying

[5]Intergovernmental advocacy by local governments is similar in magnitude (e.g., percent of cities that engage in lobbying and median expenditure by a local government on lobbying) to that observed in other states, such as Arizona, Florida, and Washington (Payson 2022).

firms have been hired to provide.

We were able to obtain 207 out of 243 contracts for lobbyist-client pairs registered in 2023 using municipalities' public websites or through public records requests.[6] We then manually classified each of the specific tasks assigned to a lobbying firm in the "scope of services" or "scope of work" sections of these contracts to identify the key services provided by lobbyists. Of the contracts collected, 174 (84%) contracts contained sufficient detail to classify distinct lobbying services.[7]

We use these contracts to better understand the types of information lobbyists provide to their clients and the discretion that these agents have in structuring clients' lobbying behavior. First, the contracts confirmed that lobbyists are often retained by municipalities for their informational expertise. Eighty-nine percent of contracts included monitoring of legislative, administrative, and/or executive processes as a key task assigned to lobbyists. This information gathering often went beyond specific policies identified by the client as being of interest. For example, the City of Belmont's lobbying contract assigned their lobbyist to "raise, discuss, and recommend any affirmative legislative action that may benefit the City, and identify any potential or actual legislative or agency action that may impact the City and region."[8] Lobbyists can exert subtle influence over the choice set of their clients by determining which bill introductions or regulatory proposals to highlight and which actions to recommend to clients.

Second, the contracts highlight that these lobbyists have substantial discretion over the set of potential lobbying actions presented to these clients. Over 40% of contracts outlined a specific role for lobbyists to identify the needs and interests of clients and translate these interests into a specific legislative agenda on which subsequent lobbying actions would be

[6]For the remaining cases, repeated efforts to obtain these records from local governments went unanswered or local officials indicated that they could not find corresponding records.

[7]See Appendix D for more detail on this classification process and additional details about the lobbying contracts.

[8]See, "A resolution of the City Council of the City of Belmont authorizing the City Manager to enter into an agreement with Renne Public Policy Group to provide state legislative advocacy and consulting services," p. 3.

based. It is unlikely that firms are deceiving or misrepresenting the interests of their clients when engaging in these tasks. Instead, these examples suggest that lobbyists have substantial autonomy in determining how to translate clients' broad or latent interests into concrete lobbying actions. This role of lobbyists both aligns with previous scholarship (Drutman 2015) and suggests the possibility of client-lobbyist agency slack when clients delegate their representation to these professionals (Kersh 2000; Lowery and Marchetti 2012).

4.2 Bill-level lobbying data

The contracts provide evidence that clients are willing to delegate some authority to their lobbyist. To understand how this delegation can affect their clients' decisions, we turn to the legislation targeted by local governments. In California, interest groups that hire lobbyists are required to submit quarterly disclosure reports detailing their lobbying activity.[9] These reports provide information about who the group employed to lobby on their behalf and what activity they engaged in. In particular, these reports list the bills lobbied by the local governments in each legislative session. Using these reports, we constructed an original dataset of legislation lobbied by local governments in California between 2003 and 2022. Legislators, rather than executive officials or bureaucrats, are the primary target of lobbying by municipalities in California (Payson 2020*a*), so our focus on bills allows us to identify the bulk of each local governments lobbying behavior.

For each legislative session, here a two-year period, we use these reports to identify all bills lobbied by a local government through their contracted lobbyist. Our sample of local governments includes incorporated places with populations greater than 1,000—including cities and towns and excluding counties and special districts. We limit the sample to local governments that employed an external lobbyist.[10] Our resulting data set consists of over 70,000 actions taken by 288 unique local governments on over 13600 bills. Figure 1 plots

[9]Note that these reports are different from the contracts between lobbyists and their clients.

[10]Contract lobbyists are those for whom we expect agency problems to be the greatest. Furthermore, direct lobbying by local governments absent the presence of a contract lobbyist is more difficult to observe in the California lobbying data.

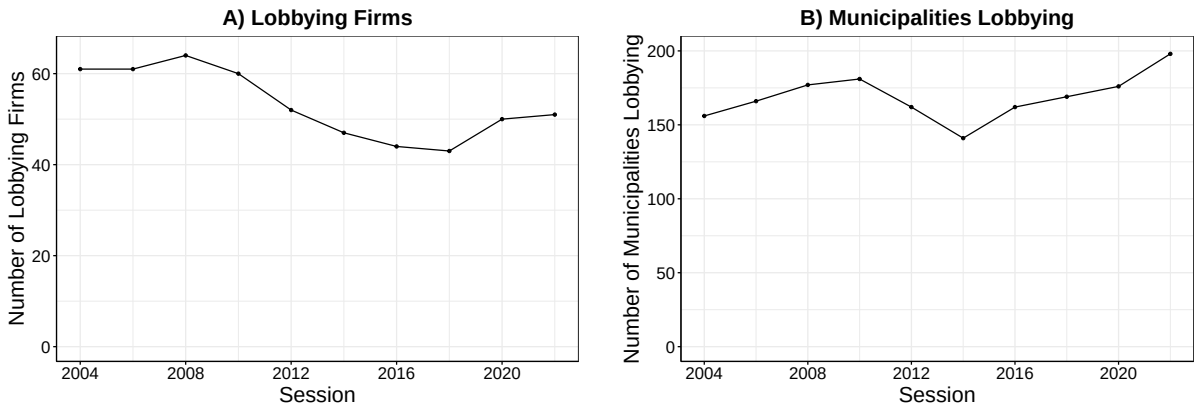

Figure 1: (A) The number of lobbying firms that represent at least one municipality by legislative session. (B) The number of local governments that employ an outside lobbyist by legislative session.

some descriptive statistics on our data. In a given legislative session, on average 50 lobbying firms represent municipalities in some capacity. The figure also plots how many municipalities engage in lobbying. On average, just under 170 municipalities lobby the California legislature each session.

When a municipality is represented by more than one firm, their disclosure reports do not specify which firm lobbied on which bill. For our analyses, we require lobbying actions to be tied to specific firms. Therefore, we define a municipality's *primary lobbying firm* as the firm paid the most money to represent a local government in a given legislative session.[11] For each legislative session between 2003 and 2022, our final dataset consists of bill-municipality pairs for each bill lobbied by a municipality in a legislative session. Additionally, each municipality is linked to their primary lobbying firm for that legislative session. We classify local governments as employing the same lobbying firm if they share the same primary lobbying firm.[12]

[11] As noted above, the vast majority of municipalities employ a single firm and, thus, are unaffected by this simplification. Furthermore, when a local government employs more than one firm, the primary lobbying firm, as defined above, is paid on average three times as much as the second highest paid firm. In these cases, the primary lobbying firm constitute the vast majority of spending on lobbying.

[12] Lobbying firms are also required to submit reports outlining the actions that they lobbied on behalf of their clients. In theory, these reports can be matched to clients to assign lobbying actions to firms even when clients employed multiple firms; however, matching actions in these reports to a specific client is imperfect. Errors in matching lobbying behavior to firms have the potential to increase the perceived similarity in

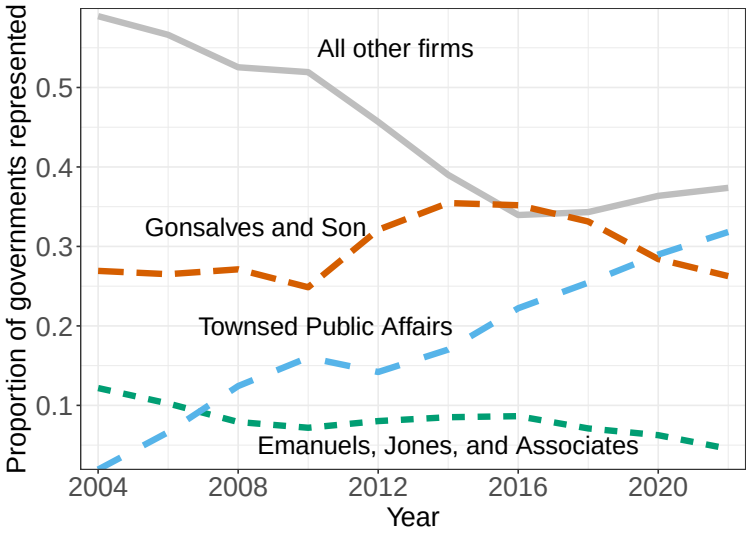

Figure 2: The proportion of municipalities represented by a lobbying firm over time. The figure plots the share of municipalities represented by three of the top firms (as of 2022) and all other firms combined. Since 2010, these three firms have accounted for over 50 percent of lobbying representation.

Focusing solely on these primary lobbying firms, Figure 2 plots the share of local governments represented by three of the top lobbying firms over time. A significant portion of municipal lobbying was conducted by these three firms, and the share of local governments employing these large volume firms has increased over time. From 2010 onward, these three firms represented over 50% of all local governments that employed an outside lobbyist. Most contract lobbying on behalf of this industry is done by firms representing many clients.[13] For these large volume firms, perfectly representing each individual government's interest may be difficult. The need to represent multiple clients, therefore, shapes the actions that these lobbying firms are able to take.

behavior biasing our results toward finding an effect. In contrast, assigning all lobbying behavior to a single firm should bias us against finding an effect. In Appendix B, we repeat our initial analyses excluding local governments that employ multiple lobbying firms. Results are robust to the exclusion of these firms.

[13]Note that many lobbying firms also represent clients that are not municipalities. In Appendix B, we provide descriptive information on the composition of lobbyist portfolios.

5 Analysis

How similar is the lobbying behavior of local governments? Each session, municipalities in our sample lobby over 1,000 different bills. To capture similarity in which bills are lobbied, we use cosine similarity.[14] This measure operates as follows. Assume that there are two local governments, A and B, that lobbied in a given year. For government i, let x^i be a vector of length N, where N is the number of unique bills lobbied by all governments in that year. Let $x^i_j = 1$ if government i lobbied bill j, and 0 otherwise. The cosine similarity between governments A and B is then:

$$\text{Cosine Similarity}(A, B) = \frac{x^A \cdot x^B}{||x^A||\ ||x^B||}$$

Higher values of cosine similarity correspond to greater overlap in the bills lobbied. The cosine similarity for a pair of local governments is 1 if they lobbied exactly the same set of bills. By contrast, a cosine similarity of 0 implies no overlap in the set of bills lobbied.[15] For each legislative session, we calculate the cosine similarity between every pair of municipalities that lobbied on at least one bill.

The left panel of Figure 3 plots the density of values of cosine similarity for all pairs of municipalities. Similarity in the lobbying behavior of municipalities is relatively low. The mean level of cosine similarity is only 0.19. The right panel of Figure 3 plots the distribution of cosine similarity distinguishing pairs of municipalities represented by the same firm from pairs represented by different firms. When local governments are represented by different lobbying firms, their average cosine similarity is 0.12. By contrast, the average similarity among pairs represented by the same firm is 0.58—almost five times higher. This difference is statistically significant.[16] Lobbying similarity is significantly higher among municipalities

[14] Within political science, cosine similarity has been used to compare various types of documents, such as government reports, political speech, court opinions, and Supreme Court opinions (See Hager and Hilbig (2020); Hazelton, Hinkle and Spriggs (2019)).

[15] This measure only depends on the bills lobbied. The set of bills that neither A nor B lobbied does not affect their cosine similarity. The measure is not artificially inflated by large values of N.

[16] Table A1 in Appendix A displays results from models estimating the relationship between similarity and

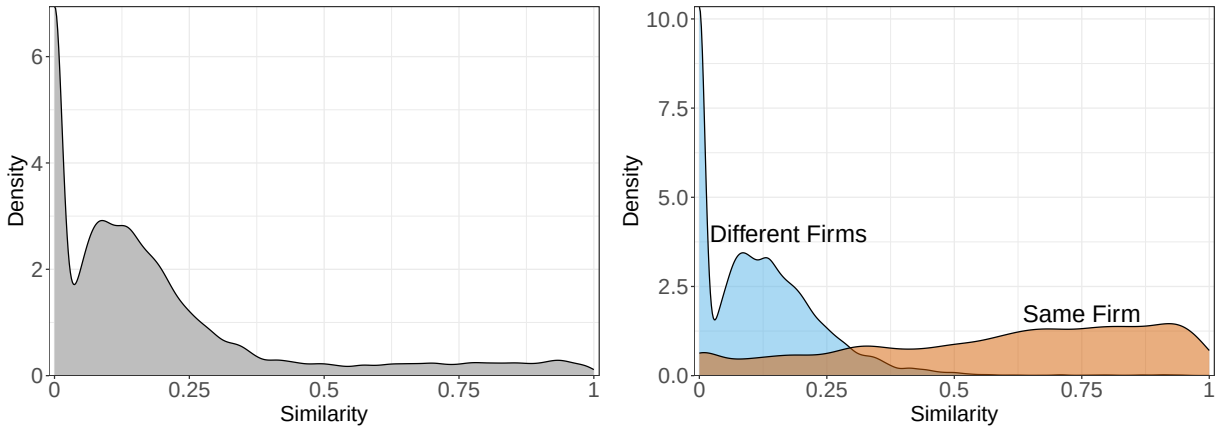

Figure 3: The left panel plots the density of similarity in lobbying behavior between local governments in a given legislative session. The right panel plots the density, distinguishing between pairs municipalities represented by the same firm and pairs represented by different firms. Larger values indicate higher observed similarity.

that are represented by the same lobbying firm compared to municipalities represented by different firms.

How important are lobbying firms to this observed similarity in lobbying behavior? Consider the sharp null hypothesis that who represents a local government is unrelated to their lobbying behavior. What is the likelihood that sharing a lobbying firm increases similarity in the lobbying behavior of municipalities to the extent observed above, or 0.46 on average? To answer this question, we simulate a null distribution of this statistic by randomly assigning municipalities to lobbying firms. Given these simulated pairings between firms and clients, we calculate the difference in mean similarity between pairs of municipalities that share the same firm and pairs represented by different firms.

Figure 4 plots results from these simulations. The observed effect is larger than what we would expect given the sharp null hypothesis. In fact, no simulated value is larger than the observed effect—underscoring the centrality of lobbying firms to behavior.[17] Lobbying behavior among municipalities that employ the same lobbying firm is much more similar than

whether two local governments are represented by the same firm using both OLS and beta regression.

[17]If we simulated every possible arrangement of clients and firms, we would likely find instances where our simulated results are larger than the effect we observe; however, the sheer number of possible combinations makes stumbling upon one of these arrangements very unlikely. In any given session, there are more than 10^{86} possible ways to assign local governments to just the two largest firms.

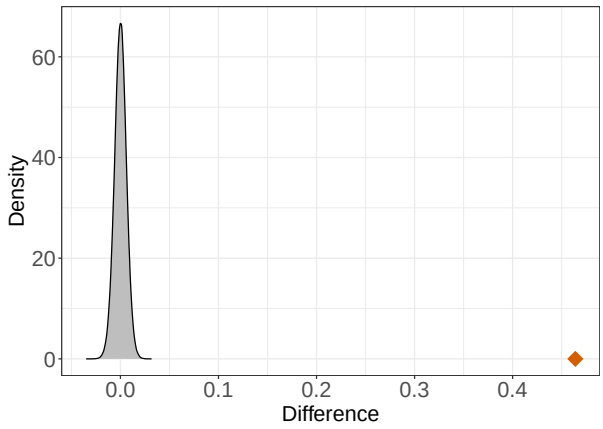

Figure 4: Density plot of the expected difference in average similarity between pairs of municipalities represented by the same lobbying firm and pairs represented by different firms. We conduct 100,000 simulations randomly assigning municipalities to firms within each legislative session and calculating this difference. Orange diamond represents the observed difference. The observed difference is larger than any simulated difference.

what we would expect if the identity of these firms were unrelated to lobbying behavior.

These results are robust to approaches that do not rely on cosine similarity or city-dyads. In Appendix B, we use techniques from network analysis to estimate the importance of lobbying firms to observed behavior. While these methods are similar to that used above, they utilize bills lobbied to construct links between local governments. Using this alternative approach, we find a similar result: who represents a municipality is central to what they lobby.

5.1 Selecting into lobbying firms

The above analysis demonstrates that municipalities represented by the same lobbying firm lobby a more similar set of bills than muncipalities represented by different firms. Local governments, however, do not choose lobbying firms at random. Firms may have specialties or reputations that make them attractive to certain types of municipalities. If local governments with similar underlying interests select into the same lobbying firm, we could observe similarity in lobbying behavior among the clients of a given lobbying firm absent any influence of the lobbying firm itself.

	Dependent variable:		
	Similarity		
	(1)	(2)	(3)
Same Firm	0.46*	0.35*	0.45*
	(0.02)	(0.03)	(0.02)
Difference in Poverty Rate			−0.11*
			(0.06)
Difference in Ideology			−0.05*
			(0.02)
Same County			0.04*
			(0.01)
Year F.E.	✓	✓	✓
Dyad F.E.		✓	
Local Government Characteristics			✓
Geographic Characteristics			✓
R^2	0.54	0.78	0.55
Num. obs.	111738	102318	105296
Note:			*$p < 0.05$

Table 1: OLS estimation of the effect of being represented by the same lobbying firm on similarity in lobbying behavior. Standard errors are calculated via dyad-cluster robust multiway decomposition as described in Aronow, Samii and Assenova (2015) and implemented by Bisbee and Rodriguez (2024). Local government characteristics include population, percentage white, poverty rate, ideology, Democratic presidential candidate vote share, percentage owner occupied housing, median household income, charter city status, and government type. Geographic characteristics include county, California region, and coastal status. Full results can be found in Appendix A.

To proxy for underlying interests that might explain similarity in lobbying behavior, we collected a variety of characteristics for the local governments in our sample. These characteristics include the following: population, poverty rate, median income, home ownership, estimated ideology, presidential vote share, percentage white, charter status, type of government (i.e., strong mayor, council manager), and per capita own source revenue. We also collected geographic information including the county in which a municipality is located, whether the local government is or is not coastal, and a variety of measures that capture which region of California a local government belongs to.[18]

[18]Detailed descriptions of these measures can be found in the Appendix C. Ideology estimates come from Tausanovitch and Warshaw (2013).

We estimate the effect of being represented by the same lobbying firm on lobbying behavior, accounting for differences in the interests of these local governments. For characteristics with continuous values, we take the absolute value of the difference between the two municipalities. For binary and categorical variables, we assign a value of 1 if the values are equal and 0 otherwise. Table 1 displays results from these models.[19] Even when local government interests are accounted for, municipalities represented by the same firm still have a higher degree of similarity than municipalities represented by different firms.

The interests of local governments, however, may interact in ways that are not captured by a regression analysis. Local governments may select into lobbying firms based on combinations of these observed characteristics. For example, liberal cities with high poverty may choose different lobbyists than liberal cities with low poverty and conservative cities with high poverty. To account for interactions between local government characteristics, we train a random forest regression to predict similarity in lobbying behavior between local governments.

We train two separate random forests. The first includes the same characteristics as Model 3 in Table 1, except that it excludes information about whether two local governments are represented by the same lobbying firm. Using only the characteristics of these municipalities, we train the random forest to predict similarity in lobbying behavior. The second model keeps these characteristics but adds a binary variable indicating whether the two local governments are represented by the same lobbying firm.[20]

Table 2 reports differences in performance between the two models. Adding information about whether two municipalities are represented by the same firm reduces the mean squared error by half. Allowing for non-linear interactions between the characteristics of municipalities does not diminish the importance of firm identity in explaining similarity in lobbying

[19]These models are estimated using the full list of local characteristics. For the sake of parsimony, we only display coefficient estimates for the characteristics with the largest estimated effects. Full results can be found in Appendix A. Results are robust to estimation via beta regression.

[20]Models are trained using 10-fold cross validation. We choose hyper-parameters to minimize the error of the model without information on lobbying firms.

Loss Function	Characteristics	Characteristics + Firm
MSE	0.034	0.018
R^2	0.37	0.68

Table 2: Estimation errors for random forest regression. The first column uses only municipal characteristics to estimate model. The second column adds information about whether the local governments are represented by the same lobbying firm.

behavior.

5.2 Switching representation

Unobserved factors may structure which lobbying firms local governments choose in ways previous analyses cannot account for. If local governments are sorting into lobbying firms based on some unobserved characteristic, our analysis would attribute similarity in behavior to a shared firm as opposed to this unobserved trait. To minimize the potential effect of selection into firms, we focus on changes in the similarity of lobbying behavior when local governments change which lobbying firm represents them.

We illustrate the logic underlying the analysis with a brief example. Assume there are two lobbying firms: A and B. Denote the local government that switches firms by S. In period t, S is represented by firm A, while in period $t+1$ they are represented by firm B. First, we compare the behavior of S with municipalities represented by firm A in both periods. We estimate how similarity between S and the other local governments represented by firm A changes between t, the period prior to the switch in representation, and $t+1$, the period immediately following this switch. We refer to this change as the effect of switching *out of a firm*. Our theory predicts that when municipalities switch out of a firm, the similarity in the behavior between S and other clients of firm A should decrease. Similarly, we can estimate the change in similarity between S and other clients of their new firm B between periods t and $t+1$. We refer to this change as the effect of switching *into a firm*. Our theory predicts that when municipalities switch into a firm, the similarity in the behavior between S and

the other clients of firm B should increase.[21]

As noted above, municipalities sometimes employ more than one lobbying firm. If we focus exclusively on changes in a municipality's primary lobbyist, we could mistakenly classify cases as switching where the firms representing a municipality do not change, only their relative payment does. Consequently, we employ the following three criteria to identify clear cases of municipalities that switch representation.

1. The primary lobbying firm at t is different than the primary lobbying firm at $t+1$.

2. The primary lobbying firm at $t+1$ did not represent the local government in any capacity at t.

3. The primary lobbying firm at t does not represent the local government in any capacity at $t+1$.

Applying these criteria leaves us with 53 instances of a local government switching lobbying firms.[22] Switching lobbying firms is relatively rare. When local governments lobby in consecutive legislative sessions, they tend to stay with the same lobbying firm.

Figure 5 looks at differences in cosine similarity before and after a local government switches lobbying representation. In line with expectations, when local governments switch lobbying firms their lobby behavior changes. First, we look at the effect of switching out of a firm on the cosine similarity between the municipality that switched and municipalities that remained in the firm. We note that in the period before the switch, the cosine similarity decreases between the municipality that will switch and other municipalities represented by

[21] We acknowledge that the decision to switch lobbying firms is non-random. Local governments may change representation because of an incongruence between their interests and the actions the firm undertakes. If a client's interests are not being well represented, changing firms and gaining more faithful representation should lead to changes in lobbying behavior. Similarly, a local government may choose a new firm based on a desire for the to mimic the lobbying behavior of the firms other clients. This could lead to a increase in lobbying similarity once a client joins a firm. While the mechanism for changes in similarity in these two scenarios is client, as opposed to lobbyist, driven, both alternate processes still require clients to have imperfect control over the decisions of their lobbyist. Switching firms to get more faithful representation is only necessary if the existing lobbyist cannot provide adequate representation. Consequently, these alternate mechanisms are consist with a lobbyist-client relationship that suffers from principal-agent problems.

[22] If we relax the second and third conditions, we observe 140 instances of switching.

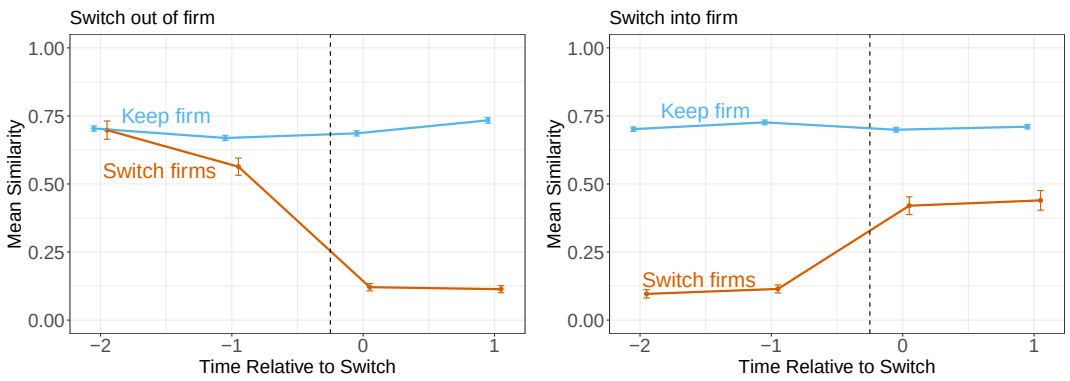

Figure 5: Trends in cosine similarity among municipalities that switch firms and those that remain in the same firm. Among municipalities switching out of firms, there is a significant decrease in similarity from period $t-2$ to $t-1$ relative to those that remain in the same firm. Among municipalities that switch into a firm, there is no difference in pre-trends between treated and untreated units.

the firm. We do not observe a corresponding decrease among pairs of municipalities that both remain in the firm. This initial decrease in similarity may be indicative of a mismatch in the interests of a municipality and the actions taken by the lobbying firm. After the municipality leaves the firm, we observe a substantial decrease in similarity. In period $t-1$ when the municipalities are represented the same firm, the mean cosine similarity is 0.56; however, after the municipality switches to a different firm, the mean cosine similarity in lobbying behavior with these same municipalities drops to 0.12.

Next, we look at the effect of switching into a firm—looking at similarity in behavior between the switcher and clients of the post-switch firm. In contrast to the switch out of case, we do not observe any changes in cosine similarity in the session before the switch takes place. The similarity between the switcher and clients in the firm they will switch into does not change between periods $t-2$ and $t-1$; however, after the switch takes place, we observe a significant increase in similarity. In period $t-1$, the mean cosine similarity in lobbying behavior between this municipality and clients of its future lobbying firm is 0.12. In period t when these local governments are represented by the same firm, the mean similarity in lobbying behavior increases to 0.42. Even among municipalities that either will share a firm or previously shared a firm with the switcher, similarity in lobbying behavior is highest when

	Dependent variable:					
	Similarity					
	Switch-Out			Switch-Into		
	(1)	(2)	(3)	(4)	(5)	(6)
Switch Pair	-0.14^*	-0.15^*	-0.13^*	-0.59^*	-0.55^*	-0.56^*
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Post-Switch	-0.03^*	-0.04^*	-0.03^*	0.02	-0.01	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Switch Pair*Post-Switch	-0.29^*	-0.29^*	-0.30^*	0.26^*	0.29^*	0.33^*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Corrective Weights		✓	✓		✓	✓
Local Government Characteristics			✓			✓
R^2	0.12	0.12	0.22	0.34	0.27	0.37
N	3582	3582	3567	3357	3357	3349
Note:						$^*p < 0.05$

Table 3: Stacked difference-in-differences estimate of the effect of switching firms on the similarity in lobbying behavior with other local governments represented by the firm. First three columns estimate the effect of switching out of a firm. Last three columns estimate the effect of switching into a firm. Robust standard errors are in parentheses. Weighted estimates use the procedure outlined in Wing, Freedman and Hollingsworth (2024). Full results can be found in Appendix A.

the local governments are represented by the same firm.

To more accurately estimate this effect, we use a stacked difference-in-differences analysis. We compare pairs of local governments where neither firms switched lobbyists with pairs where one of the local governments switched firms. As before, we distinguish between the effect of switching away from a firm and the effect of switching into a firm. We subset to firm-periods where at least one local government switched and weight observations to correct for bias (Wing, Freedman and Hollingsworth 2024). Table 3 presents results from this analysis.

The first three columns of the table estimate the effect of switching out of a firm on similarity in lobbying behavior. When a local government switches away from a firm, the similarity in their lobbying behavior to that of other municipalities represented by the pre-switch firm decreases relative to pairs of municipalities represented by the pre-switch firm in both periods. We also find a significant effect of switching into a firm. When a local

government switches into a firm, the similarity in their lobbying behavior to that of other municipalities represented by the post-switch firm increases relative to pairs of municipalities represented by the post-switch firm in both periods. This effect persists even when we account for a host of local-level characteristics. When local governments switch into a firm, their lobbying behavior becomes more similar to that of the firm's existing clients. When local governments switch out of a firm, their lobbying behavior becomes less similar to that of the firm's remaining clients. These results are supportive of our theory that lobbyists face incentives to push clients toward more similar lobbying behavior.

5.3 Uniqueness of Lobbying Behavior

As further evidence of a potential lobbyist-client agency problem, we examine how the uniqueness of bills lobbied by local governments varies as a function of how many clients their lobbyist represents. We expect that as the number of clients a lobbyist represents increases, the average uniqueness of their clients' lobbying behavior should decrease. We define uniqueness as follows. Let N denote the number of municipalities that lobby in a given legislative session. For bill b, let n_b denote the number of municipalities that lobby the bill. The uniqueness of b is $1 - \frac{n_b}{N}$. A bill has a uniqueness of 0 if every municipality lobbied it and a uniqueness of $\frac{N-1}{N}$ if only one local government lobbied it.

Figure 6 plots the density of municipalities' average uniqueness of bills lobbied. We disaggregate between local governments represented by the two largest firms, Gonsalves and Sons and Townsend Public Affairs, and all other firms. Local governments represented by the two largest firms lobby less unique bills on average relative to local governments represented by other firms.[23] We model the effect of firm size on the average uniqueness of bills lobbied.[24] As the number of local governments a firm represents increases, the average uniqueness of bills lobbied decreases.

[23]We focus on these two firms for illustrative purposes as they represent substantially more clients than the next largest firm. For most years in our data, Gonsalves and Son is the largest firm and Townsend Public Affairs is the second largest firm.

[24]Table can be found in Appendix A.

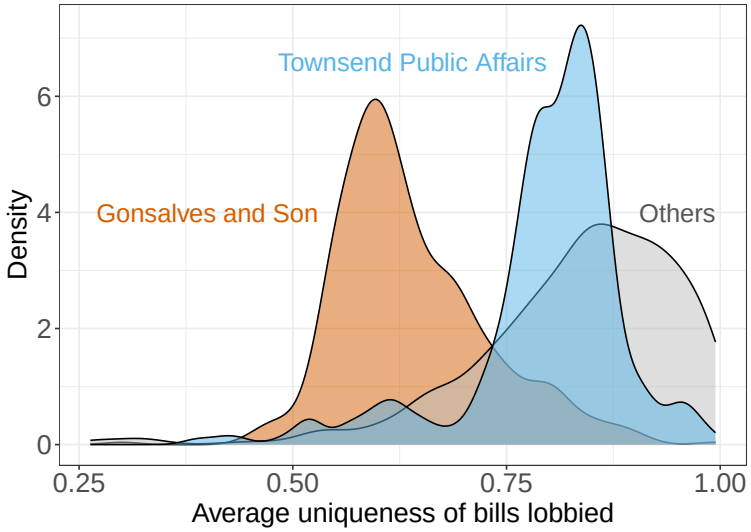

Figure 6: Distribution of average uniqueness of bills lobbied for clients represented by two large volume lobbying firms and all other firms.

We note that this finding is primarily driven by multiple clients in large firms lobbying the same bill, rather than clients in these large firms lobbying legislation that clients of other firms are also lobbying on. Excluding lobbying behavior by clients represented by the same firm, we do not find a positive relationship between the size of a client's lobbying firm and the number of other municipalities that also lobby the bills they target.[25] These results suggest that when lobbyists represent multiple local governments, they push these clients to lobby similar sets of legislation.

6 Discussion and Conclusion

Our findings demonstrate the influence lobbyists have on the political behavior of their clients. In line with our predictions, we find evidence that which legislation a client lobbies is heavily dependent on who their lobbyist is—a behavior that may be driven by lobbyists' desire to avoid potential conflicts between clients and deliver for multiple clients with a single action. This strategy increases the similarity of lobbying behavior among clients

[25]See Appendix B for figures demonstrating this relationship.

represented by the same lobbyist and reduces the uniqueness of an individual client's lobbying behavior. We acknowledge that the selection of lobbying firms is non-random and that municipalities may select into lobbying firms that represent clients with similar interests. However, our analysis of municipalities that change lobbying firms suggests that a shift into shared representation increases similarity in the lobbying behavior of clients. Among municipalities that either will share a lobbying firm or previously shared a lobbying firm, similarity is highest in the period when two local governments are represented by the same firm.

What are the implications of our findings on the principal-agent relationship between clients and lobbyists? First, we argue that delegating representation to a lobbyist may have costs for municipal governments. Lobbying behavior appears less personalized when local governments are one of several clients represented by a lobbyist. However, delegating to a lobbyist may also provide clients with significant benefits. Lobbyists possess expertise and connections that magnify their clients' influence, a value reinforced by evidence from lobbying contracts. Additionally, lobbyists representing multiple clients likely spread monitoring costs across clients, instead of each client individually investing in monitoring capacity. For many clients, lobbying at the scale observed in our data would not occur without the advocacy provided by a contracted lobbyist. Consequently, while this delegation may have legitimate costs, the overall utility to clients may still be positive.

Although our evidence is restricted to lobbying by a specific type of public entity and their efforts to influence state legislation, we believe that our results apply to a broader set of interest groups and lobbying actions. Like local governments, other interest groups face imperfect information about legislative actions that may affect them—information that lobbyists are well placed to provide. The legal and financial stakes for local governments are high, as creatures of the state that often rely heavily on federal and state transfers. Many local governments also face resource and capacity constraints that may increase their reliance on lobbyists for information about the state of the world. Only the largest and

most well-resourced municipalities are likely to have internal government affairs offices and lobbyists that substitute or supplement the efforts of external lobbyists. However, these same dynamics are likely to affect other types of interests for which government regulation is consequential and among which there is variation in resources and capacity.

Our results suggest several avenues for future research. Interest group efforts to exert influence on the policy making process often occur through coalition lobbying, or coordinated efforts by interest groups to advance shared aims (Hula 1999; Drutman 2015). Although a growing body of literature explores the conditions under which lobbying coalitions are effective advocacy tools (Nelson and Yackee 2012; Mahoney and Baumgartner 2015; Lorenz 2020; Dwidar 2022), we know much less about how these coalitions come about and when interests choose to lobby individually or collectively (but see, De Figueiredo and Tiller 2001; Bombardini and Trebbi 2012). If lobbyists play an important role in structuring the lobbying actions of their clients, then lobbyists may also facilitate the creation of and structure the coalitions of interests that seek to influence state and federal policy. Evidence from our sample of lobbying contracts suggests that clients often hire lobbyists for this exact purpose. Over a quarter of these contracts task lobbyists with identifying potential allies or coordinating coalitional lobbying efforts. Future work should more rigorously explore the role of lobbyists in the formation of lobbying coalitions.

Another avenue for future work concerns the selection of lobbyists by clients and of clients by lobbyists. If clients delegate decision making to their lobbyists, then understanding how these relationships emerge is central to understanding interest group influence over policymaking. In particular, the other clients represented by a lobbyist may affect the quality of representation received. Lobbyists likely face profit and credibility incentives in constructing portfolios of clients (Strickland and Crosson 2022; Lowery and Marchetti 2012). Future work should examine how these portfolios develop and their representational consequences.

Lobbyists are ever present in modern U.S. politics. We demonstrate that lobbyists are

active intermediaries in the lobbying process. Lobbyists structure their clients' decision making environments and translate their clients' interests into political behavior. These actors play a crucial role in shaping policy across levels of government.

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Supporting Information for "Delegating Representation: The Influence of Lobbyists on Client Legislative Behavior"

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Contents

1 Appendix A: Additional Tables and Figures

1.1 Lobbying data descriptive statistics

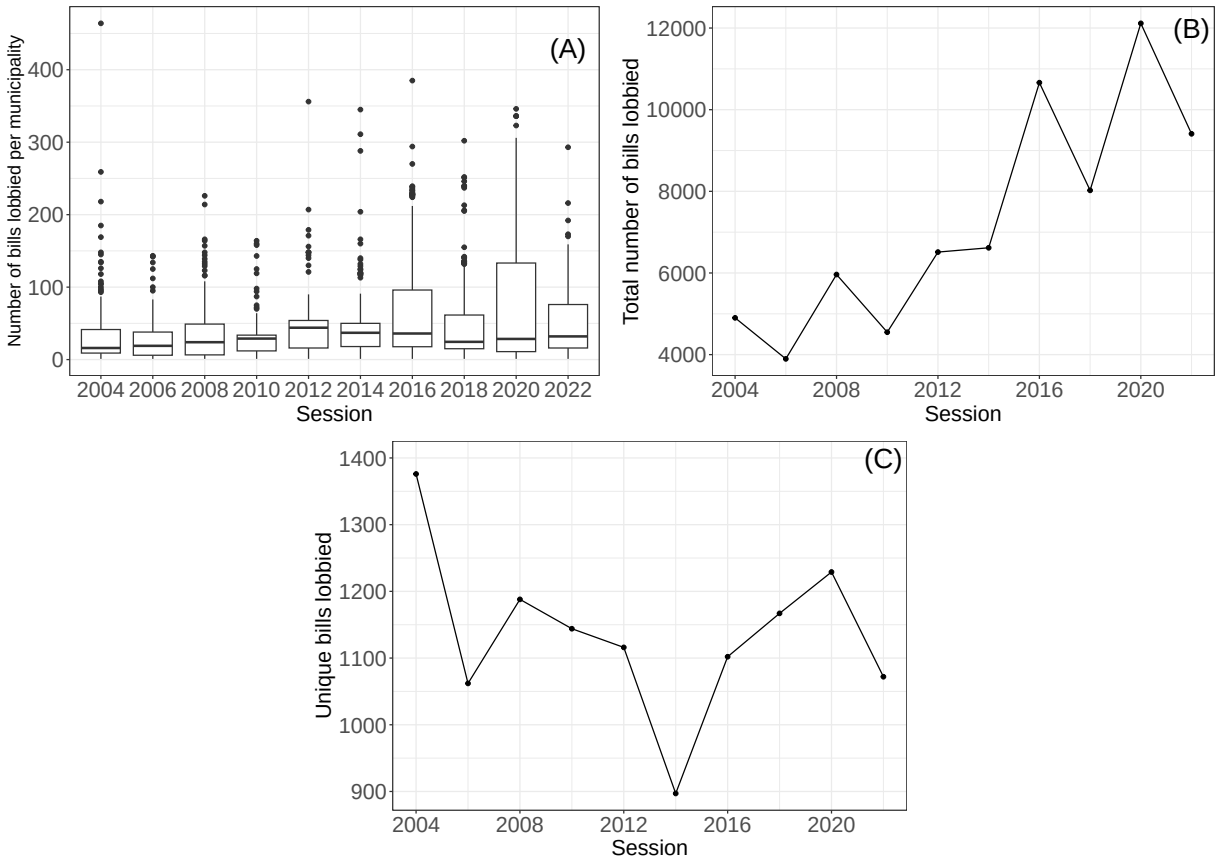

Figure A1: (A) Distribution of the number of bills each municipality lobbied on by legislative session. (B) Total number of bills lobbied by all municipalities by legislative session. (C) Unique number of bills lobbied by municipalities by legislative session.

1.2 Effect of being represented by the same lobbying firm

	Dependent variable:			
	Similarity			
	(1)	(2)	(3)	(4)
Same Firm	0.46*	0.46*	1.98*	1.96*
	(0.00)	(0.00)	(0.01)	(0.01)
Year Fixed Effects		✓		✓
R^2	0.53	0.54		
Log Likelihood			225798.34	226889.90
N	111738	111738	111738	111738
Note:				$^*p < 0.05$

Table A1: Effect of being represented by the same firm on the similarity in lobbying behavior between two local governments. Models (1) and (2) use OLS with robust standard errors. Models (3) and (4) use beta regression.

1.3 Full results: Table 1

	Dependent variable:			
	Similarity			
	(1)	(2)	(3)	(4)
Same Firm	0.46*	0.35*	0.45*	0.47*
	(0.02)	(0.03)	(0.02)	(0.02)
Difference in Poverty Rate			−0.11*	−0.10
			(0.06)	(0.06)
Difference in Ideology			−0.05*	−0.04*
			(0.02)	(0.02)
Difference in Population			−0.00	−0.00
			(0.00)	(0.00)
Difference in % White			0.01	0.01
			(0.02)	(0.02)
Difference in % Owner Occupied			0.03	0.03
			(0.02)	(0.02)
Difference in Household Income			−0.00*	−0.00*
			(0.00)	(0.00)
Difference in Dem. Pres. Vote			0.01	0.01
			(0.02)	(0.02)
Same Type of Gov.			0.03	0.02
			(0.01)	(0.01)
Same Coastal Status			−0.03*	−0.02*
			(0.01)	(0.01)
Same Charter Status			0.00	−0.00
			(0.00)	(0.00)
Same Census Region			0.00	−0.00
			(0.01)	(0.01)
Same County			0.04*	0.03*
			(0.01)	(0.01)
Difference per capita own source revenue				−0.00
				(0.00)
Year F.E.	✓	✓	✓	✓
Dyad F.E.		✓		
R^2	0.54	0.78	0.55	0.57
N	111738	102318	105296	89854
Note:				*$p < 0.05$

Table A2: Full results from regressions involving characteristics from Table 1 in the text.

1.4 Full Results: Table 3

	Dependent variable:					
	Similarity					
	Switch-Out			Switch-Into		
	(1)	(2)	(3)	(4)	(5)	(6)
Switch Pair	−0.14*	−0.15*	−0.13*	−0.59*	−0.55*	−0.56*
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Post-Switch	−0.03*	−0.04*	−0.03*	0.02	−0.01	−0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Switch Pair*Post-Switch	−0.29*	−0.29*	−0.30*	0.26*	0.29*	0.33*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Difference in Poverty Rate			0.32*			0.08
			(0.11)			(0.13)
Difference in Population			−0.00*			−0.00*
			(0.00)			(0.00)
Difference in % White			0.04			0.19*
			(0.04)			(0.04)
Difference in % Owner Occupied			0.10			−0.08
			(0.06)			(0.07)
Difference in Household Income			−0.00*			−0.00*
			(0.00)			(0.00)
Difference in Estimated Ideology			−0.29*			−0.00
			(0.06)			(0.05)
Difference in Dem. Pres. Vote			0.28*			0.15*
			(0.05)			(0.05)
Same Type of Gov.			−0.01			0.06
			(0.04)			(0.03)
Same Coastal Status			−0.07*			−0.08*
			(0.02)			(0.02)
Same Charter Status			0.02			0.07*
			(0.01)			(0.01)
Same Census Region			0.04			0.14*
			(0.02)			(0.03)
Same County			0.06*			0.00
			(0.02)			(0.03)
Corrective Weights		✓	✓		✓	✓
R^2	0.12	0.12	0.22	0.34	0.27	0.37
N	3582	3582	3567	3357	3357	3349
Note:						*$p < 0.05$

Table A3: Stacked difference-in-differences estimate of the effect of switching firms on the similarity in lobbying behavior with other local governments represented by the firm. Full results from Table 3 in the main text. First three columns estimate the effect of switching out of a firm. Last three columns estimate the effect of switching into a firm. Robust standard errors are in parentheses. Weighted estimates use the procedure outlined in Wing, Freedman and Hollingsworth (2024).

1.5 Effect of number of clients on uniqueness

	Dependent variable:			
	Similarity			
	(1)	(2)	(3)	(4)
Number of Clients	−0.003*	−0.003*		
	(0.000)	(0.000)		
log(Number of Clients)			−0.047*	−0.037*
			(0.002)	(0.003)
Population		0.000*		0.000*
		(0.000)		(0.000)
% White		0.023		0.031
		(0.024)		(0.024)
Poverty Rate		−0.017		−0.044
		(0.084)		(0.085)
% Owner Occupied		−0.116*		−0.140*
		(0.038)		(0.038)
Median Household Income		0.000*		0.000*
		(0.000)		(0.000)
Estimated Ideology		−0.012		−0.003
		(0.033)		(0.033)
Dem. Pres. Vote Share		0.031		0.042
		(0.041)		(0.041)
Coastal Status		0.018		0.013
		(0.011)		(0.011)
General Law City		−0.018*		−0.023*
		(0.007)		(0.007)
Council-Manager System		−0.043*		−0.051*
		(0.014)		(0.016)
Year F.E.		✓		✓
Census Region F.E.		✓		✓
R^2	0.280	0.396	0.251	0.380
N	1493	1450	1493	1450
Note:				*$p < 0.05$

Table A4: Effect of number of clients on bill uniqueness estimated using OLS. Robust standard errors are included in parentheses

2 Appendix B: Robustness Checks

2.1 Beta Regression

Some values in the data take 0 or 1 while beta regression only allows for values in $(0, 1)$. To estimate the models in Table B1, we rely on the package `betareg`'s recommended transformation: $y = \frac{y*(N-1)+0.5}{N}$.

2.1.1 Shared Firm

	Dependent variable:	
	Similarity	
	(1)	(2)
Same Firm	1.98*	1.93*
	(0.01)	(0.01)
Difference in Poverty Rate		−1.56*
		(0.06)
Difference in Ideology		−0.18*
		(0.03)
Difference in Population		0.00*
		(0.00)
Difference in % White		−0.12*
		(0.02)
Difference in % Owner Occupied		0.30*
		(0.03)
Difference in Household Income		−0.00*
		(0.00)
Difference in Dem. Pres. Vote		0.14*
		(0.03)
Same Type of Gov.		0.10*
		(0.02)
Same Coastal Status		−0.11*
		(0.01)
Same Charter Status		−0.02*
		(0.01)
Same Census Region		−0.06*
		(0.02)
Same County		0.26*
		(0.02)
Year F.E.	✓	✓
Log Likelihood	225798.34	212520.92
N	111738	105296
Note:		*$p < 0.05$

Table B1: Beta regressions involving characteristics

2.1.2 Bill Uniqueness

	Dependent variable:			
	Similarity			
	(1)	(2)	(3)	(4)
Number of Clients	-0.02^{*}	-0.02^{*}		
	(0.00)	(0.00)		
log(Number of Clients)			-0.30^{*}	-0.27^{*}
			(0.01)	(0.01)
Population		0.00		0.00
		(0.00)		(0.00)
% White		-0.07		-0.03
		(0.13)		(0.13)
Poverty Rate		-0.09		-0.22
		(0.47)		(0.46)
% Owner Occupied		-0.49^{*}		-0.58^{*}
		(0.21)		(0.21)
Median Household Income		0.00^{*}		0.00^{*}
		(0.00)		(0.00)
Estimated Ideology		0.05		0.10
		(0.19)		(0.19)
Dem. Pres. Vote Share		-0.00		0.02
		(0.24)		(0.23)
Coastal Status		0.17^{*}		0.13^{*}
		(0.06)		(0.06)
General Law City		-0.06		-0.08^{*}
		(0.04)		(0.04)
Council-Manager System		-0.22		-0.28^{*}
		(0.12)		(0.12)
Census Region		✓		✓
Year F.E.		✓		✓
Log Likelihood	1165.60	1241.06	1168.78	1247.32
N	1493	1450	1493	1450
Note:				$^{*}p < 0.05$

Table B2: Effect of number of clients on bill uniqueness estimated using beta regression.

2.2 Modularity

Network analysis provides an alternative way to test for the centrality of lobbyists to their clients' political behavior. Our data allow us to observe a bipartite network structure with two types of nodes: local governments and legislative bills. We conceptualize a connection to exist between the two if a local government lobbies on a given bill.

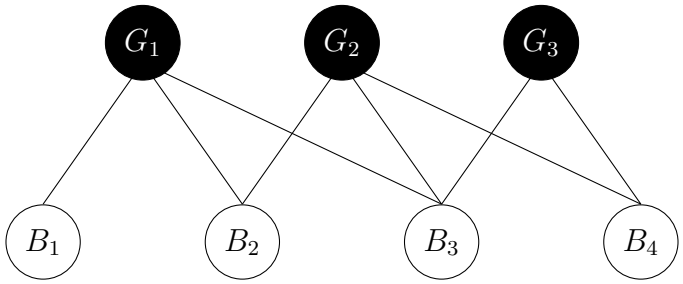

Figure B1: Example government-bill bipartite network

We can project this network to a unipartite network by generating connections between two local governments if they lobbied on the same bills. To maintain as much information as possible, we weight the edges between local governments by the number of bills they both lobbied on. This allows us to define a weighted network of local governments. Figure B2 plots this network for our example. With a unipartite network, we are able to rely on tools developed for analyzing networks to test our theory of lobbying. Specifically, here again we test the effect of sharing a lobbyist on the lobbying behavior of local governments. We focus on whether the structure of this network can be explained by who represents local governments. Within this network of local governments who engage in lobbying, our theory predicts that communities should be defined by lobbyists.

Assume that we have a weighted network represented by an adjacency matrix A. Additionally assume that each node in our network belongs to some groups g_i where there are $N \geq 1$ groups. We define the modularity of our network to be,

$$Q = \frac{1}{2m} \sum_{ij} (A_{ij} - \frac{k_i k_j}{2m}) \delta(i, j)$$

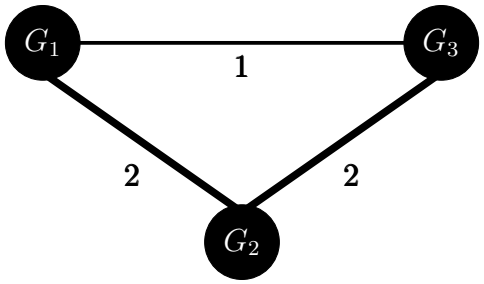

Figure B2: Example government-bill bipartite network projected to government unipartite network

where m is the number of edges in the network, k_i is the sum of weights attached to node i, and $\delta(i, j)$ is Kronecker's delta (Newman 2018).

Higher modularity indicates that nodes are more strongly connected to nodes within their group than to those outside of their group. Returning to our network of local governments, we define groups by the lobbyist representing a city. Two local governments are in the same group if their primary lobbyist is the same. Consequently, a higher modularity will indicate that connections as defined by the lobbying behavior of local governments are stronger within lobbyist client portfolio than outside of these portfolios.

The modularity of network itself does not provide us with much information on the importance of the lobbyist to the structure of our network. We need to compare the modularity of our observed network with a null distribution of modularities. This null distribution gives us an understanding of what the modularity would be if we assigned local governments to a lobbyist at random. To do so, we hold the number of governments belonging to each lobbyist fixed and randomly assign local governments to lobbyists. We then measure the modularity of the network using these randomly assigned groups. If we repeat this step many times, we can generate a null distribution of modularity values conditional on the lobbying environment (i.e., the number of governments each lobbyist represents).

Figure B3 displays this relationship. Our results demonstrate that the observed level of modularity in the observed network is substantially higher than in those simulated. In fact, no simulated values approach the observed modularity. Our observed value of modularity

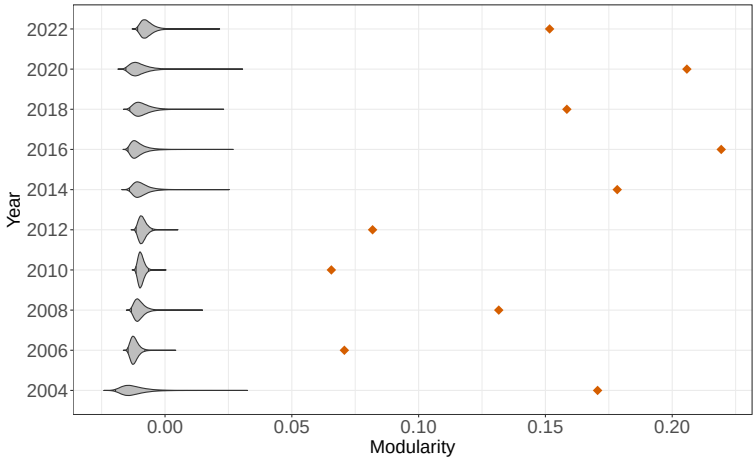

Figure B3: Violin plot of the simulated modularity of our network. For each legislative session, we conduct 100,000 simulations randomly assigning municipalities to firms and calculating modularity. Violin plots display the simulated modularity. Orange diamonds plot the observed modularity. For every legislative session, the observed modularity is larger than any simulated modularity.

is significantly higher than what we would expect if local governments were assigned to lobbyists at random. As before, this relationship holds across all legislative sessions in our data.

In generating our network, no information on the lobbyist is used. Edges are created between nodes solely based on the bills lobbied by local governments. Which lobbying firm represents a local government does appear to affect the resulting structure of the network.

2.3 Excluding local governments represented by multiple firms

	Dependent variable:			
	Similarity			
	(1)	(2)	(3)	(4)
Same Firm	0.48*	0.48*	2.04*	2.01*
	(0.00)	(0.00)	(0.01)	(0.01)
Year Fixed Effects		✓		✓
R^2	0.58	0.59		
Log Likelihood			153787.93	154940.32
N	78569	78569	78569	78569
Note:				*$p < 0.05$

Table B3: Local governments represented by more than one lobbying firm are excluded. Effect of being represented by the same firm on the similarity in lobbying behavior between two local governments. Models (1) and (2) use OLS with robust standard errors. Models (3) and (4) use beta regression

2.4 Excluding single client firms

	Dependent variable:			
	Similarity			
	(1)	(2)	(3)	(4)
Same Firm	0.46*	0.46*	1.91*	1.89*
	(0.00)	(0.00)	(0.01)	(0.01)
Year Fixed Effects		✓		✓
R^2	0.54	0.55		
Log Likelihood			172699.41	173607.10
N	98443	98443	98443	98443
Note:				*$p < 0.05$

Table B4: Local governments that are the only municipality represented by their lobbying firm are excluded. Effect of being represented by the same firm on the similarity in lobbying behavior between two local governments. Models (1) and (2) use OLS with robust standard errors. Models (3) and (4) use beta regression

2.5 Difference in Differences

To look for evidence of pretends, we subset the sample to switchers that lobby for two consecutive sessions before switching firms and two consecutive sessions after switching firms. Figure B4 results from the simple model $Similiarty = \beta_0 + \beta_1 Switch\ Pair + \beta_2 Post\ Switch + \beta_3 Switch\ Pair * Post\ Switch$, varying the post-switch period. t is the observed post-switch period. Table B5 displays results of estimating our model on this subset using the additional pre- and post-periods.

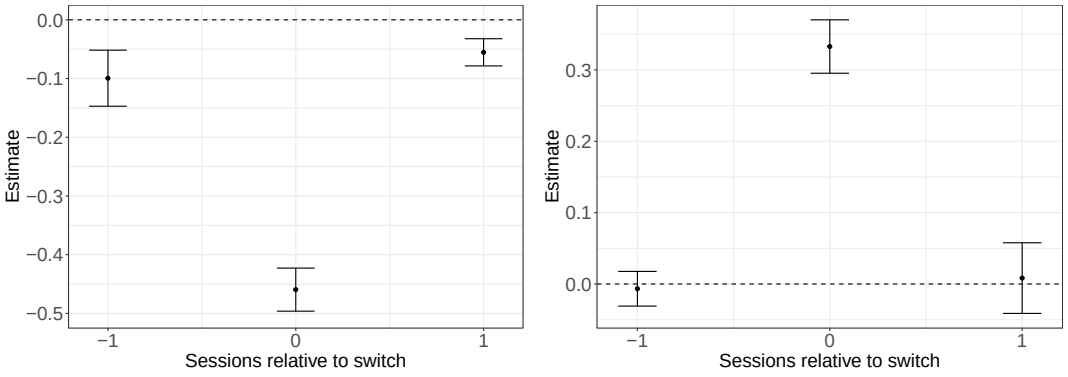

Figure B4: Estimated effect of treatment at periods $t-1$, t, and $t+1$

	Dependent variable:					
	Change in similarity					
	Switch-Out			Switch-Into		
	(1)	(2)	(3)	(4)	(5)	(6)
Switch Pair	-0.12^*	-0.12^*	-0.10^*	-0.62^*	-0.58^*	-0.57^*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Post-Switch	-0.00	-0.00	-0.00	0.01^*	0.01^*	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Difference in Poverty Rate			0.40^*			-0.06
			(0.08)			(0.10)
Difference in Population			-0.00^*			-0.00^*
			(0.00)			(0.00)
Difference in % White			0.04			0.18^*
			(0.03)			(0.03)
Difference in % Owner Occupied			0.07			-0.10
			(0.05)			(0.06)
Difference in Household Income			-0.00^*			-0.00^*
			(0.00)			(0.00)
Difference in Estimated Ideology			-0.26^*			0.01
			(0.04)			(0.04)
Difference in Dem. Pres. Vote			0.22^*			0.14^*
			(0.04)			(0.04)
Same Type of Gov.			0.03			0.06^*
			(0.03)			(0.03)
Same Coastal Status			-0.07^*			-0.09^*
			(0.01)			(0.02)
Same Charter Status			0.04^*			0.06^*
			(0.01)			(0.01)
Same Census Region			0.03			0.12^*
			(0.02)			(0.02)
Same County			0.07^*			-0.01
			(0.02)			(0.02)
Corrective Weights		✓	✓		✓	✓
R^2	0.15	0.15	0.24	0.33	0.27	0.36
Num. obs.	4976	4976	4957	5042	5042	5032
Note:						$^*p < 0.05$

Table B5: Stacked difference-in-differences estimate of the effect of switching firms on the similarity in lobbying behavior with other local governments represented by the firm. Range of 2 periods on either side of the treatment. First three columns estimate the effect of switching out of a firm. Last three columns estimate the effect of switching into a firm. Analysis subsets to firm-years where a local government either switched away from a firm or into a firm. Robust standard errors are in parentheses. Weighted estimates use the procedure outlined in Wing, Freedman and Hollingsworth (2024).

2.6 Bill Uniqueness

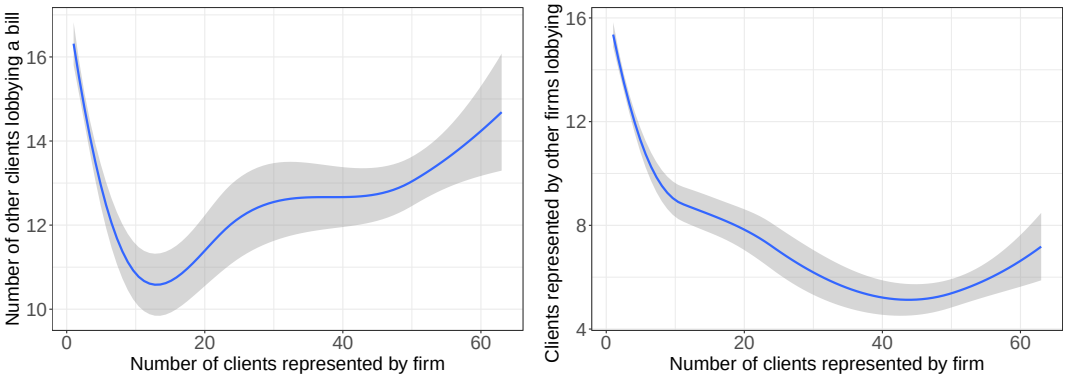

Figure B5: The figure on the left plots a loess curve of the relationship between the number of clients a hired firm represents and the average number of clients that lobby bills lobbied by clients of the firm. The figure on the right plots the same relationship, but removing clients represented by the same firm from the total. When we remove clients represented by the same firm the positive relationship disappears.

2.7 Lobbying Firm's Other Clients

To better understand how a lobbying firm's full client portfolio shapes the lobbying behavior taken by their clients, we collect information about all of the clients represented by firms in our sample in each legislative session. We begin by collecting the name of each client represented by a firm. California often requires that lobbying employers (i.e., clients) report their industry (e.g., health, education, government, oil and gas businesses) when registering their lobbying activity with the state. However, these data are missing for many of the clients represented in our sample and industry codes are used inconsistently within and across otherwise similar clients.[1]

To gain broad traction on the "types" of clients represented by each firm, we assign each client to one of four categories: education, government, non-profit organization, and

[1]See, Form 602 (Lobbying Firm Activity Authorization) for details on how lobbying employers are instructed to self-report industry information, `https://www.fppc.ca.gov/content/dam/fppc/NS-Documents/TAD/Lobbying/Lobbyist-Form-Folder/602.pdf`.

for-profit business. These categories broadly correspond with how clients are represented on lobbying firm websites and allow for a preliminary exploration of lobbying firms' client portfolios, a topic that future research should explore in more detail. Clients were assigned to these categories based on the available industry data noted above, business entity filings on the California Secretary of State's Business Search website,[2] and client websites. Education-related clients include school districts, charter schools, colleges and universities, and associations of these entities, and excludes businesses or non-profits that provide services to these entities. Government clients include the municipalities in our lobbying sample, other government entities, such as counties and special districts, and associations of these government entities, such as regional coalitions of governments. Non-profit clients include all remaining clients registered as 501(c) tax-exempt organizations. For-profit businesses include corporations, limited-liability companies, and limited partnerships.

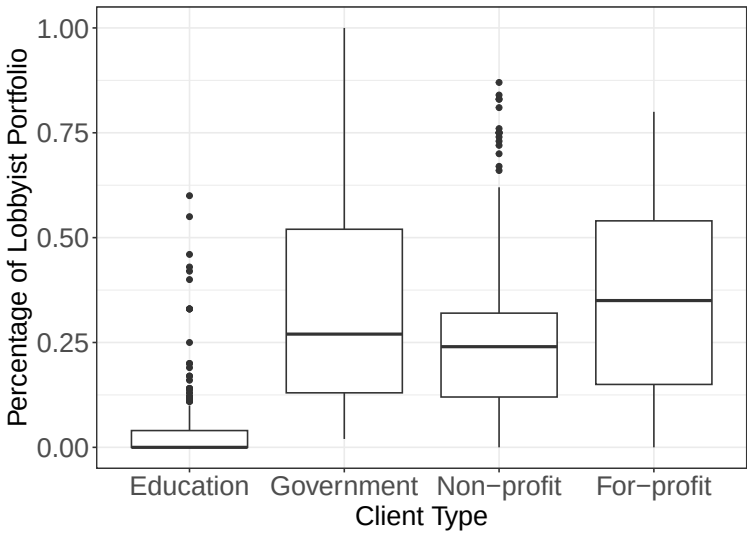

Figure B6: Distributions of the percentage of a lobbyists portfolio belonging to a specific industry.

[2]See, `https://bizfileonline.sos.ca.gov/search/business`.

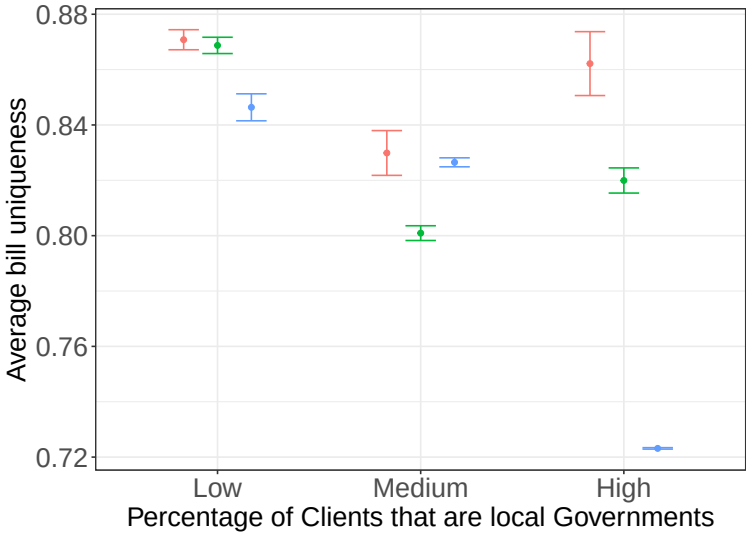

Figure B7: Average uniqueness of bills lobbied by local governments represented by a firm. The x-axis is terciles of the percentage of all clients that a lobbyist represents that are local governments. Groups are terciles of the number of clients that are local government. Within an x-axis tercile, moving from left to right increases the number of local governments.

2.8 Legislative Capacity

To test whether internal legislative capacity and expertise attenuate lobbyists' influence over the lobbying behavior of their clients, we collect data on whether towns and cities have at least one staff member assigned to intergovernmental or legislative affairs tasks. Committing resources to staff roles such as legislative affairs managers or governmental relations liaisons is a costly investment on the part of local governments. Therefore, these roles may serve as a proxy for the internal expertise of municipalities regarding legislative and administrative processes and the ability of local governments to more effectively monitor the efforts of their lobbyists.

To collect this information, we first compile a list of local governments' "responsible agents" from lobbying records. Entities that employ lobbyists to lobby the California government often indicate a point of contact within their organization and the role of said agent on lobbying authorization forms. For many local governments, this "responsible agent" is

a City or Town Manager. However, for many communities with internal legislative affairs capacity, the listed agent is a municipal employee with a title related to governmental or legislative affairs. We supplemented these data using municipalities' websites to search for staff with relevant titles. Annual measures of local-level capacity are beyond the scope of this study. Instead, internal legislative capacity is a binary measure indicating whether we are able to identify a government or legislative affairs staff member in any year between 2003 and 2022.

Of the 325 California municipalities in our sample, this proxy measure suggests that a minority, or approximately 10%, have substantial internal legislative capacity. These communities are often but not uniformly the largest towns and cities in our sample, including Los Angeles, San Diego, San Jose, and San Francisco, but also Santa Paula and West Hollywood, communities with populations below 50,000.

Legislative capacity is coded as the sum of the two municipal governments' internal legislative capacity for the purposes of the regression. We repeat our main analysis of the effect of sharing a firm on the similarity in behavior between two local governments. We interact the legislative capacity of the two governments with whether they share a lobbyist. Having legislative capacity reduces the effect of sharing a firm on similarity; however, this effect is not statistically significant.

	Dependent variable:	
	Similarity	
	(1)	(2)
Same Firm	0.48*	0.46*
	(0.02)	(0.02)
Legislative Capacity	−0.00	0.01
	(0.00)	(0.01)
Same Firm * Capacity	−0.05	−0.05
	(0.03)	(0.03)
Difference in Poverty Rate		−0.12*
		(0.06)
Difference in Ideology		−0.05*
		(0.02)
Difference in Ideology		−0.05*
		(0.02)
Difference in Population		−0.00
		(0.00)
Difference in % White		0.01
		(0.02)
Difference in % Owner Occupied		0.03
		(0.02)
Difference in Household Income		−0.00*
		(0.00)
Difference in Dem. Pres. Vote		0.01
		(0.02)
Same Type of Gov.		0.03
		(0.01)
Same Coastal Status		−0.03*
		(0.01)
Same Charter Status		0.00
		(0.00)
Same Census Region		0.00
		(0.01)
Same County		0.03*
		(0.01)
Year F.E.	✓	✓
R^2	0.55	0.55
N	111738	105296
Note:		$^*p < 0.05$

Table B6: OLS estimation of the effect of being represented by the same lobbying firm on similarity in lobbying behavior including interaction with legislative capacity. Standard errors are calculated via dyad-cluster robust multiway decomposition as described in Aronow, Samii and Assenova (2015) and implemented by Bisbee and Rodriguez (2024). Local government characteristics include population, percentage white, poverty rate, ideology, Democratic presidential candidate vote share, percentage owner occupied housing, median household income, charter city status, and government type. Geographic characteristics include county, California region, and coastal status.

3 Appendix C: Local Government Characteristics

Variable	Source	Description
Population	Decennial Census and ACS Estimates	
Poverty Rate	Decennial Census and ACS Estimates	
% Owner Occupied	Decennial Census and ACS Estimates	
% White	Decennial Census and ACS Estimates	
Median Household Income	Decennial Census and ACS Estimates	
Ideology	Tausanovitch and Warshaw (2013)	
Democratic Presidential Vote Share	Tausanovitch and Warshaw (2013)	
Charter	League of California Cities	Charter or general law
Government Type	ICMA Surveys	Strong mayor or council manager form
Coastal	League of California Cities	Members of coastal cities group
Census Region	California Complete Count Office	10 geographic regions of California
Own Source Revenue	California State Controller's Office	

Table C1: Local-level characteristics as proxies for municipal interests

Demographic and socioeconomic characteristics are taken from the 2000 Decennial Census, American Community Survey 1-year estimates from 2005-2008 for towns and cities with populations greater than 65,000, and American Community Survey 5-year estimates from 2009 on. For each town or city in the sample, missing values for population, poverty, owner occupancy, percent white, and median household income are linearly interpolated.

A town or city's own source revenue is determined using annual financial data from the California State Controller's Office. Our method for constructing this measure is similar to Payson (2020), where the author subtracts state transfers from a community's total reported revenue and adjusts for inflation. To determine per-capita own source revenue, we subtract both state and federal transfers from total reported revenues and divide by population. As our comparisons are across municipalities within legislative sessions, revenues are not inflation adjusted. These annual revenue data are not currently available for 2022.

4 Appendix D: Lobbying Contracts

Contracts between municipalities and the lobbying firms they hire are public records. These contracts often outline the tasks that a specific lobbying firm will undertake for a client in a "scope of work" or "scope of services" section. Although these sections are not necessarily comprehensive of every task a lobbying firm may take to support a client's advocacy efforts, these contracts do provide broad intuition into the most important and most common services rendered by lobbyists.

We attempted to collect each of the 243 contracts between California municipalities and the lobbying firms registered to represent them with the California Secretary of State in 2023. These contracts were collected using municipalities' public websites and public records requests. In total, we were able to collect 207 (85%) of contracts in this manner. Of these contracts, 174 contained a scope of services section and sufficient detail to identity specific lobbying tasks.

We then manually classified the "scope of services" portion of these contracts, focusing on a set of nine common tasks observed across multiple contracts. The results of this classification effort and examples of the wording associated with each task are outlined in C1 and below:

Lobbying Service	Count of Contracts Containing Service	Percentage of Contracts Containing Service
Advocate on behalf of client	172	99%
Monitor policy	155	89%
Monitor funding	143	82%
Prepare advocacy materials	118	68%
Coordinate meetings and advocacy trips	113	65%
Draft legislative language	89	51%
Develop or contribute to legislative agenda	72	41%
Grant writing support	70	40%
Coalition building	45	26%

Table C1: Count and percentage of lobbying contracts containing common lobbying tasks

Advocate on behalf of client:

- "Represent the City at policy-related meetings, conferences, events, regulatory proceedings, legislative hearings, and other appropriate venues as requested by the City."
- "Lobby the state legislature."
- "Serve as a liaison between the City and State Legislature, Executive Branch, or other officials in state government as identified by the City."

Monitor policy:

- "Track, review, and analyze any introduced and amended legislation and regulatory proposals and provide weekly legislative tracking reports to the City."
- "Identify, analyze, and monitor legislation."
- "Review all proposed, introduced, and amended legislation, and proposed and adopted administrative rules and regulations, to determine and provide analysis as

appropriate on its impact on the City and recommend positions to be taken on the legislation."

Monitor funding:

- "Continuously monitor funding opportunities for City projects."
- "Provide the City with updated information on upcoming funding opportunities."
- "Utilize list-serve subscription programs, funding workshops, agency canvassing, and other tactics to identify grant opportunities ... then share these opportunities with the city for further assessment and determination if grant services are requested."

Prepare advocacy materials:

- "Craft testimony and position letters."
- "Prepare written testimony for City officials who wish to testify before legislative committees."
- "Draft strategic documents, background papers, letters, ... and talking points or other advocacy materials on legislation, executive actions, regulations or other agency actions."

Coordinate meetings and advocacy trips:

- "Support and assist the City in scheduling meetings with staff, officials, and legislators as directed or as needed."
- "Continue fostering relationships with legislators and administration officials; including making meeting recommendations, schedule arrangements ..."
- "Assist with organizing meetings with elected representatives and executive branch officials on issues of importance to the City."

Draft legislative language:

- "Draft bill language."
- "Draft and secure amendments to pending legislation on an as-needed basis, in cooperation with City staff."
- "Draft ... legislative language."

Develop or contribute to legislative agenda:

- "Utilizes a comprehensive on boarding process that includes extensive meetings with various relevant members of City leadership and key City departments to help develop a strategic plan that is carefully tailored to satisfy the needs of the City ... Utilizing the information gathered during the onboarding process, ... coordinate with the City to develop an official legislative platform and strategy that represents the client's priorities in Sacramento and Washington, D.C."
- "Assist with developing and updating the City's legislative agency and policy platform in light of legislative trends."
- "Meetings with Council members to determine their legislative priorities and work with City staff to develop the 2023-24 Legislative Agenda."

Grant writing support:

- "Assist with grant processes."
- "Guide the City regarding submissions of state grant or funding requests."
- "Develop, draft, submit, and follow up on each City grant application."

Coalition building:

- "Coordinate and collaborate with other municipalities and organizations having similar legislative objectives as the City."

- "Collaborate with the League of California cities and other organizations, municipalities, companies, and firms having similar legislative objectives as the City."
- "Coordinate coalitions with public entity partners and allied interests, such as the League of California Cities."

Contracts were identified as containing the aforementioned services if the "scope of services" section of the contract contained any of the examples provided above or substantively similar language.

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