Advancing the Empirical Research on Lobbying

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Annu. Rev. Polit. Sci. 2014. 17:163–85

First published online as a Review in Advance on February 21, 2014

The *Annual Review of Political Science* is online at polisci.annualreviews.org

This article's doi: 10.1146/annurev-polisci-100711-135308

Keywords

lobbyists, interest groups, business-government relations, empirical methods, natural experiments, quasi-experimental research design

Abstract

This review identifies empirical facts about lobbying that are generally agreed upon in the literature. It then discusses challenges to empirical research in lobbying and provides examples of empirical methods that can be employed to overcome these challenges—with an emphasis on statistical measurement, identification, and casual inference. The article then discusses the advantages, disadvantages, and effective use of the main types of data available for research in lobbying. It closes with a number of open questions for researchers in the field and avenues for future work to advance empirical research on lobbying.

INTRODUCTION

One of the central tenets of representative democracy is the right of individuals, by themselves or in groups, to petition elected officials and the government. These petitions are designed to influence the opinions, policies, and votes of legislators and other government officials. One outgrowth of this right has been the creation and evolution of organized interest groups comprised of individuals, companies, and other organizations. These organized interests employ a variety of methods to influence government policies including campaign contributions, endorsements, grassroots campaigns, media campaigns, and lobbying. Hundreds of papers on each of these topics have spawned a robust literature in political science.

Although empirical papers written on the subject of campaign contributions and monetary transfers to politicians have dominated the statistical work on the influence of interest groups in politics (Ansolabehere et al. 2003), a growing literature that empirically examines lobbying has emerged over the past decade in political science and related disciplines. This renewed interest seems to find its roots in three areas. First, newly created disclosure rules on lobbying and lobbyists' effort coupled with more innovative data collection methods have led to the creation of a number of new datasets on lobbying that are now available to researchers, mostly, but not exclusively, focusing on activity in the United States. Second, the rise of these datasets has created keen public interest in the process and statistical regularities in lobbying efforts. Third, political scientists have very recently joined forces with economists to create a more seamless research boundary between the disciplines, jointly developing more advanced and better identified statistical models of lobbying.

In this article, lobbying is defined as the transfer of information in private meetings and venues between interest groups and politicians, their staffs, and agents. Information takes the theoretical representation of a message and, in practice, may have many forms: statistics, facts, arguments, messages, forecasts, threats, commitments, signals, or some combination thereof. Interest groups have budgets for and spend money on these activities, but that money is not transferred explicitly to politicians (as it is with campaign contributions) (de Figueiredo 2002). If we assume, following most of the political economy literature, that a politician's objective function comprises reelection to the current office, promotion to higher office, and ideological pursuits, then a politician seeks information on how her position on a given issue or issue set will affect these outcome variables (Milyo et al. 2000). There may be intermediate forms of information—such as how many jobs her policy position will create, how constituents will be affected by a particular vote, whether business leaders will support her in the next election, etc.—but ultimately, the key piece of information for the politician is how position-taking on various issues will affect her re-election, promotion, and ideological policy outcomes.[1]

This article synthesizes four main aspects within the empirical lobbying literature. First, we summarize the generally accepted findings in recent empirical and statistical advances in the informational lobbying literature. Second, we discuss statistical methods that we believe are particularly fruitful in obtaining statistical identification and making causal inference in the lobbying literature. Third, we discuss the new datasets that have recently become available in the field and what particular advantages and disadvantages each type of dataset engenders in a research program.

[1] Because many areas of interest group activities are beyond the scope of this review, readers are referred to the following: for literature on how interest groups employ direct-to-voter media campaigns and other forms of public pressure campaigns, see, e.g., Hall & Reynolds (2012); for literature on the structure and value of political connections outside of the purely lobbying context, see Faccio (2006) and Goldman et al. (2009); and within the lobbying literature, for the large literature on lobbying of bureaucratic agencies, see de Figueiredo & Tiller (2001), de Figueiredo & Kim (2004), Holburn & Vanden Bergh (2004), Yackee & Yackee (2006), McKay & Yackee (2007), Yackee (2012), Naoi & Krauss (2009), and McKay (2011) to name only a few.

Finally, we provide what we believe are some possible avenues for future research. Ultimately, this review examines what we know about lobbying, what we would like to know about lobbying, and how we might make headway in finding answers.

EMPIRICAL REGULARITIES IN LOBBYING

Given the large number of empirical studies on lobbying, this section attempts to distill a few central facts where there seems to be consensus in the literature. We attempt to stay away from equivocal findings and focus on findings where there is broad agreement.

Who Lobbies, How Much They Lobby, and How Lobbying Is Organized

The first regularity in the data is that lobbying is pervasive in the American political system and seems to be quite important in the political systems of many other developed countries. Milyo et al. (2000) show that lobbying expenditures at the US federal level are five times those of political action committee (PAC) campaign contributions. Moreover, the relative magnitude of lobbying expenditures to interest groups' campaign contributions continues to persist at similar levels. In 2012, organized interest groups spent $3.5 billion annually to lobby the federal government, whereas interest groups' PACs, super-PACs, and 527 organizations spent approximately $1.55 billion over the two-year 2011 to 2012 election cycle (or approximately $750 million annually) on campaign contributions (**http://www.opensecrets.org**; Federal Election Commission 2013). Thus, even in the past few years, lobbying expenditures have remained approximately five times those of interest group campaign finance contributions.

Overwhelming evidence now supports a second general regularity in the data: Corporations and trade associations comprise the vast majority of lobbying expenditures by interest groups. Lobbying expenditures by corporations and trade associations represent more than 84% of total interest group lobbying expenditures at the US federal level and 86% of total lobbying expenditures at the state level (de Figueiredo 2004). In contrast, de Figueiredo (2004) also finds issue-ideology membership groups represent 2% and 7% of lobbying expenditures at the federal and state levels, respectively. As has also been broadly confirmed, large organized interest groups and groups that are supported by large corporations are more likely to lobby than are smaller groups and groups that are supported by smaller corporate interests. This is true for a wide of variety of firms across a number of industries and years in the United States (Ansolabehere et al. 2002, Hansen et al. 2004, Guo 2009, Hochberg et al. 2009, Richter et al. 2009, Hill et al. 2013). For tariffs and trade disputes, this same regularity holds (Schuler 1996, Lee & Baik 2010, Bombardini & Trebbi 2012). Nonprofits also exhibit the pattern—larger universities are more likely to lobby than smaller ones (de Figueiredo & Silverman 2006). The pattern is not confined to North America but has been found in other developed and transition economies (Naoi & Krauss 2009, Sukiassyan & Nugent 2011).

Although businesses represent a substantially large proportion of total lobbying expenditures, they represent a smaller proportion (but a still a majority) of the number of interest groups lobbying. In a survey of 98 randomly selected issues before the US Congress in 1999–2001, Baumgartner et al. (2009a) found that trade and business associations, business corporations, professional associations, and coalitions specific to an issue represented 54% of all lobbying groups. Citizen groups, unions, foundations, think tanks, governments, institutions, and other groups represented the remainder. At the state level, Gray & Lowery (1996) find that approximately 30% of lobbying groups registered in the United States were governments or social groups. These data combined with the expenditure data above suggest that business groups' lobbying expenditures are, on average, higher than nonbusiness interests.

A third regularity in the data is that large corporations and well-funded groups are more likely to lobby independently than are smaller groups. Most small interest groups are more likely to lobby using only trade associations. Richter et al. (2009) and Kerr et al. (2014) find that only 10% of publicly traded firms lobbied on their own behalf. Moreover, these authors show that groups show substantial persistence and serial correlation in their lobbying efforts: Kerr et al. (2014) report a 92% probability that a firm will lobby in a given year conditional on lobbying in the prior year. Various authors have suggested reasons for this: smaller interests lack the resources to front the fixed costs for a lobbying organization, they lack the necessary access to politicians to influence public policy, they do not individually carry the political power to influence outcomes, or they have issues that arise only intermittently (Bertrand et al. 2012). Companies, however, may also avoid using external lobbyists when corporate secrets and innovations are at risk (de Figueiredo & Tiller 2001), when political systems differ (Mahoney 2007), and when free-riding or issue characteristics lend themselves to collective as opposed to individual efforts (Bombardini & Trebbi 2012). However, the use of trade associations by smaller organizations and companies may mask these smaller organizations' participation in lobbying, as trade associations in the United States must report lobbying efforts. By contrast, trade association members do not generally have to report the fees they pay to become members of those organizations, and thus these fees are not tabulated as lobbying expenditures by smaller firms. Harstad & Svensson (2011) have gone further to show that small companies may actually be more likely to engage in bribes as a substitute to lobbying. Together, these findings imply that a snapshot of lobbying in an industry or issue area should commonly show both individual interest groups and trade associations lobbying at the same time as well as larger lobbying groups with offices present near the center of political decision making (Hansen & Mitchell 2000, Schuler et al. 2002, Campos & Giovannoni 2007).

A fourth regularity in the data is that lobbying increases when the issues are considered more relevant or salient or there are big stakes for the organized interest (Caldeira et al. 2000, Baumgartner & Leech 2002, Bonardi 2005, Leech et al. 2005, Baumgartner et al. 2011). A related finding is that budgeting (budget issues, government monies, and tax issues) drives increases in lobbying efforts (La Pira et al. 2012). Leech et al. (2005) show that issues and agencies with larger budgets draw more lobbying effort by interest groups at the federal level. De Figueiredo (2014) and de Figueiredo & Cameron (2014) exploit the cross-sectional and time-series variation in budgeting rules and budget size in 38 US states over many years and political regimes to show that budgeting time periods result in a 19% increase in lobbying expenditures by interest groups.

The Number of Interest Groups Registered

Since Gray & Lowery (1996) authored *The Population Ecology of Interest Representation* on the organizational ecology of interest groups in American states, the number of papers that examine the ecology of interest groups at the state level has grown substantially. Based primarily on counts of groups rather than dollars spent, such papers focus on both the density and diversity of interest groups rather than lobbying intensity. The argument put forward by Gray & Lowery (1996) was first articulated in biology and then extended into the social science literature by the sociologists Hannan & Freeman (1977, 1984) with advancements by Carroll & Hannan (1992). The Hannan-Freeman-Carroll theory states that organizations in a population are buffeted by two forces: legitimation and competition. Gray & Lowery (1996) brought this framework to interest groups and collected data on the names and counts of all lobbying groups registered in each state in certain specified years (1975, 1980, 1990, and 1997). Combining the legitimation and competitive effects results in an inverted U-shaped curve of the number of organizations over time. Initially, the legitimation effect causes a rise in the number of organizations in a field. Then the competitive

effect takes over, causing a shakeout of the number of organizations that finally stabilizes around a steady-state number. More recent advances in this area consistently show a second regularity: The number of interest groups is correlated with the size of the economy and number of issues the legislature faces (Gray & Lowery 1998, Baumgartner et al. 2009b) and positively correlates with number of constituents and constituent interests (Lowery & Gray 1998, Berkman 2002). Some of the most recent findings in the field are particularly focused on health care lobbying (Lowery et al. 2005, Benz et al. 2011).

Expertise, Connections, Targeting, and Counteracting

One of the key questions researchers have attempted to tackle, with limited success, is whether lobbyists derive value from what they know (expertise) or who they know (connections). Empirically we know that at least some lobbyists tend to specialize in issues (e.g., Cassidy Associates and Sidley Austin specialize in lobbying on behalf of academic institutions and telecommunications issues, among other issues, respectively), suggesting issue expertise is valuable. Measuring the value of expertise is difficult. Cameron & de Figueiredo (2013) develop a model based on expertise and test its implications using state-level panel lobbying data. They find substantial empirical support in the intensity and targeting of lobbying for a model based on expertise, but they do not explicitly measure expertise nor estimate its value. Bertrand et al. (2012) also find indirect support for the expertise explanation, demonstrating that lobbyists who specialize in particular issues are more likely to access politicians of an opposite party, presumably because politicians value the issue expertise of the lobbyist.

However, a recent paper by Blanes i Vidal et al. (2012) examines the lobbying revenue of former legislative staffers who become lobbyists. Investigating how revenues respond to changes in a focal legislator's status, these authors find a 23% decline in a lobbyist's revenue after the legislator on whose staff the lobbyist formerly served is defeated in an election or retires from Congress. Likewise, Bertrand et al. (2012) find that lobbyists tend to follow the politician to whom they are connected, even when that politician switches committees and handles substantially different issue areas. This would suggest "who you know" rather than "what you know" drives a good proportion of lobbying revenues.

Despite this ongoing debate, there is consensus on some aspects of targeting in the lobbying literature. First, powerful legislators are most likely to be targeted for lobbying. These legislators usually have agenda-setting power as sponsors or cosponsors of bills (Hojnacki & Kimball 1999); are on issue-relevant or generally powerful and influential committees, such as Appropriations, Budget, or Finance (Hojnacki & Kimball 2001, Drope & Hansen 2004); or compose the congressional leadership, such as committee chairs and ranking members or majority or minority leaders (Evans 1996).

Second, there seems to be a growing consensus in the literature that both allied (Kollman 1997, Caldeira & Wright 1998, Hojnacki & Kimball 1999, Heberlig 2005, Hall & Deardorff 2006, Hall & Miler 2008) and marginal (Holyoke 2003, Kelleher & Yackee 2009, Tung 2011, Bertrand et al. 2012, Gawande et al. 2012) legislators on both sides of the issue are targeted for lobbying efforts, but staunch enemies are not targeted. Because current US lobbying disclosure regulations do not require lobbyists to identify which legislators they are targeting, research on this subject usually relies on survey data or inference from lobbying expenditure data. However, in their empirical work on counteractive lobbying, Austen-Smith & Wright (1994, 1996) provide a clear link between theory and empirical regularities. Their research on Supreme Court nominations finds empirical support for the theory that lobbyists target marginal legislators to "swing" them to the lobbyist's position and that lobbyists target friends to "counteract" lobbying from opposition groups. Hall & Miler (2008) and Hojnacki & Kimball (1998) have critiqued the counteractive lobbying approach,

instead arguing that interest groups' legislative allies are the primary targets, followed by marginal legislators. They show empirically in accordance with the theoretical predictions of Rotemberg (2003) and Hall & Deardorff (2006) that lobbyists mainly target allies (as a legislative subsidy) and agenda setters to influence the shape of legislation or to encourage these allied legislators, in turn, to lobby marginal and influential policy makers. These two approaches result in a pattern of lobbying where a variety of different legislators are targeted, even by one group, on the basis of their position in Congress and their position on an issue.

The Effectiveness of Lobbying

A final area of interest to scholars is understanding and quantifying how effective interest group lobbying is in obtaining policy or other outcomes. This is an extraordinarily challenging question to tackle because econometric identification is problematic, and causal mechanisms are extremely difficult to isolate. Scholars measuring the effectiveness of lobbying must overcome a number of challenges that make statistical inference, estimation, and interpretation difficult; readers should view this literature with a critical eye. (This point is discussed further in the next two sections.)

To examine the effectiveness of lobbying, researchers commonly focus on one of five policy areas. First, papers on international trade have attempted to show that lobbying affects tariffs, customs classifications, and dumping determinations across a wide variety of countries (Baylis & Furtan 2003; Drope & Hansen 2004; Gawande et al. 2006, 2012; Tavares 2006; Ehrlich 2008; Stoyanov 2009; Lee & Baik 2010; Grasse & Heidbreder 2011; Tung 2011). Second, papers on a variety of financial and regulatory accounting issues purport to demonstrate that lobbying affects the ability of firms to influence financial regulation and legislation, to engage in revenue hiding and avoid fraud detection, and to garner excess returns in the marketplace through a variety of mechanisms (Gehlbach 2006, Hochberg et al. 2009, Hill et al. 2011, Mian et al. 2011, Richter 2011, Yu & Yu 2011, Igan et al. 2012, Blau et al. 2013). Third, papers on appropriations and budgeting argue that lobbying is effective in allowing interest groups and their allies to obtain a larger slice of government budget and contracts in a number of different countries (Evans 1996; Alt et al. 1999; de Figueiredo & Silverman 2006, 2007; Helland 2008; Kelleher & Yackee 2009). Fourth, papers on taxation have reported the specific effects of lobbying. Whereas Richter et al. (2009) find that firms that lobby are more likely to pay lower income taxes to the US federal government, Schone et al. (2013) find that tax development credits are more likely to be granted in the presence of lobbying in France. Finally, papers on a variety of different outcomes attempt to show that lobbying affects judicial confirmations (Austen-Smith & Wright 1996, Caldeira & Wright 1998), immigration policy (Facchini et al. 2011), trade association entry barriers (Morris & Neeley 2001), regulated prices in telecommunications (Duso 2005), technology diffusion (Comin & Hobijn 2009), the general passage of bills (Grasse & Heidbreder 2011), and overall economic performance (Horgos & Zimmermann 2009), to mention just a few areas.

Baumgartner et al. (2009a) conducted an eight-year study covering 98 policy issues before Congress, detailing the lobbying efforts of nearly 2,200 advocates. They also followed the results of lobbying efforts and policy outcomes up to four years after the policies were proposed. They find that both sides of an issue are usually able to mobilize relatively equal amounts of resources, because any side of an issue is usually composed of a heterogeneous mix of corporate, citizen, and government advocacy groups that bring to bear resources comparable to the opposition. Baumgartner et al. also find that policies are usually very stable and resilient to change, but when changes do occur, the policy changes tend to be substantial.

Overall, numerous studies have attempted to estimate the effects of lobbying on policy outcomes. However, the validity of their results depends on the dataset and econometric methods

employed to identify and isolate the causal effect of lobbying. In the following sections, we discuss the data and methods for the empirical analysis of lobbying.

Summary

The burgeoning empirical literature on lobbying has created many new consensus findings. Lobbying is a pervasive institution in the American political landscape; lobbying expenditures represent five times the dollar volume of interest group campaign contributions. This activity is most likely to be pursued by large firms and interest groups. Large firms have a higher probability of lobbying independently than small firms have, and small firms will tend to agglomerate their lobbying in trade associations. Budgeting, highly salient issues, and issues that impact groups more attract more lobbying effort. In addition, the number of interest groups is positively correlated with macroeconomic activity, constituent interest, and legislative workflow. These facts are well established, and there are low returns to future researchers demonstrating them yet again.

There is also a set of facts that has been shown to be true, but the underlying reasons for the regularities in the data are a bit more opaque. The politicians targeted by interest groups tend to be powerful-allied agenda setters and marginal legislators on the issue. There are a number of different theories as to why this is the case. Recent literature has found strong evidence that "who you know" matters, and there is some evidence that issue expertise may also matter to targeting. However, the precise magnitude of this fact and the mechanism underlying it are not well understood. Finally, a large number of papers show lobbying has positive returns. However, these papers employ a variety of different empirical methods, methods that each have drawbacks in isolating and identifying the causal effects of lobbying. In the next section, we discuss these methodologies in further detail.

EMPIRICAL APPROACHES TO STUDYING LOBBYING

Advances in social science research methods since the 1990s have allowed researchers who study lobbying to move away from correlational studies by applying quasi-experimental research designs that allow stronger causal inferences to be made. These advances now permit scholars to avoid, as Baumgartner & Leech (1996) note, the "pitfalls of one-shot cross-sectional designs," but they do not obviate the need for understanding the underlying narratives and institutional details of lobbying. In fact, understanding how lobbying works in practice is arguably even more important than before in implementing the design of empirical research. Thus, in this section, we outline how advances in research design and statistical methods can enable scholars to provide more reliable answers to otherwise difficult questions. The articles we highlight adhere to practices that we believe are necessary to advance the next generation of empirical research on lobbying.

Challenges to Conducting Empirical Analysis in Lobbying

In advancing our understanding of lobbying, researchers encounter four main statistical challenges that make causal inference difficult. The first challenge is the time-series persistence and stickiness of lobbying efforts and registrations within interest groups. With little within-interest-group variation in lobbying over time, it can be difficult to draw inferences from a panel dataset without external shocks that affect different groups at different times (as opposed to all groups at once). For example, imagine a certain interest group allocates $100,000 to lobbying per year and is awarded a government contract of $1M every year. While this relationship may be suggestive, we cannot describe the causal relationship between lobbying and contracts without a shock to the group's

budget or to the contract's size as, holding everything else constant, the variation necessary for techniques such as fixed effects is not present.

The second challenge is an omitted-variable problem. If multiple instruments for exercising political influence are in use but only some are observed, then we may falsely attribute an outcome to an interest's lobbying efforts when (for example) the effect is really due to the interest's location in a key district. Given the nature of lobbying and some actors' desire to operate under the radar, researchers are faced with omitted variables even when using the best available data. Datasets may not contain data on observable factors we would like to include as controls. There may also be factors that are simply unobservable, such as interest groups' or lobbyists' innate ability at lobbying. The omitted-variable problem can be extremely problematic if these omitted variables are correlated with the error term in a regression, which will result in biased parameter estimates and incorrect causal inference. We believe this is a pervasive problem in the lobbying literature. As quantification of outcomes, rather than description of phenomena, becomes an increasingly important goal, avoiding omitted-variable bias will become a primary concern.

A third challenge is endogenous selection into the lobbying process. An interest group's decision to lobby is not a random event—and hence does not fit the idealized world of an experimental trial, in which some interest groups would be randomly assigned to lobby and others not. Not permitting random selection could lead to biased results because the group-assignment process could be correlated with outcomes. An interest group's decision to lobby is likely driven by the expected reactions of other groups and by the focal group's anticipated outcomes. That is, groups are more likely to lobby when they believe they are more likely to succeed. Endogenous selection will result in incorrect statistical inference and biased parameter estimates in a standard regression model. Moreover, endogenous selection can make the direction of causality difficult to assess, because interests may lobby the way they do only because they expect a benefit from doing so. This problem could be pervasive given that only about 10% of firms that could lobby choose to do so. If the majority of interests that do not lobby choose not to because they expect no return, then without properly accounting for selection, estimates of returns will be biased upward. Moreover, the exact level of lobbying activity, the venues targeted, etc., may be chosen to optimize an interest group's outcome, further complicating causal stories about lobbying linked to outcomes. Similar to the omitted-variable problem, this makes newer questions that require causal inference difficult.

Finally, recent empirical work has attempted to couple the links between theory and data more tightly. Initially, the empirical lobbying literature was largely independent of theory. However, with tighter linking between theory and empirical work, researchers will face another challenge: even though lobbying theories are often about information, in most datasets the information (or message) is generally not directly observable. Hence, empirical work must develop mechanisms to test theories of informational lobbying when the information cannot be observed or may be incomplete.

Empirical Methods for Advancing Empirical Lobbying Research

This section highlights some research designs and empirical methods that help to overcome the challenges identified, providing an example of each approach. The approaches covered below are differences-in-differences, event studies, instrumental variables, selection models, and structural modeling.

Differences-in-differences approach with exogenous shocks. The differences-in-differences technique measures the change in the treatment and control groups across pre- and post-treatment periods. Its main advantage vis-à-vis the challenges presented above is that it exploits an exogenous

source of variation to deal with the stickiness or persistence issue in lobbying data. Through the use of fixed effects in panel data, it can also eliminate concerns about omitted variables that are time invariant and observation-unit specific.

Blanes i Vidal et al. (2012) employ the differences-in-differences approach with exogenous shocks in an examination of revolving-door lobbyists. Focusing on former congressional staffers who are contract lobbyists for interest groups, they examine how the revenues of lobbyists change when politicians to whom the lobbyists are connected via prior employment retire or are defeated in an election. Because many politicians exit over time, the authors have a key source of exogenous shock or variation that allows them to quantify how valuable "who you know" is to a lobbyist.

Empirically, Blanes i Vidal et al. (2012) estimate the following equation:

$$R_{it} = \beta P_{it} + X'_{it} \cdot \theta + \alpha_i + \gamma_t^{pc} + \epsilon_{it},$$

where R_{it} represents the revenue a lobbyist earns in a specific period, P_{it} is an indicator of whether a lobbyist's former employer is an active politician, X_{it} represents time-varying observable lobbyist attributes, α_i controls for unobservable individual lobbyists' specific factors that remain time invariant, and γ_t^{pc} controls for unobservable time-specific factors depending on the party and chamber to which a lobbyist is connected.

Because a key source of variation that the research design exploits for identification is prior employment with a particular politician, the authors can rely on politician exits to generate their statistical results. By having a relatively long time-dimension panel (22 periods) and including in their specifications time-varying lobbyist attributes, lobbyist fixed effects, and party-chamber specific time fixed effects, Blanes i Vidal et al. (2012) are able to attribute drops in lobbyist revenue vis-à-vis the within-lobbyist counterfactual trend to lobbyists losing someone whom they know. Hence, with the differences-in-differences approach, the authors determine that "who you know" accounts for approximately 23% of the value of a given lobbyist's services.

Event-study approach. As a quasi-experimental approach, an event study relies on an exogenous shock to one group to allow comparison between a control and experimental groups in the pre- and postshock conditions. Exogenous events that shock lobbying systems help avoid concerns about endogenous selection into a particular behavior. Like the differences-in-differences approach, event studies also are well suited to handling the stickiness or persistence issue in lobbying because they focus on whether and how actors' behavior changes in response to a major shock to the system.

Jayachandran (2006) uses a financial market event study to examine how firms that align themselves with politicians from the majority party may benefit from that position.[2] Although this article is not directly about lobbying, we highlight it because it illustrates an approach that can be useful in lobbying studies. In May 2001, Senator Jim Jeffords announced he was leaving the Republican Party to become an Independent. This change made the Democrats the majority party in the US Senate, thereby altering the political landscape as Democrats took over key leadership roles and gained more power over the legislative agenda. Jayachandran (2006) employs a financial market event study around Jeffords' switch to construct a counterfactual of how the stock prices of certain firms fared versus how they would have fared had Jeffords not left the majority Republican Party. She then examines whether aberrations between the actual and counterfactual performance could be predicted by firms' relative relationships with both parties. To construct the abnormal returns—or the difference between actual and counterfactual market performance of firms—around

[2]Other papers that profitably use event study analysis to analyze political outcomes include Roberts (1990), Werner (2011), and Hillman et al. (1999).

Jeffords' announcement, Jayachandran employs two steps. First, she calculates expected returns for firms by estimating the following equation using data from before the event period:

$$Rtn_{it} = \alpha_i + \beta_i MktRtn_{it} + \epsilon_{it}.$$

Then, she assumes that the estimates of α_i and β_i will persist around the event, allowing her to calculate abnormal returns (as the difference between actual and expected returns) during the event window (i.e., the days around Jeffords' announcement):

$$AbnRtn_i^{event} = Rtn_i^{event} - (\hat{\alpha}_i + \hat{\beta}_i MktRtn^{event}).$$

Jayachandran then investigates whether deviations in firms' actual performance and counterfactual performance can be explained by firms' alignment with the majority party that unexpectedly loses power. To do so, she regresses estimates of firms' political party alignment prior to Jeffords' announcement (as proxied by soft-money contributions) on her estimated abnormal returns. More formally, she estimates

$$\widehat{AbnRtn_i}^{event} = \beta_D Dem_i + \beta_R Rep_i + X_i' \cdot \theta + \epsilon_{it}.$$

After controlling for other observable firm-specific factors that may explain why the market performance of some firms deviated from their long-run trend, Jayachandran finds stronger alignment with the former majority party (in this case, the Republicans) hurts firms' market performance. Hence, her event-study research design allows the author to uncover the importance of structuring political relationships in a way that aligns interest groups with politicians who have agenda-setting abilities and other forms of legislative power, while remaining flexible to adapt should the political environment change. Although Jayachandran focuses directly on campaign contributions rather than informational lobbying, her work illustrates how event studies are potentially fruitful quasi-experimental approaches for lobbying.

Instrumental-variables approach. The instrumental-variables approach relies on the identification of causal effects through a variable that is correlated with endogenous explanatory variables, conditional on other covariates, but is uncorrelated with the error term in the regression equation. This approach is primarily focused on solving the challenge of omitted-variable bias and endogeneity of right-hand-side variables.

De Figueiredo & Silverman (2006) employ this method to study the effects of lobbying on earmarks granted to academic institutions by Congress from 1997 to 1999. The goal is to estimate the returns to university lobbying by measuring the size of the earmarks Congress appropriates to an institution as a function of that institution's lobbying expenditures. Because nonprofit charitable organizations such as universities are not allowed to implement other common forms of political action, such as grassroots organization of employees for political purposes and PACs, the authors can isolate the effect of lobbying. Empiricists may be tempted to estimate the following equation:

$$Earmarks_i = \beta Lobbying_i + X_i' \cdot \theta + \alpha + \epsilon_i.$$

Unfortunately, this approach would be invalid if the level of lobbying that an institution chooses is a function of its expected return on lobbying efforts in the form of earmarks. De Figueiredo & Silverman (2006) overcome this very common challenge in estimating the effects or outcome of lobbying effort by finding an instrumental variable to use in a two-stage least-squares research design (Angrist et al. 1996). They argue that overhead rates charged to universities as part of grant funding are a valid instrument because overhead rates (*a*) are a meaningful cost shifter for universities in using grant monies, (*b*) are the result of negotiations between each university and the bureaucratic government agencies that disperse funds, and (*c*) are not under the purview of

elected politicians who are lobbied to insert earmarks into legislation. Hence, higher overhead rates should cause universities to invest more in lobbying, but they should not directly result in earmarks. Rather, the earmarks appear through the higher lobbying investments that universities make because of higher overhead rates.

In the first stage, de Figueiredo & Silverman (2006) estimate the determinants of lobbying as a function of overhead rates among other factors. Specifically,

$$Lobbying_i = \beta Overhead_i + W_i' \cdot \theta + \alpha + \epsilon_i.$$

Here, $Overhead_i$ is the key instrumental variable that affects the level of lobbying a university chooses, but it does not affect the size of earmarks that a university receives; W_i represents other observable factors that could affect how much a university spends on lobbying.

In the second stage, de Figueiredo & Silverman (2006) estimate the causal effect of lobbying on obtaining earmarks by using the instrumented value of lobbying estimated in the first stage of the regression as their key independent variable. Hence, they estimate a version of

$$Earmarks_i = \gamma \widehat{Lobbying_i} + X_i' \cdot \zeta + \alpha + \eta_i,$$

where X_i represents other observable factors that could affect the earmarks a university receives.

Because their empirical setting includes an instrument that determines lobbying levels but is likely not correlated with the error term in the regression, the authors are able to estimate the direct effect of lobbying on that outcome free of simultaneity bias. Thus, they overcome one of the key challenges to estimates of the efficacy of lobbying on outcomes. De Figueiredo & Silverman find that lobbying has a significant effect on the size of earmarks received only when the legislator representing the district of the university is on an appropriations committee in Congress. Thus, their paper also enhances our understanding of when lobbying has a payoff.

Selection-model approach. In the selection-model approach, the nonrandom assignment of subjects to two groups (e.g., control and experimental) is explicitly modeled. This method is geared toward resolving challenges related to groups choosing to lobby on a nonrandom basis. When coupled with panel data methods, this model can also be used to reduce concerns about time-invariant, unit-specific omitted-variable bias.

Richter et al. (2009) employ a selection model in their study of the relationship between lobbying efforts and the effective tax rates companies pay to determine whether there is an endogenous process of selection into lobbying on taxes. Noting that only 10% of firms actually lobby, the authors argue that, because all firms prefer lower effective tax rates to higher effective tax rates, endogenous selection into lobbying should not be a problem for this outcome.

Simple panel methods, without accounting for the selection effect, would estimate the following equation:

$$ETR_{it} = \beta Lobbying_{it-1} + X_{it-1}' \cdot \theta + \alpha_i + \alpha_t + \epsilon_{it},$$

where ETR_{it} is a firm's i effective tax rate at time t, $Lobbying_{it-1}$ is a firm's lobbying expenditure in the previous time period, X_{it-1} are lagged time-varying observable factors, and α_i and α_t are firm and time fixed effects. In the presence of sample-selection bias, this equation would suffer from omitted-variable bias, and the coefficient on lobbying expenditures β would result in incorrect inference about the effects of lobbying on tax rates.

To check for this problem, Richter et al. (2009) implement a two-step Heckman (1979) selection model that accounts for any selection effect. First, a binary selection equation is estimated. The coefficients from it are used to calculate an estimate of the inverse Mills ratio (λ), which represents an estimated selection hazard for the probability that a given firm has selected into lobbying.

Richter et al. (2009) estimate the selection equation as

$$If\_Lobby_{it} = F(\omega W_{it-1} + \alpha + \mu_{it}),$$

where If_Lobby_{it} is a binary variable representing the decision to lobby or not, $F(.)$ represents the cumulative density function of a standard normal distribution (since they are estimating a probit model), and W_{it-1} represents factors that influence a firm's decision to lobby including factors both included and not included in X_{it-1} in the baseline estimation equation of interest. Given functional form assumptions, the inclusion of additional factors is not strictly necessary for estimation; however, the inclusion of additional factors that affect selection but not outcomes greatly increases the robustness of the estimates (Sartori 2003). As an additional factor, Richter et al. (2009) use liquid assets, such as cash, which when plentiful may make it easier for firms to lobby but are unlikely to affect the effective tax rate directly.

The authors then use the estimates $\hat{\omega}$ to construct the estimate of the inverse Mills ratio as

$$\hat{\lambda} = \frac{\phi(\hat{\omega} W_{it-1})}{\Phi(\hat{\omega} W_{it-1})},$$

where ϕ represents the standard normal probability density function and Φ is its cumulative density function. This estimate is then inserted into the outcome equation to control for endogenous selection into lobbying to overcome selection bias issues and make causal inference:

$$ETR_{it} = \beta Lobbying_{it-1} + \eta\hat{\lambda} + X'_{it-1} \cdot \theta + \alpha_i + \alpha_t + \epsilon_{it}.$$

Using the sample selection method outlined here, Richter et al. (2009) find not only that increasing lobbying efforts by 1% over a firm's baseline level in a given year predicts lower effective tax rates by 1.07 percentage points on the margin in the next period, but also that these results are not driven by a firm's decision to select into lobbying because it covets lower tax rates. This paper and the use of selection models, however, cannot resolve fully whether firms that are already lobbying increase their efforts at opportune moments, thus making it difficult to determine if money is left on the table by firms that do not lobby.

Structural-modeling approach. Although not a quasi-experimental approach like the four presented above, a structural model does build out the econometric equations directly from a theoretical model so that each parameter in the statistical model has theoretical underpinnings. Moreover, the structural modeling approach allows a researcher to calibrate the theoretical model to policy experiments (doing "what-if" analysis), which cannot be done as rigorously with a reduced-form approach. The simultaneity and causal direction of effects are derived in the formal model, and the empirical tests match the theoretical model. This minimizes endogenous selection concerns if the theoretical model is believed to reflect the true institutional details of the situation. As such, structural models overcome some, but not all, of the traditional issues that arise with statistical inference. Underlying these models, though, are often assumptions that are required to generate the result, assumptions that may be so strong as to render these models suspect.

Kang (2012) provides a current example of a structural econometrics approach to lobbying. She builds a formal all-pay contest model of a lobbying process in which groups choose to select into a counteractive lobbying environment. Applying this model to energy issues, she estimates the model's parameter values in examining energy interest groups' support for and opposition to policies embedded within various bills during the 110th Congress. Kang assumes that it is difficult for interest groups to change their lobbying strategies within a single two-year session of Congress. She finds that the effect of energy interest groups' lobbying expenditures on a policy's equilibrium enactment outcome is very small but quite profitable relative to the small investments

that firms make in lobbying. She finds that lobbying in this setting has a marginal return in policy of 140%. This example demonstrates the ability of structural econometric approaches to marry theory with data so that predictions from theoretical models can be estimated broadly.

Summary of Empirical Methods and Research Design

The five examples above demonstrate that recent research in lobbying has overcome empirical challenges inherent to assessments of lobbying activity by using more advanced empirical methods that employ a quasi-experimental design.[3] The studies reviewed above demonstrate that the value of lobbying depends on timing, the interest groups' targets, and other factors that appear to play a role in determining the outcomes of lobbying efforts.

Beyond the methods used in the examples above, quasi-experimental approaches in other literatures might become useful in advancing the empirical analysis of lobbying. To deal with sample-selection and omitted-variable bias issues, other social science fields commonly use advanced matching methods to compare treated units with untreated units that are otherwise similar (Rosenbaum & Rubin 1983). Regression discontinuity designs exploiting knife-edge assignments to treatment and control groups also help overcome questions about sample-selection and omitted-variable bias (Angrist & Lavy 1999, Imbens & Lemieux 2008). Synthetic controls have been constructed to empirically identify treatment effects in single-case studies (Abadie & Grazebal 2003, Abadie et al. 2010).

Despite the importance of methodological improvements, researchers should continue to adhere to the basic tenets of good research design, including: clearly defining the research question, understanding the institutional details, understanding the source of variation and the counterfactual, identifying and explaining the mechanisms that explain the results, and eliminating alternative explanations. These principles coupled with the more advanced methodological techniques should allow researchers to push the envelope on empirical research in lobbying by allowing quantifiable causal inference.

DATA

Although it is important to understand what types of empirical approaches are effective and likely to yield strong causal inferences about lobbying, such research designs cannot be implemented without appropriate and sufficiently high-quality data. The amount of data available on lobbying is increasing rapidly as interest in the topic grows both within and outside of academia, as disclosure laws proliferate in new jurisdictions, and as existing datasets stemming from older disclosure laws grow with time. In addition, researchers are becoming more creative in their own data-collection efforts. In this section, we review the advantages and disadvantages of the basic types of data available. We also consider what future sources of data will advance empirical research in lobbying. We stress, though, that advances in measuring lobbying will be useful in determining the returns to lobbying only to the extent that outcome variables can also be well measured and

[3]Despite the attractiveness of these new statistical approaches, these methods are not fool-proof. Differences in differences can suffer from inconsistent standard errors (Bertrand et al. 2004). Event study analysis may have inappropriate windows or confounding factors in the window that are correlated with the outcomes, yielding incorrect causal inference. Weak instruments may eliminate the benefits of an instrumental-variables regression (Staiger & Stock 1997). Lack of a convincing selection mechanism or small samples may doom selection models (Sartori 2003). Unrealistic assumptions might make structural models unbelievable (Angrist & Pischke 2010). Despite the drawbacks, when correctly employed and carefully used, these methods can make substantial strides in addressing the challenges that empirical research in lobbying faces.

clearly linked to lobbying efforts. Too often, the link between lobbying activity and the outcome in question is incomplete or tenuous, particularly when authors fail to provide institutional details about the linkages.

Types of Data

Broadly speaking, data on lobbying activity are typically collected from three sources: surveys, registries, and transaction records. Disclosure rules and survey questions usually dictate what information is available in a particular dataset. The questions asked of survey participants vary across studies, and disclosure laws vary across jurisdictions. This leads to datasets of varying quality and usefulness for researchers who want to empirically identify causal outcomes related to lobbying activity rather than simply produce summary statistics or generate partial/conditional correlations.

Surveys. Some of the first modern empirical academic research on lobbying dates back to Milbrath's (1963) survey work,[4] whose format has been repeated in surveys and interviews of lobbyists (Heinz et al. 1993, Baumgartner et al. 2009a), interest groups (Schlozman & Tierney 1986, Wright 1990, Kollman 1998, Yadav 2008), and bureaucrats (Furlong 1998, Waterman et al. 1998). One key advantage of survey data is that the questions are flexible and allow researchers to investigate topics that lobbying disclosure laws would not permit. For example, Nelson & Yackee (2012) use survey data to study when organizations choose to lobby as a coalition instead of by themselves. This approach is particularly useful because disclosure laws typically do not require organizations to declare whether their lobbying activity is coordinated with other groups as part of a coalition; nor do they typically require associations to disclose their members. Survey data can also be useful for cross- or multi-jurisdictional studies, because variation in disclosure requirements and institutional rules makes transactional data from different locations difficult to compare without understanding how institutional rules shape lobbying behavior. Campos & Giovannoni (2007) use World Bank survey data to show that lobbying and corruption are substitutes and that lobbying is more likely to occur than is bribery in locations with stronger institutions. Yadav (2008) collected comparative survey data in India and China to analyze when interest groups get involved in the lobbying process. Hence, survey data are most likely to be fruitful when observational data on lobbying are limited owing to the nature of disclosure laws or when the questions of interest are cross jurisdictional.

Despite these advantages, survey data have a number of disadvantages. Survey data in lobbying frequently suffer from significant nonrandom nonresponse rates, lack of random samples, ex post recollection, small numbers of observation units, cross-sectional dimensionality only, and limited ability to verify the validity of answers (Groves et al. 2009). These issues make it nearly impossible for empiricists to fully control for unobservable individual observation-unit fixed characteristics, one of the important characteristics of good statistical work highlighted above. Moreover, the problems with surveys will likely generate multiple sources of statistical bias, making causal inference difficult, if not impossible.

Lobbying registrations. Disclosure laws have also generated public sources of data that are widely available today, of which registries of lobbyists are by far the most common. Nearly every jurisdiction that attempts to regulate lobbying activity has a registry requirement, although the

[4]Although governments had also collected some data on lobbying at that time, the information was limited and difficult to access.

requirements of who must register and what information registrants must provide vary greatly across jurisdiction. Researchers have heavily relied on registry information to make broad inferences about interest groups' participation in lobbying (e.g., Gray & Lowery 1996, Wolak et al. 2003, Gray et al. 2004).

Registry data offer a number of advantages. Because registry data are available for a full population of interest groups over a long period of time, they can help answer questions about who is registered to lobby. Registries contain information about individual lobbyists as well as groups, so researchers can track lobbyists over time and link them to various interests. This may be particularly useful to researchers attempting to identify the use of in-house versus contract lobbyists by groups and could also lead to the creation of lobbying network maps that include the connectedness, proximity, and centrality of lobbyists and interest groups (e.g., La Pira et al. 2012).

Registry data, however, suffer from practical drawbacks. Making direct comparisons is difficult because of the differences in registration rules across jurisdictions (e.g., La Pira & Thomas 2013). A second problem is that although registration by an interest group or lobbyist provides a right to lobby in a jurisdiction, it does not necessarily mean that the group or lobbyist has lobbied there. In fact, it is not uncommon to find many registered interest groups with lobbying expenditures totaling zero. Third, even when this issue does not occur, the groups that register to lobby are not a random sample of groups; there is likely to be endogenous selection into registration, accompanied by its aforementioned issues. Finally, registries are composed of counts of interest groups and do not provide information on their lobbying efforts. This drawback is particularly problematic if the goal of research is to identify how "active" or "effective" interest groups are in lobbying.

Transaction reports. A few national governments and a significant number of state governments in the United States have moved beyond simply requiring lobbyists to register. They now also collect transaction-related data on lobbying. These data include each interest group's expenditures on lobbying in each time period, how much revenue each lobbyist earns (and from whom) in each time period, and, in some cases, in which general issue areas the interest group is lobbying. Advancements in the statistical analysis of lobbying have been driven, in part, by the availability of these new databases. In particular, the Lobbying Disclosure Act of 1995 (and its Amendments) requires lobbyists to report lobbying expenditures and other data to the US Congress; these data have been used extensively and are a popular source for papers on the subject (Richter et al. 2009, Bertrand et al. 2012, Blanes i Vidal et al. 2012; for reports using similar state-level transactional data, also see Grasse & Heidbreder 2011, de Figueiredo & Cameron 2014, Cameron & de Figueiredo 2013, Lewis 2013, de Figueiredo 2014).

One advantage of these transactional data is their scope: researchers can now identify the timing, intensity, and focus of an interest group's lobbying effort. This should allow researchers to link lobbying intensity to lobbying outcomes. A second advantage is that these data can be integrated into registry data to develop better network maps of lobbying and to help identify endogenous selection and timing issues in registries. Third, these data support "big data" studies with large numbers of observation units over long periods of time that permit use of more advanced statistical methods.

Despite the attractiveness of transactional data, it is not without disadvantages. First, as with registry data, there is some ambiguity as to what is to be included in lobbying expenditures. Moreover, rules and regulations differ across jurisdictions, making cross-jurisdiction comparisons difficult without cross-jurisdiction fixed effects. Second, transactional data show lobbying intensity but do not include the content of the message that is transmitted. Third, US federal transaction data do not inform researchers about who in the legislature, for example, is the specific target of

a lobbying effort. Thus, unlike campaign contributions, researchers cannot map interest groups' lobbying efforts to individual legislators.

Future Paths for Data Collection on Lobbying

The data now available should help advance the empirical research agenda on lobbying. In particular, the availability of transactional data over longer time periods will likely create an attractive archival data path for researchers seeking to employ more advanced statistical methods to obtain better statistical identification and isolate the causal effects of lobbying on policy. However, transactional data alone will likely not be enough; researchers will have to integrate archival datasets (transactional data and registry data) with external datasets to obtain natural experiments and better statistical identification for isolating causal mechanisms. Blanes i Vidal et al. (2012) integrate a database on lobbyists' career histories with transactional lobbying data, Kang (2012) integrates a database on bill proposals with transactional lobbying data, de Figueiredo & Silverman (2006) integrate a database on university overhead rates and academic earmarks with transactional lobbying data, and Richter et al. (2009) integrate a database on corporate tax payments with transactional lobbying data. Integrating external archival datasets with the current lobbying datasets will likely yield substantial payoffs for research.

In addition, researchers will benefit from expanding statistical research on interest group lobbying outside of the United States and its states. Papers have used datasets that include China (Yadav 2008), India (Yadav 2008), Japan (Naoi & Krauss 2009), Mexico (Siegel 2005), and Norway (Alt et al. 1999). Although lobbying data in developing countries are scant, data collected in these countries will also allow researchers to make substantial contributions to understanding the breadth of applicability of lobbying theories. Studies that employ these international data could contribute substantially to defining the generalizability of the US-based empirical work. Even simple bivariate correlations in these less-studied international contexts could be useful until higher-quality data are available and more well-defined causal inference studies can be designed. Finally, archival data will also benefit from being combined with survey data, despite their many disadvantages, to uncover new ground and institutional details on the mechanisms that cause lobbying outcomes (e.g., Baumgartner et al. 2009a).

FUTURE RESEARCH

In thinking about the future of empirical research on lobbying, we find a number of areas where crisp, clean, and well-identified statistical work could contribute substantially to our understanding of lobbying and help the field to make substantial headway in answering the questions posed below. In addition to simply applying quasi-experimental approaches, understanding and incorporating the institutional details of lobbying remain very important at the research design stage and will likely lead to results with the highest value. Good empirical studies in the six areas suggested below could substantially advance the literature on lobbying.

The first question that deserves attention is "Why is there so little money in lobbying?" In the United States, federal budgets represent in excess of two trillion dollars, yet lobbying represents only three to four billion dollars. Relatedly, why do so few interest groups lobby? If lobbying is presumed to be so influential in appropriations and most policy domains, then empirical researchers must explain why only approximately 10% of firms lobby and why they spend so little given the magnitude of potential benefits politicians could redirect toward interests that do lobby.

Second, how can the returns to lobbying be quantified? Although lobbying is pervasive in the American and many other political systems, the returns to lobbying cannot be infinitely large.

Moreover, the billions of dollars being spent annually on lobbying are likely not all wasted. Presumably, interest groups that choose to lobby have some expectation of a return; thus, understanding more about the distribution of the payoffs among interest groups seems important. To that end, a more nuanced question may be, "When, and under what conditions, does lobbying produce a payoff?" If there are substantial marginal returns to lobbying, as most papers suggest, why is there not much more investment? Put another way, when do the marginal benefits of spending an extra dollar on lobbying begin to be outweighed by the marginal costs?

De Figueiredo & Silverman (2006) suggest that there are returns to lobbying only when the supply and demand conditions are in equilibrium. Moreover, the authors argue, because a legislator's time is extremely limited and because the legislator is seeking a particular piece of information that will be persuasive, once the legislator has been persuaded, the marginal returns to additional lobbying are likely zero. An alternative view is that the returns to lobbying are extremely difficult to measure because most lobbying is defensive, preserving the status quo. In addition, if interest groups lobby friendly legislators who subsequently and privately lobby marginal legislators for votes (Hall & Deardorff 2006), quantifying the precise returns to lobbying is difficult. Employing better datasets and more advanced empirical techniques, researchers should now be able to come closer to isolating and quantifying the effect of lobbying expenditures on policy outcomes.

Progress in these first two areas of academic inquiry should allow us to make headway in answering additional questions of public policy interest. To date, the data suggest that business interests are represented slightly more than are nonbusiness interests in lobbying, but businesses spend substantially more on lobbying. However, Baumgartner et al. (2009a) find that, although citizen groups lobby less and on fewer issues than do business groups, they are more likely to be considered important actors in such advocacy efforts. Do asymmetries in numbers or spending make a difference in influence? Or do businesses have to spend more on lobbying to make their voices heard? Are the payoffs large to business interests given their higher lobbying effort? Or is the marginal return to business interests per dollar spent comparable to, or less than that, for citizen interests? By answering the questions in the first two areas outlined above, we will make headway on these latter questions.

Third, how can the importance of "who you know" (connections) and "what you know" (expertise) in lobbying be quantified? It seems likely that both are valuable (Bertrand et al. 2012), but understanding their relative importance in the lobbying process would be helpful. In particular, we now have evidence that "who you know" generates substantial revenue for lobbyists (Blanes i Vidal et al. 2012). However, we have no direct empirical tests of the value of "what you know." That is, there have not yet been direct tests incorporating the content of the lobbying message provided to legislators.

One prevalent view is that campaign contributions provide access to politicians who are the targets of lobbying activity (Austen-Smith 1995). Perhaps "who you know" plays the same role. Senators could rely on former staffers to screen potential lobbyists on the basis of the content of an interest group's information. Former staffers understand a legislator's preferences and utility function, as well as her time constraints, so they may serve as useful gatekeepers of information. Once an interest group is before a legislator, only "what you know" may matter for outcomes obtained. Empirical studies of this phenomenon may compose a promising agenda.

Fourth, how intensely are different legislators targeted for lobbying by interest groups? Surveys have allowed researchers to identify which legislators are targeted, but little research has been done on how intensely they are targeted. In addition, even less is understood about what kinds of messages are being transmitted and which types of messages are most influential in which

situations. Further empirical work with more sophisticated datasets is likely to yield substantial fruit.

Fifth, in a broader study of political influence, how do interest groups allocate resources across different instruments (lobbying, campaign contributions, grassroots organization, endorsements, media campaigns, etc.), and which types of interest group pressure are most effective? These questions are difficult for scholars to answer because unobserved factors that influence lobbying may also affect other instruments (such as campaign contributions). Thus, very careful implementation of the quasi-experimental methods noted above seems essential to making any credible headway in this area.

A final and very important avenue for researchers to pursue is the empirical testing of the implications of theoretical models. There are hundreds of theoretical models of lobbying and influence, with many different and frequently opposing predictions. Careful testing of their implications (as outlined in Clarke & Primo 2012) has largely eluded researchers to date. Austen-Smith & Wright (1996), de Figueiredo & Cameron (2014), Kang (2012), and Cameron & de Figueiredo (2013) all provide examples of empirical papers tightly and clearly linking theory and testing in a way that can be falsified. These papers help to support and reject broad classes of theoretical models. More work along this vein of research will allow the field to cull the vast theoretical literature into a set of core theoretical models that are most useful in explaining the actual practice of lobbying.

Empirical research on lobbying has progressed substantially over the past decade. New datasets, methodologies, and research designs together create the opportunity not only to investigate some of the more tenuous results currently found in the literature but also to answer some core research questions. Employing these new techniques will advance empirical research in lobbying substantially over the next decade.

DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

ACKNOWLEDGMENTS

We thank David Austen-Smith, Jordi Blanes i Vidal, Charles Cameron, David Primo, David Lewis, Brian Roberts, Tim Werner, and an anonymous referee for helpful comments on earlier drafts of this review.

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