

# Policy Uncertainty and Demand for Revolving-Door Lobbyists

## **Abstract**

Interest groups spend large sums of money hiring lobbyists often as a form of insurance against the risk of undesirable policy change. This theory of lobbying as political insurance needs systematic testing. Previous experience serving in government makes lobbyists more valuable as providers of political insurance. The insurance theory of lobbying thus points to an empirical link between policy uncertainty and interest groups' demand for these "revolving-door lobbyists" with previous government experience. I examine this link using complementary sets of panel analysis of lobbying activity by companies in four economic sectors over an eleven-year period. They draw on a sector-specific and time-variant measure of policy uncertainty based on analyzing companies' discussions of policy risks in annual 10-K filings submitted to the U.S. Securities and Exchange Commission. In all four sectors companies' preference for revolvers increases in response to policy uncertainty relative to conventional lobbyists.

Word count: 9,230

A primary set of theories of lobbying conceptualize it as the transfer of information from interest groups to government officials (Lohmann 1995; Austen-Smith 1995). In these models of lobbying, officials lack sufficient technical policy-relevant information to make policy, so they rely on informational input from expertise-rich interest groups, often in the form of “legislative subsidy” (Hall and Deardorff 2006). Another body of research proceeds from analyzing interest groups’ objectives, constraints facing collective action, and available strategies. This literature finds that interest groups, particular for-profit companies, often lobby to prevent harmful policy change rather than persuade the government to enact change. Playing defense is more universal, while playing offense is more of a luxury available only to the most resource-rich organizations (Drutman 2015*a,b*; Baumgartner et al. 2009). In their recent book, LaPira and Thomas (2017) explicitly model lobbying as a set of interest group actions to insure against the risks of policy change.

Lobbying as political insurance does not inherently preclude conceptualizing it as informational transfer. Although interest groups’ supply of policy-relevant information to officials intuitively comports best with lobbying as playing offense, groups can certainly transfer information with defensive goals as well, communicating to officials why the status quo is preferable to proposed changes to it. Nevertheless, the insurance theory of lobbying has an advantage of generating certain propositions on the demand for lobbying. It directly speaks to the circumstances under which interest groups are expected to mount and adjust lobbying efforts, highlighting key variables related to risks in the political environment. In general, the riskier the political environment, the more intensely interest groups should lobby.

So far, however, researchers have subjected this broad expectation to few empirical tests mainly because it is difficult to measure policy uncertainty at different points in time. In this paper, I use a measure of policy uncertainty perceived by for-profit companies in four major economic sectors - the sectors responsible for the largest lobbying expenditures in the U.S. - for such a test. It tests a specific expectation stemming from the insurance theory with respect to lobbyists with previous experience working in government: The lobbying activity

of these “revolving-door lobbyists” should be positively associated with sector-wide policy uncertainty. Empirical analysis yields strong evidence for this expectation.

By counting policy-related words from risk factor discussions contained in annual 10-K filings submitted by companies to the U.S. Securities and Exchange Commission, I estimate a measure of policy uncertainty which both corresponds to specific sectors of the economy and changes over time. As such, this measure describes lobbying clients’ assessments as to the kind of policy uncertainty most relevant to the determination of their political strategies, including how to lobby. By merging companies’ perceptions of policy risks extracted from their 10-K filings from 2006 to 2016 to lobbying records, I conduct several complementary sets of panel analysis of the relationship between policy uncertainty and revolving-door lobbying in the four economic sectors.

I first use data at the sector-year level to show that revolvers made up a greater share of all active lobbyists in the four sectors when companies perceived greater policy uncertainty. I then uncover corroborating evidence for this strong sector-level effect of policy uncertainty by looking to the within-sector corporate clienteles of lobbying firms and individual lobbyists, whose microeconomics should reflect the wider political economy of the profession. Using separate single-sector data sets at the lobbying firm-year level, I show that increasing policy uncertainty brought lobbying clients to revolver-rich firms; the more revolvers there were in lobbying firms, the more their clienteles grew in response to uncertainty. Finally, single-sector data at the lobbyist-year level show that revolvers’ comparative specialization of lobbying under high-uncertainty conditions, rather than the fluctuations of their clienteles, is mainly responsible for the boon presented by policy uncertainty.

While the analysis conducted in this paper is a direct test of the insurance theory, it can nonetheless be compatible with lobbying as a transfer of information from interest groups to government officials. When the policy environment is risky, companies’ heightened demand for revolving-door lobbyists can indicate their growing desire to supply policy-relevant in-

formation to government officials, which may in turn result from policy opportunities that emerge when the government is poised to shake the status quo. In this framework, revolvers become highly sought after because the political connections and policy expertise they have acquired in government office make them effective conduits of policy-relevant information supplied by companies that officials find useful. Revolvers' reputations in policy knowledge and ideological stances constitute strong signals of the quality of interest groups' information, a decisive factor in groups' ability to access and influence officials in the information transfer theory (Lohmann 1995; Austen-Smith 1995; Hall and Deardorff 2006).

On the other hand, stable and benign political conditions may on the whole present more openings for interest groups to aggressively push policy changes in their favor, especially when sympathetic government officials are in control of the levers of government (Baumgartner et al. 2009). If this is true, then the findings of this paper would underscore the limitations of conceptualizing lobbying as pushing for policy change and revolvers as its most effective agents. Future research can speak more directly to the informational function of revolvers in defensive lobbying by leveraging the partisanship and ideology of incumbents and revolvers. By testing whether policy uncertainty creates particularly high demand for lobbyists of the same partisan and ideological persuasions as those in power, for instance, future work can examine the relative explanatory power of the two theories in different political conditions.

Related inquiries leveraging details in revolvers' government experience may also speak to the relative importance of the dual assets of political connections and policy expertise for lobbying in uncertainty (Bertrand, Bombardini and Trebbi 2014), both of which can support the findings of this paper. Nevertheless, I expect both qualities, which have intrinsic connections with each other, to be valuable for lobbying in risky conditions as companies need both highly connected lobbyists and those with strong policy chops to navigate uncertainty. For good reason, lobbying firms often boast a mix of both types in order to serve and keep their clients.

# 1 Lobbying as Political Insurance and Revolving-Door Lobbyists

Lobbying is often a defensive enterprise. Interest groups often lobby in order to prevent harmful policy change rather than persuade government to enact change (Baumgartner et al. 2009; Drutman 2015*a*; LaPira and Thomas 2017). According to Baumgartner et al. (2009), in spite of the often complex and multi-dimensional nature of public policy, conflicts over policy tend to have a simple structure. On the host of issues the authors surveyed, organized interests with different preferences tended to coalesce into two sides, with one side defending the status quo and the other favoring some kind of change. Many interest groups choose to defend the status quo first because it usually already reflects existing biases in the pressure system and thus conforms to the groups' preferences, and second because effecting policy change is a much more demanding goal. The policy process is marked by a strong status quo bias produced by forces working in concert. Frictions in the policy process that resist policy change mean that interest groups have a much easier time defending the status quo than challenging it (Baumgartner et al. 2009).

LaPira and Thomas (2017) formulate such a theory of lobbying as insurance against policy uncertainty in order to explain the dominance of lobbyists who used to work in government. The rise of these “revolving-door lobbyists” is one of the most salient recent developments in American interest group politics. The lobbying data, to be described in greater detail later, show that the share of revolvers among all active Washington lobbyists steadily rose from less than 10 percent in 1998 to almost half in 2016. The proportion of former members of Congress that decide to become lobbyists has also increased over time (Lazarus, McKay and Herbel 2016). According to LaPira and Thomas (2017), revolvers owe their domination over conventional lobbyists above all to their knowledge about the policy process, which is valuable to interest groups trying to head off political risks. This explanation based on process knowledge adds to a body of work that has investigated whether

lobbying clients value more highly revolvers' strength in policy expertise or political connections, which had on the whole found more support for connections (Salisbury et al. 1989; Bertrand, Bombardini and Trebbi 2014; i Vidal, Draca and Fons-Rosen 2012; LaPira and Thomas 2017; Kang and You 2016; McCrain 2018).

That revolvers' process knowledge makes them more helpful to interest groups in their endeavor to insure against policy uncertainty can certainly go a long way in explaining their demonstrable advantage over conventional lobbyists. More systematically testing it, however, poses some challenges. The kind of policy uncertainty that exists in LaPira and Thomas's (2017) theory is a general feature of the overall political environment. The two main causes of increasing uncertainty they set forth - declining congressional capacity that lawmaking requires and the rise of strong parties in government in a polarized era - are fundamental and mostly irreversible institutional developments. Secular rather than dynamic and fluctuating, policy uncertainty for good reason does not feature in their empirical analysis as an independent variable.

But policy uncertainty does fluctuate, and the policy environment contains uncertainty-creating elements that are more dynamic than declining lawmaking capacity and heightening partisanship. Policy changes that the government considers at any point in time may create policy uncertainty to relevant constituencies. Notably, President Trump's recent rhetoric suggesting regulatory reform aimed at restricting prescription drug prices forced a major pharmaceutical manufacturer into a guessing game.<sup>1</sup> To explicitly evaluate the theorized but untested link between policy uncertainty and the intensity with which organized interests engage in revolving-door lobbying, therefore, it is essential to accurately capture the fluctuating policy uncertainty facing them. A good measure should accordingly have a high level of granularity cross-sectionally and longitudinally. Cross-sectionally, it should describe

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<sup>1</sup>Bertha Coombs, "Humana turns to game theory for new Medicare pricing as insurers juggle Trump rebate uncertainty," CNBC, March 22, 2019, <https://www.cnbc.com/2019/03/22/humana-turns-to-game-theory-for-new-medicare-price-structure.html>.

uncertainty in the policy environment most relevant to each interest group at any given time rather than uncertainty facing some other interest group with disparate goals. Longitudinally, it should be sensitive to over-time change in policy uncertainty facing a given group.

The measure that I use in this study for policy uncertainty based on companies' discussions of policy risks in annual 10-K reports satisfies both criteria. The level of policy uncertainty demonstrably varies among economic sectors and, within each sector, changes from year to year. Panel analysis drawing on this measure presents evidence for a positive within-sector correlation between policy uncertainty and revolving-door lobbying that holds strong for all sectors in the data. This result is consistent with recent work by Ban, Palmer and Schneer (2019). They show that lobbyists, especially revolvers, are able to generate more lobbying revenue during times of high policy uncertainty. Ban, Palmer and Schneer (2019) adopt a different strategy than mine for measuring policy uncertainty, however. Based on the economic policy uncertainty index (EPU) developed by Baker, Bloom and Davis (2016), they come up with a catch-all measure of system-wide policy uncertainty that assumes that all interest groups consider one universal policy environment when making lobbying decisions. They summarize the EPU index into yearly means and then coarsen it further by classifying years as simply having low or high policy uncertainty based on how each yearly mean compares with the median of the entire time period.

## 1.1 Hypotheses

Based on reasoning presented above, the insurance theory of lobbying should manifest itself in clients' preference for revolving-door lobbyists to conventional lobbyists when they need to combat risky political conditions that pose danger to policies they care about (LaPira and Thomas 2017; Ban, Palmer and Schneer 2019). Utilizing the sector specificity of the measure of policy uncertainty, I design empirical analysis to test three hypotheses from

mutually complementary analytic angles. I first test a sector-level hypothesis: The share of revolving-door lobbyists among all lobbyists should increase in an economic sector when its policy environment becomes more uncertain (Hypothesis **H1**). I then expect this sector-level effect of uncertainty on revolving-door lobbying to be reflected in the clienteles of individual lobbying firms (**H2**) and lobbyists (**H3**) that practice in given sectors, as individual sellers in the marketplace for lobbying.

**H1** Across sectors, the share of revolving-door lobbyists among all lobbyists increases when the policy environment becomes more uncertain.

**H2** Within a given sector, the more revolving-door lobbyists lobbying firms have, the more their clienteles expand in response to rising policy uncertainty.

**H3** Within a given sector, the clienteles of revolving-door lobbyists expand more strongly in response to policy uncertainty than those of conventional lobbyists.

The three hypotheses approach the same underlying theory from two empirical angles, and correspondingly necessitate data sets with different units of analysis. Testing Hypothesis **H1** requires panel analysis at the level of sector-year combinations, and the research question can then be stated as the following panel equation with two-way fixed effects for sectors and years.

For sector  $i$  in year  $t$ ,

$$\% \text{ Revolvers}_{it} = \beta \cdot \text{Uncertainty}_{it} + \mathbf{X}_{it}^T \mathbf{b} + \alpha_i + \eta_t + \epsilon_{it},$$

where  $\% \text{ Revolvers}_{it}$  is the dependent variable measuring the share of revolvers among all contracted lobbyists in sector  $i$  in year  $t$ , and  $\text{Uncertainty}_{it}$  is the policy uncertainty facing sector  $i$  in year  $t$ .  $\mathbf{X}_{it}$  is a vector of sector-variant and time-variant control variables. Also included are fixed effects for sectors and years, denoted by  $\alpha_i$  and  $\eta_t$ , respectively. Finally,

$\epsilon_{it}$  is the residual in each observation not explained by the explanatory variables and fixed effects combined.

Hypotheses **H2** and **H3** shift gears for within-sector analyses of firm and lobbyist clientele. Hypothesis **H2** can be stated as the following equation with fixed effects for lobbying firms:

Within an economic sector, for lobbying firm  $i$  in year  $t$ ,

$$\begin{aligned} \text{No. Clients}_{it} = & \beta_1 \cdot \text{Uncertainty}_t + \beta_2 \cdot \% \text{ Revolvers}_{it} + \beta_3 \cdot \text{Uncertainty}_t \times \% \text{ Revolvers}_{it} \\ & + \mathbf{X}_t^T \mathbf{b} + \alpha_i + \epsilon_{it}, \end{aligned}$$

where  $\text{No. Clients}_{it}$  is the dependent variable for firm  $i$ 's number of clients in year  $t$ ,  $\text{Uncertainty}_t$  is time-variant policy uncertainty in year  $t$ , and  $\% \text{ Revolvers}_{it}$  is firm-variant and time-variant percentage of revolvers. Interacting the last two captures the differential effect of policy uncertainty on revolver-rich firms' number of clients relative to that of revolver-poor firms.  $\mathbf{X}_t^T \mathbf{b}$  is a vector of time-variant control variables,  $\alpha_i$  is firm fixed effects, and  $\epsilon_{it}$  is each observation's unexplained residual. This model does not contain year fixed effects; they would be perfectly collinear with time-variant policy uncertainty in single-sector data.

Hypothesis **H3** implies analogous analysis to **H2** but disaggregates the data further to the lobbyist-year level. Correspondingly, it replaces firms' time-variant percentage of affiliated revolvers with individual lobbyists' time-invariant revolver status,  $\text{Revolver}_i$ . It is stated as follows:

Within an economic sector, for lobbyist  $i$  in year  $t$ ,

$$\begin{aligned} \text{No. Clients}_{it} = & \beta_1 \cdot \text{Uncertainty}_t + \beta_2 \cdot \text{Revolver}_i + \beta_3 \cdot \text{Uncertainty}_t \times \text{Revolver}_i \\ & + \mathbf{X}_t^T \mathbf{b} + \alpha_i + \epsilon_{it}. \end{aligned}$$

## 2 Data

The data have several components: lobbying activity (particularly its revolving-door component) across economic sectors, lobbying firms, and lobbyists; business's perceptions of policy uncertainty; and corporate finance.

### 2.1 The Business Lobby and the Revolving Door

Like most studies on lobbying in American national politics, this study relies on lobbying data made available under the Lobbying Disclosure Act of 1995, compiled and cleaned by the Center for Responsive Politics. In their entirety, the LDA data begin with lobbying reports filed in 1998 and continually accrue, but the portion I use starts in 2006 and ends in 2016, the period before 2006 rendered unuseful by the temporal range of my measure of policy uncertainty, to be discussed later. As the LDA data originally list lobbying reports, I first transform them to contain one unique observation for each client-year entry. I further trim the LDA data by keeping only U.S. companies among the universe of lobbying clients found in the Compustat corporate finance data set discussed below.<sup>2</sup> I also keep only those companies that existed during the entire period as companies must at least exist to spend money lobbying. These steps result in company-year observations involving 1,098 distinct companies - some observations with lobbying activity and others without. Identifying companies across the lobbying and corporate finance data allows me to classify them by economic sector using

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<sup>2</sup>I follow a semi-automated procedure to match lobbying clients with U.S. companies. The first step is finding the best match for each client among all companies in the Compustat data based on Levenshtein string distances, a commonly used string metric for measuring the difference between two word strings based on single-character edits (i.e., insertions, deletions, or substitutions) required to change one word string into the other. The second step is human determination of whether each match was correct.

3-digit sector codes in the 2017 North American Industry Classification System (NAICS)<sup>3</sup>.

Information on whether lobbyists had government experience and went through the revolving door comes from the LDA data’s “covered position” component. It consists of text entered by lobbyists in free text fields in their LDA forms in order to disclose past government employment in compliance with lobbying regulation.<sup>4</sup> Having identified revolvers and conventional lobbyists, I count the number of both types in each sector from to year. For these counts, I exclude those companies that lobbied but engaged exclusively in in-house lobbying during this period (i.e., did not hire contract lobbyists at any time). This is a very small group of only 57 of the aforementioned 1,098 U.S. companies that both never went out of existence and lobbied at some point during the eleven years.

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<sup>3</sup>[https://www.census.gov/eos/www/naics/2017NAICS/2017\\_NAICS\\_Manual.pdf](https://www.census.gov/eos/www/naics/2017NAICS/2017_NAICS_Manual.pdf)

<sup>4</sup>Originally in text form, this variable has two known deficiencies, both of which I address somewhat in my variable construction. The first deficiency is that sometimes lobbyists incorrectly thought this field required them to disclose their current positions as lobbyists (e.g. Senior Partner, CEO, Director of Government Affairs) (Drutman and Furnas 2014). I mostly fix this issue by considering only those lobbyists that entered 20 or more characters in the “covered position” field to be revolving-door lobbyists. The second deficiency is some lobbyists’ deliberate underreporting of previous government employment (LaPira and Thomas 2012). While I have no sure-fire solution to truly address this problem, I take advantage of the fact that lobbyists were given an opportunity to disclose previous government employment every time they filed a lobbying report. I may have addressed the problem of deliberate underreporting to some degree by aggregating all text entered by each lobbyist in all lobbying reports over the years of the LDA data.

## 2.2 Policy Uncertainty

My measure of policy uncertainty facing economic sectors is based on companies' perceptions as revealed in their annual reports submitted to the government. The U.S. Securities and Exchange Commission requires publicly traded companies to file periodic reports, and among them is the Form 10-K, an annual report intended to give a comprehensive summary of a company's performance. Of interest to this study is the report's "Item 1A - Risk Factors" section, required since 2005, where companies disclose the risk of different events that can potentially harm their performance. Here companies' management discusses at length various risk factors currently and potentially facing them in order to inform shareholders, a source of information that research related to corporate finance has found useful (Campbell et al. 2014; Kravet and Muslu 2013; Gaulin 2017; Huang and Li 2011; Li, Lundholm and Minnis 2013; Beatty, Cheng and Zhang 2018; Duncan and Trieu 2015; Rawte, Gupta and Zaki 2018; Doran and Quinn 2008; Fourinaies and Hall 2015). Risks engendered by policy, whether via congressional lawmaking or agency rule-making, rank routinely among the top categories perceived by management - "legal and regulatory" risks for Campbell et al. (2014), "exposure to regulation" for Fourinaies and Hall (2015), and risks imposed by "regulation changes" for Huang and Li (2011).

The salience of policy risks perceived by companies is evident in the 10-K filings used in this study. I measure different sectors' perceptions of policy uncertainty by looking at how much their member companies discussed the policy environment in the Item 1A sections of their 10-K filings, using an approach of counting key words. This procedure required an initial investment of considerable time even with research assistants. The data include the four sectors that supply the largest number of lobbying clients. In descending order of lobbying activity, these sectors are chemical manufacturing, utilities, computer and electronic product manufacturing, and insurance carriers and related activities, as they are named in full in the NAICS manual. To clarify the two sectors with less informative names, companies

in the utilities sector generate, process, or distribute energy and water. Most chemical manufacturing companies produce pharmaceutical and biological products for health use, while a smaller number of companies produce chemical products for generally non-health purposes such as plastics, paint, and fertilizers.<sup>5</sup>

Within roughly equal-sized random samples of companies within each of the Big Four sectors, two research assistants and I download the 10-K filings of those that filed them (only publicly traded companies are required to do so).<sup>6</sup> The resulting overall sample includes 46 companies in utilities, 19 in chemical manufacturing, 33 in electronics manufacturing, and 40 in insurance. Mostly following the method adopted by Fournaies and Hall (2015), I count the

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<sup>5</sup>My determination of the top four sectors in terms of lobbying is based on the average number of clients in each sector over the years. This ranking is in strong agreement with the Center for Responsive Politics's ranking of sectors based on lobbying expenditure, available at <https://www.opensecrets.org/lobby/top.php?showYear=a&indexType=i>. Currently, the top four sectors according to the CRP are Pharmaceuticals/Health Products, Insurance, Electric Utilities, and Electronics Manufacturing and Equipment.

<sup>6</sup>Why I adopt this sampling procedure rather than sampling from all publicly traded companies warrants a note. The main reason is that it aims at estimating policy uncertainty as perceived by companies that lobbied, based on the speculation that companies that never lobbied at any point in time and therefore never entered the lobbying data are likely systematically different from lobbying clients, including perceiving policy risks differently. As the analysis excludes the numerous companies that never lobbied, so should the process of generating the measure of perceived policy uncertainty. A secondary reason is practical. Between 10 and 25 percent of all companies lobbied, depending on the sector. As the process of matching lobbying clients with companies and collecting 10-K filings for correctness was relatively time-consuming and labor-intensive, I sample from companies that lobbied to quickly accumulate a sufficient number of them. This process is equivalent to randomly sampling from the intersection of public companies and lobbying clients.

percentage of words related to statutory and regulatory policy within the Item 1A sections.<sup>7</sup> As an example of language discussing policy risks, the Appalachian Power Company stated in its 10-K filing submitted in 2011, with key words in bold, “If any of these projects is canceled for any reason, including our failure to receive necessary **regulatory** approvals and/or siting or environmental permits, we could incur significant cancellation **penalties** under the equipment purchase orders and construction contracts.”

A commonly observed problem with companies’ discussion of risk factors is that management seems to often follow a “boiler plate” approach, starting each year’s filings on the basis of last year’s and only adding to and (less frequently) subtracting from previously used text (Kravet and Muslu 2013). Related to this, I find that companies often undertook idiosyncratic changes in the format of their filings such as the section and subsection structure of the narrative, resulting in a large amount of noise in word counts that cannot be easily addressed by the automated text cleaning procedure. The tendency of individual companies’ filings to simply copy those from previous years, coupled with the random noise, constitutes a kind of measurement error, making individual companies’ filings unable to precisely capture their perceptions of policy risks year in and year out.

This problem, however, is ameliorated via summarizing - using individual company filings to calculate sector-wide measures of perceived policy risks. For a summary statistic, I adopt the sector median percentage of policy words.<sup>8</sup> Though a summary of more granular

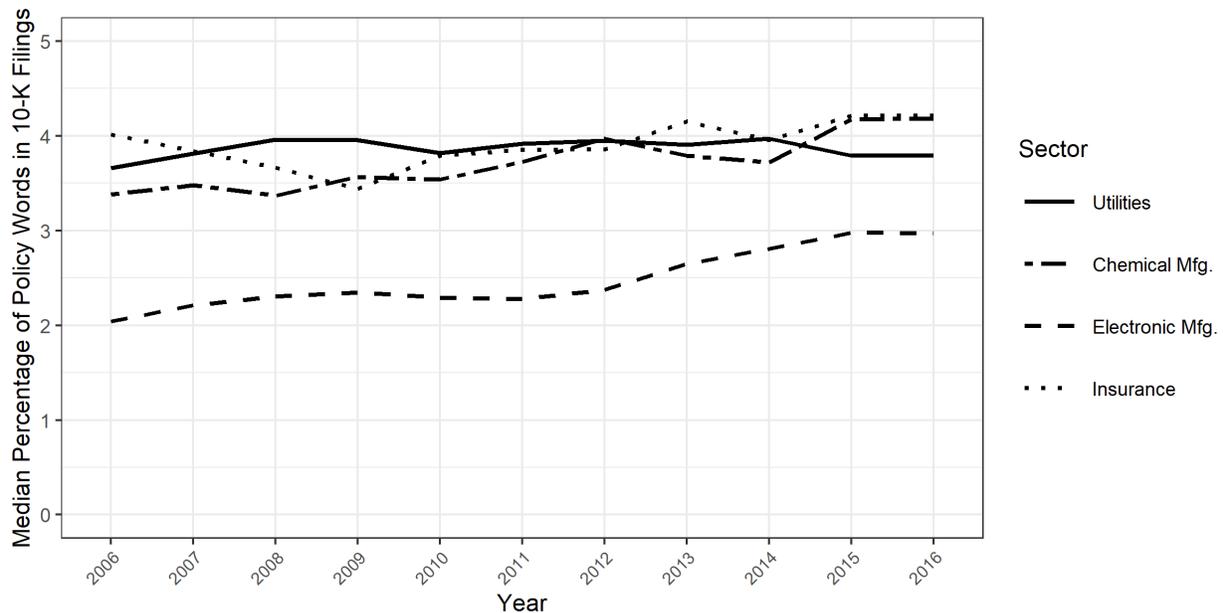
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<sup>7</sup>The relevant words and word stems are “govern”, “feder”, “congress”, “agenc”, “court”, “administr”, “commiss”, “legisl”, “legislatur”, “polici”, “penalti”, “fine”, “law”, “regul”, “regulatori”, “zone”, “licen”, “licens”, “licensor”, “oversight”, “complienc”, “compliant”, “noncompli”, “enforc”, “unenforc”, “requir”, “pursuant”, and “protect”. I follow other conventional steps in text analysis: “Stop words” and very sparse words that appear in only 10% or less of all the filing excerpts were removed before counting the key words and word stems. See Appendix A for a full delineation of the process.

<sup>8</sup>While I use sector-wide measures in my main analysis, I show company-level regres-

but “noisier” company-level perceptions - and therefore losing some company-level information, this sector-level measure still boasts an attractive temporal granularity and context specificity. Figure 1 plots the Big Four sectors’ median percentages of policy words in their member companies’ 10-K filings from 2006 to 2016. Three traits stand out: change over time in each sector (occasionally significant change), a relatively low correlation among the four, and some common upward trend over time.

Figure 1: Company Perceptions of Policy Uncertainty in Big Four Lobbying Sectors, 2006-2016



Given that the listed policy words and word stems constitute a small percentage of companies’ discussions of risk factors (never over 5 percent for any sector in the data), changes in their frequency from year to year were oftentimes significant. For example, during the first year or so of the Obama administration before the passage of the president’s signature Affordable Care Act in March 2010, policy uncertainty perceived by the insurance sector according to keyword percentages surged from around 3.4 percent to around 3.8 percent of  


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 sion analysis, part of which draws on company-level perceptions of policy uncertainty, in Appendix E.

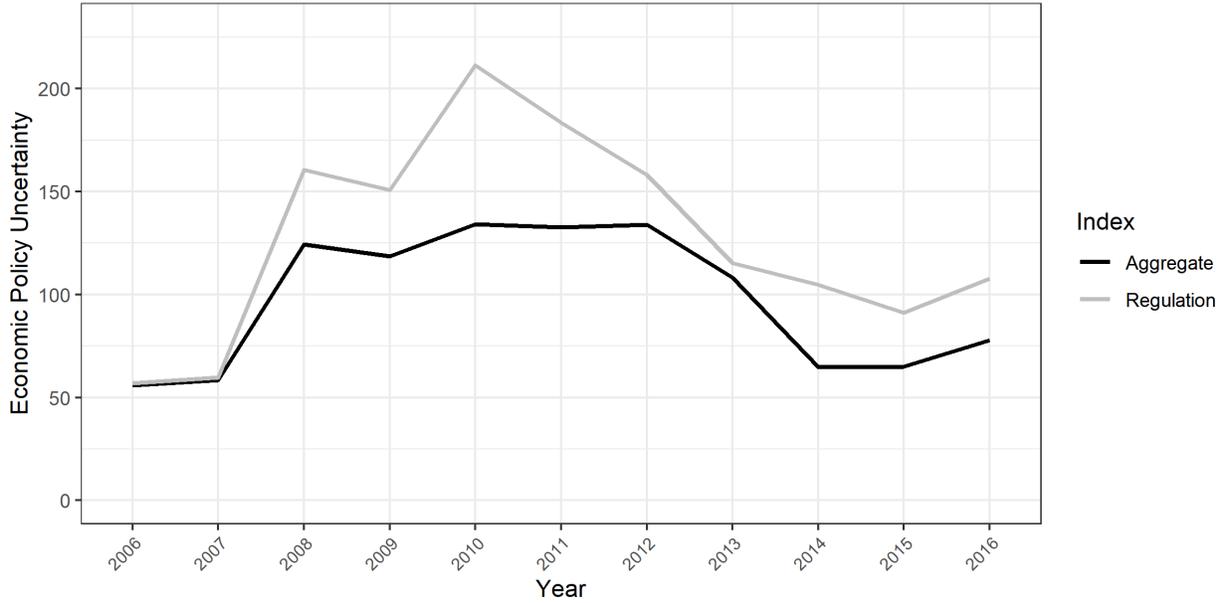
risk discussions. In terms of word counts, this represents a jump from 230 to 302 policy words from 2009 to 2010.<sup>9</sup> Also notably, over the decade the percentage of policy words increased from just over 2 percent to almost 3 percent for electronic manufacturing, reflecting a median count of policy words that more than doubled during the period, from 89 to 185.

Lending credence to this measure's ability to register company perceptions of sector-specific policy uncertainty, its value both differs from sector to sector and is not strongly correlated with the economic policy uncertainty index (Baker, Bloom and Davis 2016) used by Ban, Palmer and Schneer (2019). Table 2 plots the latter, displaying the aggregate index and its regulatory component as yearly averages. Table 1 displays a correlation matrix for the sector-specific measure over the eleven years as well as the EPU index. For the most part, the Big Four sectors do not correlate strongly with each other in perceived policy uncertainty. The correlation coefficient between some pairs is close to zero, and that between electronic manufacturing and insurance is negative. That different sectors' perceptions of policy uncertainty did not go in tandem supports the initial motivation for this measure, that the policy environment should best be treated as a context-dependent rather than monolithic concept when possible. Comparing risk perceptions to the EPU index, the correlation coefficient is negative for three of the four sectors. In fact, the EPU index first rose and then fell during this period, as shown in Figure 2, a trend hardly observed in the perception-based measure.

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<sup>9</sup>This increase in the number of policy words translates into a percentage change from 3.4 percent to 3.8 percent because the median overall length of risk factor discussions also increased from 6,336 words in 2009 to 7,689 words in 2010 for the insurance sector.

Figure 2: Economic Policy Uncertainty Index, 2006-2016



Data Source: Baker, Bloom and Davis (2016)

Table 1: Correlation Matrix of Perceived Policy Uncertainty in Big Four Lobbying Sectors and Economic Policy Uncertainty Index, 2006-2016

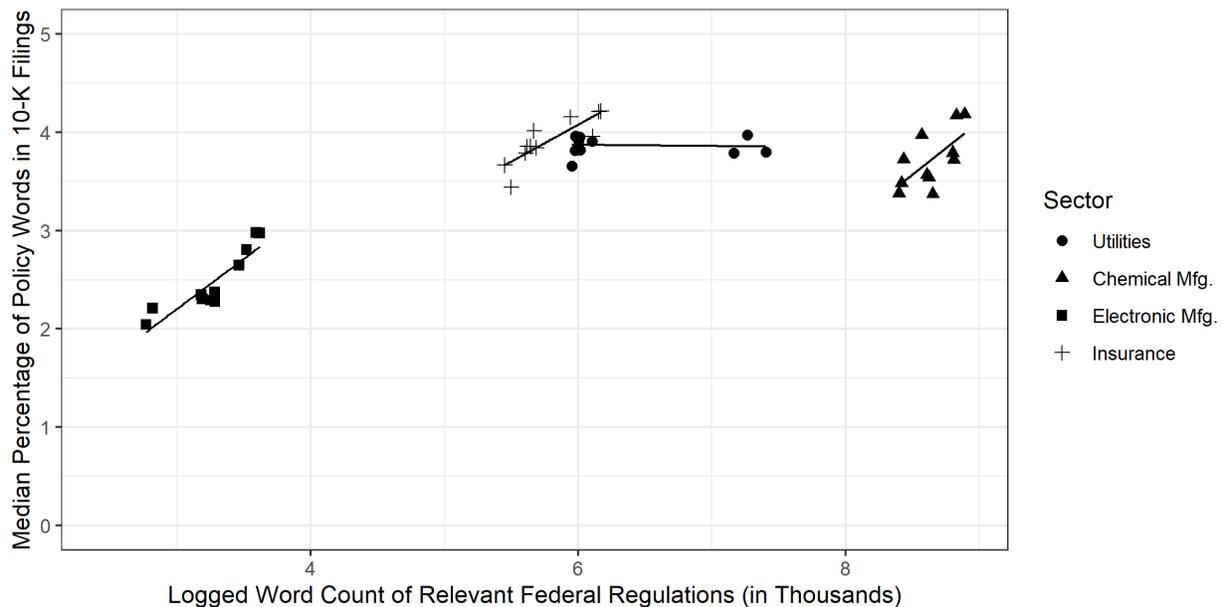
	Utilities	Chemical Mfg.	Electronic Mfg.	Insurance	EPU
Utilities	1	0.828	0.008	0.642	-0.101
Chemical Mfg.	0.828	1	0.110	0.627	-0.299
Electronic Mfg.	0.008	0.110	1	-0.484	0.582
Insurance	0.642	0.627	-0.484	1	-0.527
EPU	-0.101	-0.299	0.582	-0.527	1

For a check on the ability of this perception-based measure of policy uncertainty to reflect the corresponding sector-specific policy environments, I compare the measure with the actual length of federal regulations relevant to each sector. This measure comes from the “RegData US” annual data set created by the Mercatus Center at George Mason University (McLaughlin and Sherouse 2018). By conducting text analysis of the Code of Federal Reg-

ulations (CFR), the data set’s creators calculated the relevance of different regulations with respect to each industry, classified using NAICS codes. As each year’s CFR is organized into “titles” and then “parts” corresponding to policy areas, the data set contains the degree to which these parts and titles are relevant to different industries. I sum up the lengths of all parts of regulations deemed by the data’s creators to be at least 95% relevant to an industry in each year in order to measure the volume of relevant policy that governed it, a stringent threshold of relevance.

Figure 3 plots the Big Four sectors’ median percentages of policy words in company filings against the log-transformed word count of relevant regulations according to “RegData US,” with each point representing a year. As expected, the two are positively correlated though the utilities sector emerges as an exception, for which company perceptions are statistically uncorrelated with the length of regulations.

Figure 3: Company Perceptions of Policy Uncertainty and Length of Federal Regulations, Big Four Lobbying Sectors



Though not sharing the rise and fall of Baker, Bloom and Davis’s (2016) economic

policy uncertainty index, the measure of policy risk perceptions is characterized by a generally upward trend across the Big Four sectors. More often than not, companies gradually devoted increasing portions of their risk factor discussions in 10-K filings to policy risks from year to year, even as 10-K filings steadily lengthened overall. This trend poses a problem for analyzing how policy uncertainty relates to the intensity of revolving-door lobbying. As both quantities trend upward, their mere correlation with time may manufacture a specious correlation between them even if they are not actually related to each other. To address this concern, I control for year fixed effects and, alternatively, a linear trend in panel regression analysis, controls which prove to not matter for the main findings.

## 2.3 Corporate Finance

As mentioned earlier, I identify companies in the lobbying data by matching lobbying clients with companies in the Compustat data on corporate finance. I construct three additional variables at the sector-year level by summarizing other company characteristics contained in Compustat as control variables in analysis - the level of market concentration measured by the Herfindahl-Hirschman Index (HHI), the sum of the total assets of all companies, and the total number of companies whether they lobbied or not.

The competitiveness of an industry has been shown to matter for its lobbying activity. Bombardini and Trebbi (2012) hypothesize that companies are motivated to lobby collectively through peak associations rather than going it alone in competitive sectors in which products are undifferentiated. I control for sectors' level of concentration to take account of such empirical regularities in lobbying. Sectors' total assets, coupled with the number of companies, serve as a measure of their purchasing power with respect to the costly service of lobbying; wealthier sectors may hire more lobbyists by default simply because they could better afford them. The number of companies in business serves as a similar type of control. The existence of more companies also translates into more potential lobbying clients and

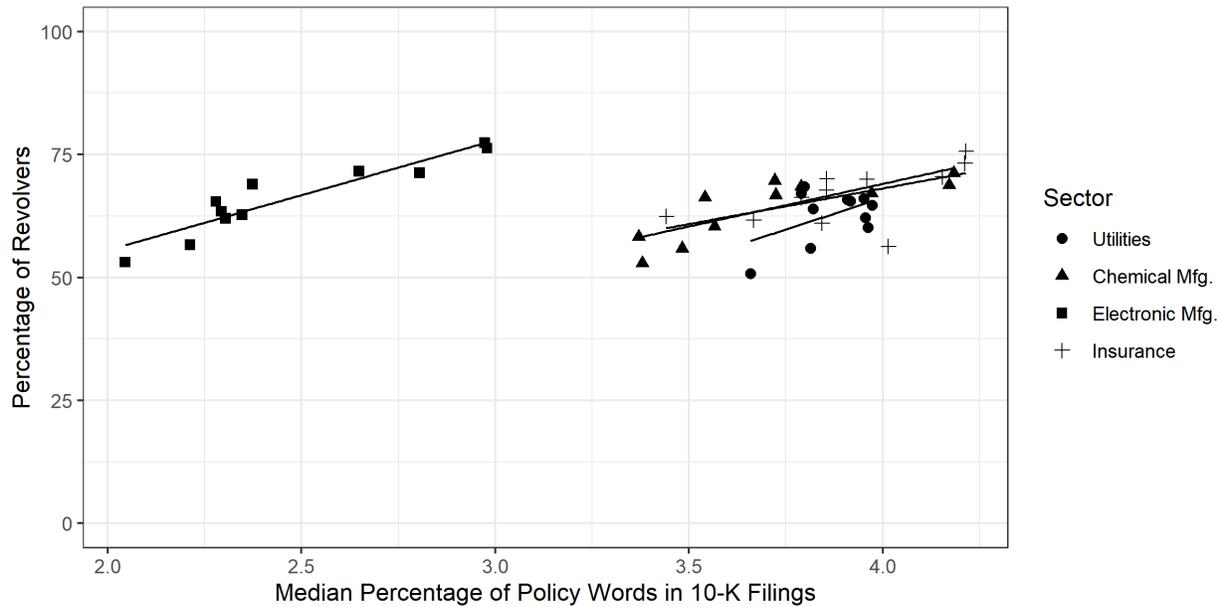
more potential contracts for lobbyists, a basic cause of increased lobbying that needs to be taken into account regardless of companies' changing demand for it.

## 3 Findings

### 3.1 Policy Uncertainty and Revolving-Door Lobbying Across Sectors

These data sets on companies' lobbying activity, their perceptions of policy uncertainty, and corporate finance combine to form the three sets of panel data for analysis envisioned earlier. To test Hypothesis **H1**, I use panel data unique at the sector-year level to examine the relationship between sector-wide policy uncertainty and revolving-door lobbying. See Appendix B for a table of summary statistics of the variables involved. The data lend strong support to the hypothesis. Across the Big Four sectors, greater policy uncertainty is associated with a greater percentage of revolvers among all actively contracted lobbyists. Plotting the two variables against each other, Figure 4 shows a clear positive association between them across the Big Four sectors. The points are grouped by sector and each one represents a year, reflecting the sector-year unit of analysis. A least-squares best fit line is drawn for each sector.

Figure 4: Company Perceptions of Policy Uncertainty and Revolving-Door Lobbying, Big Four Sectors



As discussed earlier and seen again in Figure 4 as the x-axis, sector-wide median percentages of policy words vary considerably from year to year. Percentages of revolvers, shown on the y-axis, cover even wider ranges. In the electronic manufacturing sector, for example, revolvers constituted a low of just over half of the universe of lobbyists and a high of almost 80 percent in different years over the period, and other sectors are comparable in this respect. As hypothesized, the positive association between policy uncertainty and the percentage of revolvers appears strong and largely universal across the four sectors, as demonstrated by the near-parallel best fit lines.

On its own, the percentage of revolvers in a given sector already embodies companies' preference for revolvers to conventional lobbyists. Nevertheless, this measure alone does not separate two different though not mutually exclusive scenarios. In one, lobbying business flows from conventional lobbyists to revolvers when policy uncertainty increases. In the other, the overall volume of lobbying business grows when policy uncertainty increases, but it falls disproportionately into revolvers' business portfolios. Either scenario or some combination

of both may give rise to the correlation being tested. Though not vital to the theory of lobbying as political insurance, it is valuable to examine which scenario better describes reality.

To help do so, I present some additional patterns. In Figure 5 I plot policy uncertainty against the total number of lobbying clients, showing that the size of the entire “pie” of lobbying decreased somewhat when policy uncertainty grew. This rules out the second possible scenario laid out above. In Figure 6, I include a pair of plots showing how policy uncertainty relates to the number of revenue-generating conventional lobbyists and revolvers sector-wide. A clear pattern emerges: The count of conventional lobbyists shrank with the “pie” of the lobbying business in correspondence with policy uncertainty, but the number of revolvers did not and even rose slightly. Consequently, the main driving force behind the positive sector-level relationship between uncertainty and the percentage of revolvers is revolvers’ much stronger staying power in high-uncertainty policy conditions compared to conventional lobbyists. This inference, that revolvers’ share of the lobbying business grew with policy uncertainty at the expense of conventional lobbyists’ clienteles, will attain direct evidence in the lobbying firm-level and lobbyist-level analyses to be presented later.

Figure 5: Company Perceptions of Policy Uncertainty and Number of Lobbying Clients, Big Four Sectors

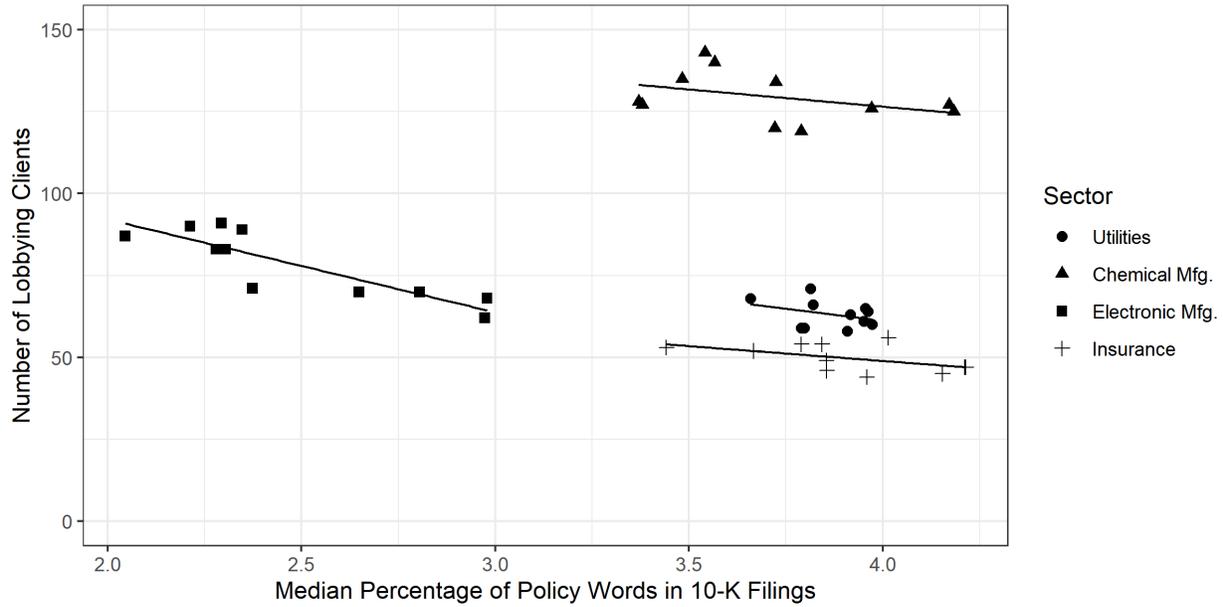
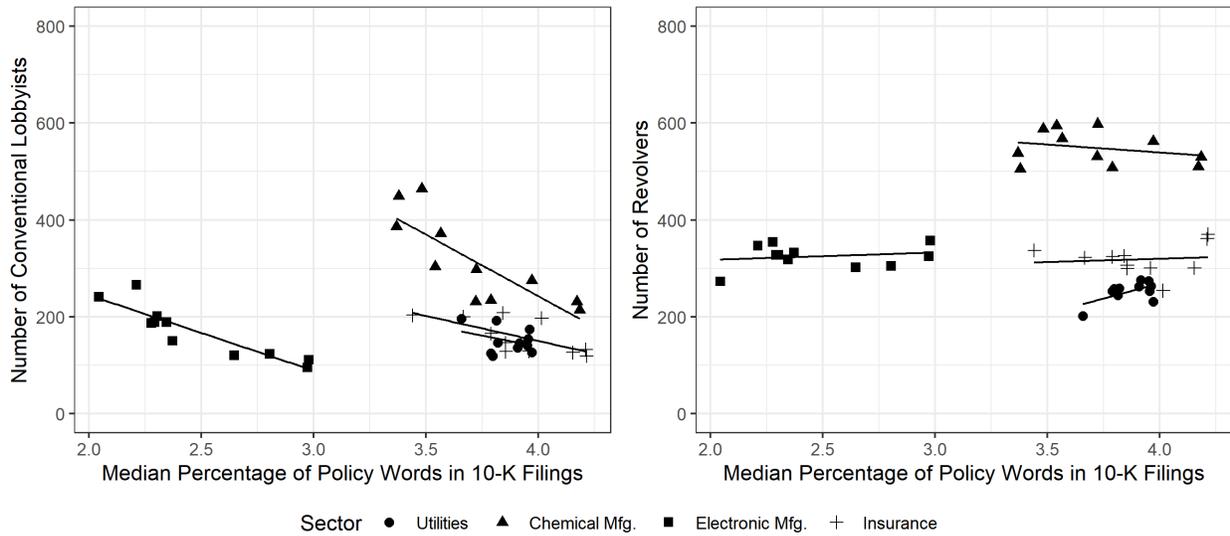


Figure 6: Company Perceptions of Policy Uncertainty and Number of Lobbyists, Big Four Sectors



I conduct regression analysis to test the robustness of the positive relationship between policy uncertainty and the percentage of revolvers among active lobbyists. Table 2 displays a series of panel regression equations designed for this purpose, all of which have the proportion

of revolvers as the dependent variable and sector perceptions of policy uncertainty as the main independent variable. All equations control for ways that sector attributes and time may contribute to an ostensible correlation between them, and control for sector fixed effects. Equations 1 and 2 additionally control for year fixed effects and are therefore two-way fixed effects models, and Equation 3 uses a linear time trend to replace year fixed effects to control for the trend problem noted earlier.

The equations also control for two lagged terms for the dependent variable, measuring the proportion of revolvers in each sector in each of the two previous years, in order to control for autocorrelation over time in revolving-door lobbying. These lagged terms therefore take account of the noted “stickiness” or path dependency of corporate lobbying (Drutman 2015*a*). Standard errors are clustered by sector. The three variables related to sector-wide corporate finance - sectors’ total assets, degree of market concentration, and the number of companies - serve as additional controls in equations 2 and 3.

Table 2: Linear Regression - Policy Uncertainty and Revolving-Door Lobbying Across Economic Sectors

	<i>Dependent variable:</i>		
	Proportion of Revolving-Door Lobbyists		
	(1)	(2)	(3)
Uncertainty	4.348*** (1.480)	4.471*** (1.325)	2.906*** (1.085)
Total Assets		0.000 (0.000)	0.000 (0.000)
Concentration		-0.0003 (0.001)	0.002 (0.001)
No. Companies		-0.0001*** (0.00002)	-0.0001*** (0.00001)
Constant	0.214*** (0.072)	0.289*** (0.043)	0.031 (0.063)

Lagged DV	2	2	2
Sector Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	No
Linear Trend	No	No	Yes
Observations	44	44	44
R <sup>2</sup>	0.970	0.974	0.957
Adjusted R <sup>2</sup>	0.952	0.954	0.944
$\chi^2$	154.536***	161.185***	138.502***

*Note: Standard errors are clustered by sector.*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

The positive relationship between policy uncertainty and revolving-door lobbying proves robust to these various model specifications. Across the three equations, the coefficient estimate for policy uncertainty remains strongly statistically significant, fairly stable in magnitude, and practically sizable. According to Equation 2, an increase in the median share of policy words by one percentage point in a sector corresponds on average to an increase in the percentage of revolvers by nearly 4.5 percentage points. In the data collected, the average length of risk factor discussions in companies' 10-K filings is approximately 7,700 words, of which an average of 260 words, or 3.4 percent, are policy-related. According to the main coefficient estimate in Equation 2, a paragraph's worth of increase by 80 policy words on average corresponds to an increase in the proportion of revolvers sector-wide by 3 percentage points. The data therefore yield strong evidence for Hypothesis **H1**.

I additionally examine whether policy uncertainty matters for the percentage of lobbyists who not only are revolvers but former members of Congress. Like Ban, Palmer and Schneer (2019), I find no evidence for the same positive relationship when singling out this most elite group of revolvers. I display this ancillary analysis in Appendix C. As shown earlier, overall sector-wide lobbying activity does not exhibit a consistently positive relationship with policy uncertainty. I include regression analysis corroborating this null finding as Appendix D, with two measures of total lobbying activity as dependent variables - the number of clients and total lobbying expenditure - but otherwise paralleling the two-way

fixed effects model (Equation 2). That the overall amount of lobbying is unresponsive to policy uncertainty underscores the systematic switch of demand from conventional lobbyists to revolvers.

As mentioned earlier, data on individual companies' yearly perceptions of policy uncertainty permit panel analysis at the company-year level of the relationship between policy uncertainty and lobbying activity. I show this analysis in Appendix E, divided into two regression tables. In the first, I model companies' yearly lobbying expenditure and percentage of revolvers, respectively, as a function of their own perceptions of policy uncertainty, controlling for their time-variant market share along with company fixed effects, year fixed effects, and a lagged term for the dependent variable.

In neither equation does policy uncertainty obtain a significant coefficient though it has the expected sign in relation to the percentage of revolvers. As explained earlier, company-level policy risk perceptions estimated by counting policy words likely contain an excessive amount of measurement error. Due to the boiler plate approach that many companies follow when drafting 10-K filings (Kravet and Muslu 2013), temporal variations of the same companies' risk perceptions likely contain an inordinate amount of random noise that has nothing to do with the construct being measured but is strong enough to mask it. Shown in the second table within Appendix E, I conduct another set of company-year level analysis but go back to using sector medians to measure policy uncertainty instead of individual companies' perceptions. This time, uncertainty moves toward significance as an explanatory variable for the percentage of revolvers but still falls short of obtaining it (p-value: 0.15).

### **3.2 Policy Uncertainty and Firm and Lobbyist Clienteles**

Individual lobbying firms and lobbyists are microcosms of the overall political economy of the lobbying industry. As seekers of lobbying contracts, their portfolios of clients should reflect interest groups' demand for their service. Based on this premise, I seek corroborating

evidence for the strong relationship between perceived policy uncertainty and companies' preference for revolving-door lobbyists by testing the same theory from the perspective of firms and lobbyists, in the form of Hypotheses **H2** and **H3**.

I expect companies' preference for revolvers in times of high uncertainty to result in a particular boon for revolvers and revolver-rich firms in response to rising uncertainty relative to their competitors in the profession. First at the level of firms and then at the level of lobbyists, I examine whether revolvers' clienteles grew disproportionately in response to uncertainty in the economic sectors in which they practiced. These analyses contain unit fixed effects - for lobbying firms and lobbyists, respectively - in order to test whether their revolving-door attributes exert an independent influence on their clienteles after considering firm and lobbyist idiosyncrasies. In-house lobbying operations and lobbyists are excluded. Like the 57 companies which exclusively hired in-house lobbyists, in-house lobbyists represent a small slice of the lobbyist pool; out of a total of 4,698 lobbyists, 1,091 (or 23 percent) were in-house.

The firm-level analysis requires panel data for each of the Big Four sectors containing unique firm-year combinations that describe individual firms' business trajectories in this sector. For each sector, I start with a balanced panel data set containing every possible combination of the two dimensions but exclude firms that never practiced in the sector and, presumably, never sought clients in it. I then remove those observations that chronologically precede firms' first lobbying contract, reflecting an underlying assumption that it only became a client seeker after its initial appearance in the data. The other side of this assumption is that firms never stopped seeking clients in their relevant sectors, thereby ignoring the possible cessation of lobbying work for any reason, including the firm going out of existence. Such an assumption is bound to be incorrect to some extent, but I do not expect it to cause any major inaccuracy in hypothesis testing, if only due to the relative brevity of the eleven-year period.

Table 3 displays linear regression analysis of firm clienteles in response to policy uncertainty. This analysis estimates parallel equations for the Big Four sectors, and its dependent variable is the number of clients. The main independent variables are policy uncertainty, the percentage of revolvers within lobbying firms (often time-variant due to changes in their personnel), and their interaction. The interaction term measures how much revolvers compound the growth in firms' number of clients when policy uncertainty rises. I control for the set of sector characteristics used before - total assets, concentration, and the total number of companies - as well as firm fixed effects and a lagged dependent variable. These equations do not contain year fixed effects as these would be perfectly collinear with policy uncertainty in single-sector data. Standard errors are clustered by firm.

Table 3: Linear Regression - Policy Uncertainty and Lobbying Firms' Clienteles in Economic Sectors

	<i>Dependent variable:</i>			
	Number of Clients			
	Utilities	Chemical Mfg.	Electronic Mfg.	Insurance
	(1)	(2)	(3)	(4)
Uncertainty	-23.298 (53.622)	-24.920 (21.493)	-37.427 (23.775)	-45.519** (20.284)
% Revolvers	-4.303* (2.544)	-1.231 (1.067)	-1.270** (0.614)	-1.179 (0.803)
Uncertainty $\times$ % Revolvers	108.164* (65.736)	35.114 (24.773)	47.712** (23.378)	35.664* (19.703)
No. Lobbyists	0.125*** (0.037)	0.154*** (0.028)	0.078*** (0.020)	0.109*** (0.021)
Total Assets	-0.00000 (0.00000)	-0.00000 (0.00000)	0.00000 (0.00000)	0.00000** (0.00000)
Concentration	-0.026 (0.017)	0.0003 (0.050)	-0.007 (0.026)	-0.107** (0.054)

No. Companies	0.001 (0.004)	-0.0001 (0.001)	0.0003 (0.001)	-0.002 (0.003)
Constant	2.966 (2.209)	1.958 (4.643)	1.234 (2.935)	10.329* (5.414)
Lagged DV	1	1	1	1
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observations	794	1,530	904	819
R <sup>2</sup>	0.821	0.788	0.726	0.832
Adjusted R <sup>2</sup>	0.762	0.720	0.614	0.777
$\chi^2$	1,367.650***	2,371.702***	1,170.516***	1,461.093***

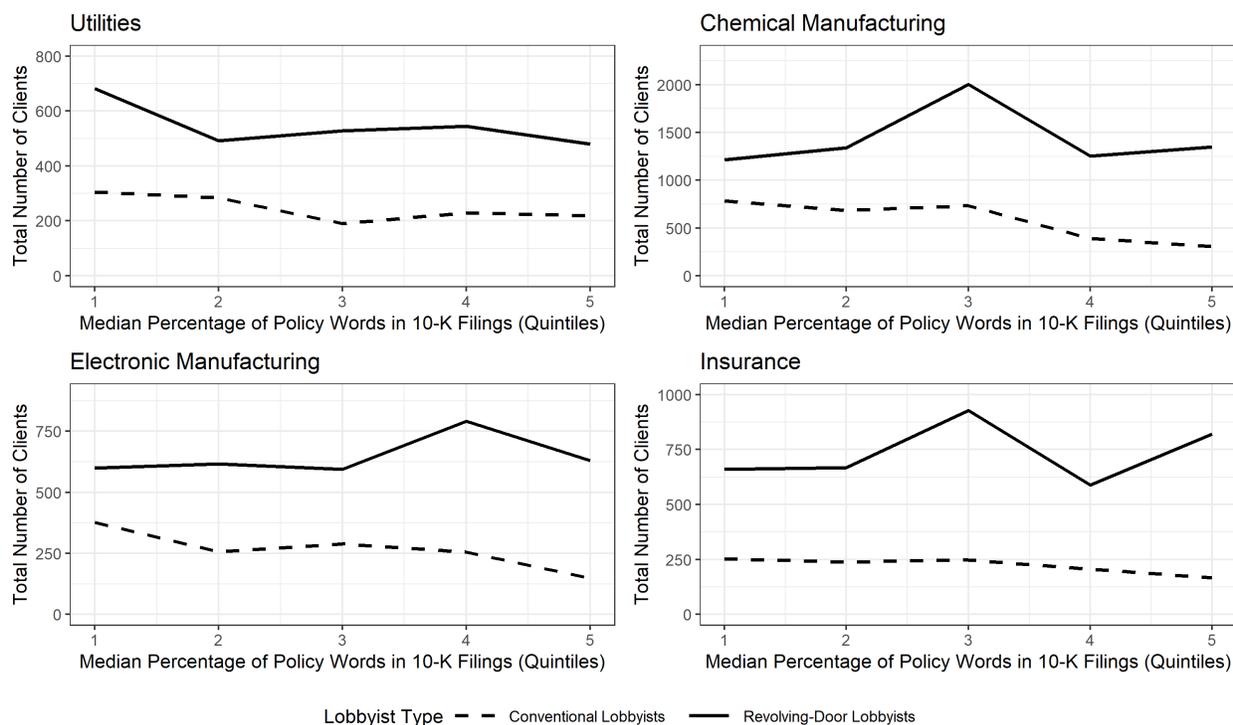
*Note: Standard errors are clustered by lobbying firm.*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

In three of the four sectors (utilities, electronic manufacturing, and insurance), the interaction between the proportion of revolvers within lobbying firms and policy uncertainty is statistically significant and positive. This term is not significant for the chemical manufacturing sector though it is positive. The lobbying firm-level analysis presents evidence for Hypothesis **H2** and corroborates the earlier sector-level finding by showing that revolver-rich firms fare better when policy uncertainty rises.

Since firms are collections of lobbyists, revolvers should be the beneficiaries of this uncertainty-induced demand. In Figure 7, I show that this is indeed the case by tallying revolvers and conventional lobbyists' number of clients in correspondence with different levels of policy uncertainty, the latter divided into equal-sized quintiles for comparability. For each of the four sectors, I calculate the number of clients pooled among all revolvers and conventional lobbyists, respectively. As oftentimes teams of multiple lobbyists - revolvers, conventional lobbyists, or both - served the same clients, the client counts include duplicates, associating every client with all lobbyists involved. This setup captures the intensity of companies' demand for each type of lobbyists and not just how many distinct companies hired lobbyists.

Figure 7: Company Perceptions of Policy Uncertainty, the Revolving Door, and Number of Lobbying Clients, Big Four Sectors



Of interest is the slope between policy uncertainty and lobbyists' number of clients; a positive slope indicates a positive relationship between the two, and vice versa. In chemical manufacturing, electronic manufacturing, and insurance, clearly revolvers' business prospers and conventional lobbyists' business deteriorates in correspondence with rising policy uncertainty. The gap between revolvers' number of clients and conventional lobbyists' number of clients is much greater at the high end of policy uncertainty than at the low end. The utilities sector emerges as an exception, in which both types of lobbyists' clienteles decrease with policy uncertainty. This observation supports the suggestive inference drawn earlier that revolvers' business gained is conventional lobbyists' business lost in a substantially zero-sum or even negative-sum game.

Two possible lobbyist-level processes, however, can give rise to revolvers' and conventional lobbyists' divergent clientele sizes seen in Figure 7, and they are not mutually

exclusive. In the first process, individual revolvers experience the wax and wane of client portfolios in response to policy uncertainty while conventional lobbyists' clienteles remain more stable and unresponsive to uncertainty. In this scenario, individual lobbyists' careers are truly microcosms of the macro patterns of lobbying as political insurance; Hypothesis **H3** describes this scenario. In the second process, revolvers specialize in lobbying under high uncertainty compared to conventional lobbyists, but individual lobbyists including revolvers generally have static careers that do not consistently grow with uncertainty. Rather, more revolvers than conventional lobbyists become "activated" into lobbying activity during high uncertainty. Some combination of the two scenarios is responsible for revolvers' observed advantage in the aggregate. While which scenario is closer to reality is not vital to the theory, this information is helpful for understanding lobbyists' career patterns.

For this inquiry, I use a lobbyist fixed effects design to study how policy uncertainty relates to lobbyists' clienteles based on sector-specific data sets reorganized to contain lobbyist-year observations. As with lobbying firms, in these data sets I include only lobbyists who at any point practiced in the given sector and remove lobbyist-years which chronologically precede the lobbyist's first appearance in the data. In this analysis, I test how policy uncertainty interacts with lobbyists' revolver status to predict lobbyists' number of clients, controlling for sector characteristics and lobbyist fixed effects. The purpose of lobbyist fixed effects is to absorb individual lobbyists' "base" number of clients. Controlling for fixed effects, if the interaction between policy uncertainty and lobbyists' revolver status is a significant predictor, then revolvers' career trajectories are demonstrably lifted by increasing uncertainty in line with Hypothesis **H3**. Otherwise, the aggregate relationship between uncertainty and revolving-door lobbying is primarily due to the fact that revolvers disproportionately specialize in highly uncertain policy conditions compared to conventional lobbyists. Standard errors are clustered by lobbyist.

Table 4: Linear Regression - Policy Uncertainty and Lobbyists' Clienteles in Economic Sectors

	<i>Dependent variable:</i>			
	Number of Clients			
	Utilities	Chemical Mfg.	Electronic Mfg.	Insurance
	(1)	(2)	(3)	(4)
Uncertainty	3.666 (5.255)	11.972*** (2.944)	1.724 (2.671)	-10.368*** (3.876)
Revolver	0.273 ( $5.6 \times 10^{10}$ )	0.910 ( $2.2 \times 10^{10}$ )	0.476 ( $4.0 \times 10^{10}$ )	0.504 ( $3.6 \times 10^{10}$ )
Uncertainty $\times$ Revolver	6.772 ( $5.6 \times 10^{10}$ )	-8.543 ( $2.2 \times 10^{10}$ )	-5.037 ( $4.0 \times 10^{10}$ )	-0.024 ( $3.6 \times 10^{10}$ )
Total Assets	-0.00000*** (0.00000)	-0.00000*** (0.00000)	0.00000*** (0.00000)	0.00000*** (0.000)
Concentration	0.004 (0.003)	-0.007* (0.004)	0.022*** (0.004)	0.020** (0.009)
No. Companies	-0.001 (0.001)	-0.0001 (0.0001)	0.001*** (0.0001)	0.003*** (0.0005)
Constant	0.348 (0.299)	0.678 (0.429)	-2.835*** (0.460)	-2.311*** (0.890)
Lagged DV	1	1	1	1
Lobbyist Fixed Effects	Yes	Yes	Yes	Yes
Observations	13,901	26,312	16,741	14,075
R <sup>2</sup>	0.729	0.728	0.609	0.754
Adjusted R <sup>2</sup>	0.698	0.696	0.562	0.725
$\chi^2$	18,148.440***	34,272.940***	15,713.970***	19,747.480***

*Note: Standard errors are clustered by lobbyist.*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

The estimates show that policy uncertainty and lobbyists' revolving-door status do not meaningfully interact once lobbyist fixed effects are featured in the model, and the revolver-

related terms have very large standard errors, making their coefficient estimates extremely imprecise. The data thus present no evidence for Hypothesis **H3**. The positive relationship presented thus far between policy uncertainty and companies' demand for revolvers - by looking across sectors and tracing lobbying firms' and lobbyists' business trajectories - does not systematically play out in the most micro setting of individual lobbyists' careers.

## 4 Conclusion

The theory that interest groups spend money lobbying in order to insure against risks of adverse policy change has been well-received but seldom tested. In this paper, I test this theory using an empirical strategy with two pillars. The first is recognizing the variability of how much risk exists in the policy relevant to interest groups and then measuring it. I do so by measuring how much for-profit companies doing business in utilities, chemical manufacturing, electronic manufacturing, and insurance emphasize policy risks in their annual 10-K filings submitted to the Securities and Exchange Commission from 2006 to 2016. Counting the percentage of policy-related key words in these filings, I estimate a time-variant measure of policy uncertainty that is also specific to economic sectors. That perceived policy uncertainty governing the Big Four sectors hardly runs parallel with each other over the eleven-year period supports the sector specificity of policy uncertainty. This measure is a key independent variable in two complementary sets of panel analysis, both showing that companies' demand for revolvers relative to conventional lobbyists increased with policy uncertainty governing their sectors.

The second pillar of my empirical strategy concerns lobbyists' skill sets. Previous work experience in government gives lobbyists knowledge of the policymaking process, a professional asset valued by interest groups seeking insurance against risks of adverse policy change (LaPira and Thomas 2017). Combining the two pillars, an expectation that readily follows is that times of more severe policy risks should see revolving-door lobbyists generating

particularly large amounts of lobbying business compared to conventional lobbyists. Panel data linking companies' perceptions of policy uncertainty and their demand for revolvers yield strong evidence for this hypothesis. The percentage of revolvers among all revenue-generating lobbyists is positively associated with policy uncertainty across the Big Four sectors. The data also show that this effect is due to conventional lobbyists' loss of business in the midst of high uncertainty and revolvers' ability to survive and even thrive in it.

I then present corroborating evidence for this result from the empirical angles of lobbying firms and lobbyists by examining whether policy uncertainty disproportionately benefits revolvers within each economic sector. For firms, the more densely populated they are with revolvers, the more they benefit from high policy uncertainty. For lobbyists, revolvers' clienteles expand in response to rising uncertainty while conventional lobbyists' clienteles contract, though this aggregate comparison is not clearly manifested in systematic fluctuations in individual revolvers' career trajectories in correspondence with uncertainty. These findings point to a robust relationship between what is thought to be companies' primary political problem - risk - and their reliance on lobbyists thought to counter it most effectively. This conclusion builds substantially on an existing finding that revolvers generate more revenue when policy uncertainty - as a system-wide property irrespective of policy area - is high (Ban, Palmer and Schneer 2019).

Thus, companies are clearly in the business of protecting themselves against policy risks, and they systematically turn to revolvers to counter uncertainty. This conclusion underscores problems of delegation that scholars have identified in the interest group-lobbyist relationship, a principal-agent relationship (Stephenson and Jackson 2010; Lowery and Marchetti 2012; Drutman 2015*b*). Lobbyists (agent) will keep their jobs if they discharge their duties to the satisfaction of interest groups (principal). If interest groups hire lobbyists to benefit from their policy expertise and political connections, these assets contribute to a significant informational advantage that lobbyists possess over interest groups, giving rise to a fundamental information asymmetry (Lowery and Marchetti 2012). Lobbyists' private knowledge

hampers interest groups' ability to evaluate their performance accurately in order to make hiring and firing decisions.

The nature of defensive lobbying likely exacerbates the information asymmetry in lobbying. Compared to the pursuit of policy change, the quest for insurance and risk management arguably creates more vaguely defined lobbying objectives. Although interest groups vary in their policy sophistication and some are highly sophisticated, on the whole the defensive lobbying client has little choice but to trust lobbyists for their judgment as to the best plausible lobbying outcome in risky environments, what policy risks have emerged on the horizon, and how best to respond to them. These hard questions are left to lobbyists to answer, giving them tremendous leeway to set specific goals and design lobbying tactics most conducive to claiming credit for their achievements. Though revolvers' insider connections and superior knowledge rightly make them agents of choice for defensive lobbying clients, their credit-claiming skills may compound the information asymmetry further still. As a result, interest groups' rational preference for revolvers may provide important fuel to the billion-dollar lobbying industry.

Lastly, the sensitivity uncovered in this study in lobbying clients' preference for revolving-door lobbyists may be somewhat driven by the analytic focus on contract lobbyists rather than in-house lobbyists. The two species of lobbyists have fundamentally different career incentives: Contract lobbyists try to advance in their firms and in the profession by bringing in revenue, which depends on continually securing typically year-long lobbying contracts from existing and new clients. In contrast, in-house lobbyists are more securely locked into their positions and face less exigent requirements of career advancement. As the analysis in this paper has to do with the dynamics of lobbying contracts from year to year, it naturally draws on contract lobbying. For this reason, the sector-level analysis excludes the 57 companies that engaged exclusively in in-house lobbying in the 11-year period, as previously discussed, out of over a thousand companies in total. Compared to the numerous companies whose lobbying histories do contribute to the analysis, the slice left out is practically insignificant.

Similarly and even more naturally, in-house lobbyists - who make up 23 percent of all lobbyists and serve one client by definition - are excluded from the firm-level and lobbyist-level analyses where the number of clients is the outcome of interest. Future work can examine the extent to which in-house lobbying jobs likewise experience the uncertainty-induced fluctuations in interest group demand.

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Supplemental Information for “Policy Uncertainty and  
Demand for Revolving-Door Lobbyists”

# Appendix

## Table of Contents

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A	Procedure for Calculating Policy Uncertainty	1
B	Summary Statistics of Sector-Year Level Panel Data	3
C	Linear Regression - Policy Uncertainty and Lobbying Activity of Former Members of Congress Across Economic Sectors	5
D	Regression Analysis - Policy Uncertainty and Total Lobbying Activity Across Economic Sectors	7
E	Regression Analysis - Policy Uncertainty and Lobbying Activity Across Companies	8

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# A Procedure for Calculating Policy Uncertainty

I measure sector-wide levels of policy uncertainty based on companies' emphasis of policy risks in their annual 10-K filings submitted to the U.S. Securities and Exchange Commission. This process consists of the following steps.

## Step 1: Downloading 10-K Filings

Two undergraduate research assistants helped me obtain 10-K filings submitted by companies in the four economic sectors, randomly sampled in advance, from 2006 to 2016. They downloaded the full texts of the reports from the SEC's "Edgar" search portal (<https://www.sec.gov/edgar.shtml>) in TXT or HTML format depending which one was available. The starting year is 2006 because risk factor discussions were not previously required as an explicit item to be contained in 10-K filings. For filings downloaded as HTML files, I remove HTML tags using R code so that only actual textual information remains.

## Step 2: Extracting Risk Factor Discussions

I write R code to extract the excerpts of 10-K filings devoted to discussing risk factors perceived by companies' management. These excerpts are usually "Item 1A" of the filings, and are thus identified as texts between the headers "Item 1A" and "Item 1B" (or, in rare cases where "Item 1B" is absent, between the headers "Item 1A" and "Item 2"). Manual checking of excerpts obtained this way confirms the reliability of the method. After obtaining risk factor excerpts of 10-K filings, I perform a number of standard steps to process them: removing "stop words" without substantive meaning (e.g., "this" and "have"), transforming all words into word stems (e.g., from "regulation" and "regulatory" to "regulat"), and removing sparse words which appear in 10% or less of the excerpts.

### **Step 3: Measuring Emphasis on Policy Risks**

I count the following words and word stems related to policy risks as a percentage of the length of each excerpt, as processed according to the steps above: “govern”, “feder”, “congress”, “agenc”, “court”, “administr”, “commiss”, “legisl”, “legislatur”, “polici”, “penalti”, “fine”, “law”, “regul”, “regulatori”, “zone”, “licen”, “licens”, “licensor”, “oversight”, “compliand”, “compliant”, “noncompli”, “enforc”, “unenforc”, “requir”, “pursuant”, and “protect”. This percentage measures the degree to which a company emphasizes policy risks in a year among all risk factors it perceives.

### **Step 4: Calculating Sector Median Policy Risk Perceptions**

I obtain the median percentage of policy-related words and word stems for each of the four sectors in each year from 2006 to 2016. The sector median values constitute a major independent variable in the analysis.

## B Summary Statistics of Sector-Year Level Panel Data

This table contains summary statistics of panel data at the sector-year level. This data set is the basis of testing Hypothesis **H1** - the share of revolving-door lobbyists among all lobbyists should increase in an economic sector when its policy environment becomes more uncertain. The table displays the groups that constitute the cross-sectional (sector) and longitudinal (year) dimensions of the data, and lists the variables, their numbers of observations, means, and minimum and maximum values.

Summary Statistics of Sector-Year Level Panel Data				
Statistic	N	Mean	Min	Max
<b>Groups</b>				
Sector	4			
Year	11		2006	2016
<b>Variables</b>				
Number of Clients	44	80.205	44	143
Total Lobbying Expenditure	44	93,818.630	39,935.770	163,793.200
Number of Lobbyists	44	559.432	357	1,052
Percentage of Revolvers	44	0.650	0.508	0.774
Percentage of Former Members of Congress	44	0.028	0.016	0.043
Policy Uncertainty	44	0.035	0.020	0.042
Total Assets	44	6,470,930.000	1,436,284.000	21,095,289.000

Concentration	44	80.385	63.848	90.861
Number of Companies	44	533.545	177	992

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## C Linear Regression - Policy Uncertainty and Lobbying Activity of Former Members of Congress Across Economic Sectors

This table displays sector-year level regression analysis that estimates how policy uncertainty relates to the percentage of former members of Congress among active lobbyists in economic sectors. Former members of Congress are particularly high-profile revolving-door lobbyists. The coefficient estimates for the policy uncertainty variable show that this relationship is on average negative but does not reach statistical significance. This is in contrast with the main finding of this paper - policy uncertainty is positively associated with the percentage of revolvers in general among active lobbyists.

Linear Regression - Policy Uncertainty and Lobbying Activity of Former Members of Congress Across Economic Sectors

	<i>Dependent variable:</i>	
	% Former Members of Congress	
	(1)	(2)
Uncertainty	-0.366 (0.442)	-0.220 (0.504)
Total Assets	-0.000 (0.000)	0.000 (0.000)
Concentration	0.001 (0.0005)	-0.00002 (0.001)
Number of Companies	0.00000 (0.00001)	0.00001 (0.00001)
Constant	-0.001 (0.056)	0.017 (0.060)
Lagged DV	2	2
Sector Fixed Effects	Yes	Yes

Year Fixed Effects	Yes	No
Linear Trend	No	Yes
Observations	44	44
R <sup>2</sup>	0.569	0.484
Adjusted R <sup>2</sup>	0.228	0.328
$\chi^2$	37.061***	29.149***

*Note: Standard errors are clustered by sector.*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## D Regression Analysis - Policy Uncertainty and Total Lobbying Activity Across Economic Sectors

Regression Analysis - Policy Uncertainty and Total Lobbying Activity Across Economic Sectors

	<i>Dependent variable:</i>	
	Number of Clients	Lobbying Expenditure
	(1)	(2)
Uncertainty	-65.161 (197.879)	1,149,971.000 (1,124,572.000)
Total Assets	0.00000*** (0.00000)	0.003*** (0.001)
Concentration	0.532* (0.292)	-948.627 (768.021)
Number of Companies	0.009 (0.006)	-36.710*** (10.541)
Constant	-7.201 (19.813)	67,758.220 (83,612.780)
Lagged DV	2	2
Sector Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	44	44
R <sup>2</sup>	0.994	0.947
Adjusted R <sup>2</sup>	0.990	0.905
$\chi^2$	227.780***	129.351***

*Note: Standard errors are clustered by sector.*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## E Regression Analysis - Policy Uncertainty and Lobbying Activity Across Companies

The following two tables display regression analysis at the company-year level instead of the usual sector-year level. In the first table, I model companies' yearly lobbying expenditure and percentage of revolving-door lobbyists, respectively, as a function of their own perceptions of policy uncertainty. In the second table, I conduct parallel analysis but go back to using sector medians to measure policy uncertainty instead of individual companies' perceptions. The association between sector-wide policy uncertainty and percentage of revolvers is not consistently borne out in the lobbying activity of individual companies, at least partially due to greater noise in measuring individual companies' perceptions of policy uncertainty from year to year.

Using Company-Specific Policy Uncertainty		
	<i>Dependent variable:</i>	
	Lobbying Expenditure	% Revolvers
	(1)	(2)
Uncertainty (Company)	-38,754.930 (34,858.360)	0.691 (0.780)
Total Assets	0.013*** (0.005)	0.00000*** (0.00000)
Market Share	-18,572.980 (28,516.420)	-1.519 (2.153)
Constant	1,300.218** (646.703)	0.319*** (0.029)
Lagged DV	1	1
Company Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	669	1,306
R <sup>2</sup>	0.625	0.725

Adjusted R <sup>2</sup>	0.546	0.690
$\chi^2$	656.780***	1,686.235***

*Note: Standard errors are clustered by company.*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Using Sector Median Policy Uncertainty

	<i>Dependent variable:</i>	
	Lobbying Expenditure	% Revolvers
	(1)	(2)
Uncertainty (Sector)	28,594.570 (35,368.310)	3.974 (2.784)
Total Assets	0.010** (0.004)	0.00000*** (0.00000)
Market Share	14,168.620 (13,079.460)	-1.030 (1.044)
Constant	2,885.759*** (880.170)	0.179* (0.100)
Lagged DV	1	1
Company Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	1,746	3,652
R <sup>2</sup>	0.836	0.704
Adjusted R <sup>2</sup>	0.802	0.670
$\chi^2$	3,155.843***	4,449.704***

*Note: Standard errors are clustered by company.*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01