Agency Breadth and Political Influence*

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Abstract

We study, theoretically and empirically, legislative influence over executive agencies, focusing on the breadth of agency responsibilities. We model interest groups, the legislature, and agencies. Politicians exert costly effort to influence agencies in exchange for interest groups' campaign contributions. Effort, however, can only be imperfectly targeted. When effort is spent on behalf of one group, some spills over to benefit other interest groups. This creates externalities of influence that are larger in broad agencies, deterring legislative influence. Empirically, we develop a novel lobbying-based measure of breadth and combine it with survey data on influence in 70 US federal agencies. Broad agencies report less influence, and we rule out several alternative explanations. These results are important for understanding how to insulate divisive tasks from political influence.

Keywords: Agency design; Money in politics; Regulatory politics; Regulatory capture; Special interest groups

JEL Classification Numbers: D72, D73, H11, K20

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1 Introduction

The division of responsibilities between electorally-accountable politicians and insulated bureaucrats is a classic issue in economics, and its tradeoffs have received substantial attention (Stigler, 1971; Besley and Coate, 2003; Maskin and Tirole, 2004; Alesina and Tabellini, 2007). Of course, bureaucrats are not fully insulated. Though they are not directly accountable to voters, they are accountable to the politicians (their political principals). This oversight can create a balance, allowing bureaucrats to draw on their technical expertise while preventing mission creep and over-regulation. However, it also creates the risk that bureaucratic agencies become politicized, especially in light of rising polarization in many legislatures.

Regardless of whether one believes political influence aligns bureaucrats' incentives with social welfare or it distorts policy implementation, these normative concerns beg the following positive question: When are politicians most able to influence bureaucratic agencies? In this article, we attempt to understand how the design of an agency can make it more or less susceptible to political influence, focusing in particular on the range of tasks for which the agency is responsible. We show theoretically and empirically that the amount of political influence is greater for narrow agencies than for broader ones.

We model the interaction of politically-active interest groups, bureaucratic agencies, and a legislature. Agencies perform tasks, which affect a set of interest groups. Interest groups can lobby these agencies to adjust implementation and can use campaign contributions to contract with politicians to influence the agency.[1,2] A key focus of our analysis is that agencies differ in how many tasks they are responsible for, which we call the *breadth* of the agency: A broad

[1]Since Grossman and Helpman (1994, 1996), the assumption that interest groups can enter into enforceable contracts with politicians using campaign contributions has been common but controversial. We discuss an alternative model without these contracts, but where agency breadth still causally affects legislative influence through a mechanism which is very different but (in our view) perfectly plausible. We then present evidence strongly rejecting that alternative mechanism as the explanation behind our main results.

[2]Our model provides interest groups two means of influencing agencies: directly (through lobbying) and indirectly (through Congressional influence on their behalf). This is partly motivated by the empirical observation that Congress *does* influence agencies and that most interest groups spend money on both campaign contributions and lobbying. Though our primary interest is in determinants of Congressional influence over agencies, we allow interest groups to lobby those agencies to make clear, transparent, and explicit how we think about lobbying expenditures, which is an important part of our empirical strategy.

agency is one that performs more tasks and thereby affects more interest groups.

An interest group can "buy" Congressional influence over tasks that affect it, but our central assumption is that some of the influence applied to that task spills over onto other tasks. For instance, suppose that Congress sought to reduce regulation of commercial foods. They might push for and confirm an anti-regulation Commissioner for the Food and Drug Administration. This, however, will affect regulation of pharmaceuticals in addition to food. If Congress seeks to reduce television market concentration, they might increase funding for the Federal Communication Commission, who is responsible for this form of anti-trust enforcement. However, the FCC does not have distinct line-item budget entries for television market activities, so some of the funding would be applied to regulating internet providers, which are a very different set of stakeholders. Congress might hold oversight hearings to influence the Federal Bureau of Investigations to reduce investigations of international banks (these investigations are costly in terms of banks' time and resources), but intensive Congressional oversight on this topic will surely redirect some of the agency's attention and resources away from civil rights investigations, counter-terrorism operations, and cyber-security, some of the Bureau's other responsibilities. Even detailed "limitation riders" in appropriations bills that narrowly circumscribe specific agency actions are often challenged in court, forcing them to be applied more broadly than originally intended (Zellmer, 1997). These forms of spillovers underpin our model.

Although all influence is costly for the legislature (including the unintended influence), we assume they cannot force other interest groups to "pay for" these spillovers, creating within-agency externalities from legislative influence. The more broad an agency is, the greater the externalities, and we show that the legislature will adjust the price of influence to compensate for these externalities. This price increase reduces the amount of influence interest groups buy and, in equilibrium, a particular task will experience less Congressional influence when embedded within a broader agency. This provides a novel channel by which politically sensitive tasks can be insulated from Congressional influence.[3]

[3]In the appendix, we consider heterogeneous effects depending on the characteristics of the interest groups associated with the agency. We find that our effects are much stronger when the agency oversees extreme groups

We then use data from 70 US federal agencies to test our model's main prediction. We use two approaches to measure the breadth of the agency. First, we build a novel measure using lobbying disclosure reports. We match our model and measure an agency's breadth as the number of interest groups observed lobbying the agency, with the core idea being that agencies lobbied by a broad set of interest groups must be responsible for a broad set of tasks. The decision to lobby is, of course, endogenous, but we perform an extensive set of robustness checks to ensure that this does not affect our results. Nonetheless, all of our empirical results are presented in parallel using a measure of breadth unrelated to lobbying: the Office of Management and Budget's classification of how many policy areas the agency falls into (up to 17). We discuss the advantages and disadvantages of each measure, but reassuringly, *all* of our main results are consistent with the two.

We combine these measures with survey data in which high-level bureaucrats report how much influence Congress has over their agency's policy decisions. We show that broader agencies report significantly less Congressional influence. A one standard deviation increase in breadth is associated with a 35-40% standard deviation decrease in influence (depending on the measure). We consider a range of alternative explanations and find no evidence that this correlation is explained by other agency characteristics, characteristics of the regulated groups, or reverse causality.[4]

In addition to testing for alternative explanations for our main results, we also test for evidence supporting the mechanisms underlying our model. These tests are based on the recognition that the legislature has intrinsic policy preferences and is therefore more aligned with some interest groups than others. We use groups' pattern of campaign contributions to measure their preferences and partisan alignment. Based on this, we implement two tests that

(either those that are strongly pro-Democrat or strongly pro-Republican) as opposed to centrist groups. This underscores the importance of our mechanism when considering particularly politically divisive responsibilities.

[4]To test whether the correlation is explained by other agency characteristics, we use every control that has been used in the (admittedly small) past literature, as well as several new ones. To test whether it is explained by characteristics of the regulated groups, we use instances where the same group is overseen by multiple agencies. To test whether it is explained by reverse causality, we use an instrumental variables strategy based on political circumstances at the time of agency creation.

help illustrate our model's mechanisms.

First, we point out that our core result (Congressional influence decreases in breadth) can be obtained even if contracts between the legislature and the interest groups cannot be enforced. Specifically, we show empirically that broad agencies are more likely than narrow ones to oversee a blend of pro-left and pro-right groups. In the presence of cross-task spillovers, this means that the legislature will be better able to target its influence on only allies or only opponents when dealing with a narrow agency than a broad one. This implies the legislature's influence will fall as agencies become more broad, *even in the absence of enforceable contracts*. However, although the ideological balance of groups that lobby an agency is increasing in its breadth, we show clear, robust evidence that this cannot explain the decline in Congressional influence.

Second, having rejected a version of our model in which breadth would reduce Congressional influence without enforceable contracts, we look for more direct evidence on a link between Congress and interest groups' lobbying. By definition, lobbying an agency is about influencing its decisions. It is conceptually possible that this is completely independent of what is happening in Congress. For example, if Congress *only* passed legislation, and its actions had no bearing on agencies, then we might still observe interest groups contributing to Congressional campaigns (to affect elections or legislation) and lobbying agencies (to affect their decisions), but the groups' Congressional spending would be unrelated to agencies' activities. This hypothesis would be inconsistent with our model and, unlike enforceable contracts, *is* testable.

We reject this possibility and find that interest groups increase agency lobbying when their allied party takes control of Congress. Our model provides a natural interpretation of this result, since we assume that lobbying and Congressional influence are complements. More important for our purposes, though, is that lobbying only increases for narrow agencies. For broad agencies, lobbying is non-responsive to changes in Congressional control. Our model provides a natural interpretation because these broad agencies see little Congressional influence and so partisan control of Congress is unimportant.

In light of the battery of tests to which we subject our results and the support for the

underlying mechanisms behind our model, we ascribe a causal interpretation to our results. Our core claim, then, is that agency breadth reduces legislative influence.

Our model is related to work on legislatures' decision to delegate authority to bureaucratic agencies (see Gailmard and Patty (2012) for a review). Most of this literature focuses on a single one-dimensional task, so there is no notion of breadth of agency responsibilities. Alesina and Tabellini (2008) and Ting (2002) are notable exceptions, though they focus on how features of a task affect the decision to delegate it to an agency, rather than how features of an agency affect ex post influence after delegation. More generally, our model relates to the literature on linking incentive constraints, which typically finds that principals enjoy *more* (rather than less) influence when the agent is making more distinct decisions (Jackson and Sonnenschein, 2007; Frankel, 2016). The primary difference in the model here is that because of spillovers, the politician is not able to flexibly tie together the outcomes of each task. Our empirical results relate to recent work showing that Congressional influence increases as the number of oversight committees falls (Clinton, Lewis, and Selin (2014), whose survey-based measure of influence we use), as statutory features give them more mechanisms for influence (Selin, 2015), and as they are staffed with more political appointees (Berry and Gersen, 2017). Relative to these three papers, ours is the first in this literature to include an explicit formal model of the influence process and to empirically test the mechanisms behind our model. We also provide a more extensive exploration of causality and show that our feature of interest (breadth) has a substantively larger effect than those previously considered.

The remainder of the paper is laid out as follows. In Section 2, we develop a simple model of the interactions between a political party, a series of government agencies, and a set of regulated interest groups. In Section 3 we discuss our data and empirical strategy. Section 4 presents our core results and identification tests. Section 5 explores the mechanisms of our model, and Section 6 concludes by discussing implications for future research and policy.

2 Theory

In this section, we present our theoretical model. We keep the basic model simple to highlight the relationship we focus on: how the breadth of an agency affects the legislature's influence over that agency. The primary strategic actors are the interest groups and the political party in control of the legislature. A single agency is influenced by the party and lobbied directly by the interest groups it regulates.[5] The agency is in charge of N tasks, each of which affects a single interest group. Thus, the *breadth* of the agency, measured by the number of tasks it is in charge of, is denoted by N. This is the key parameter of our model.

We will first explain the preferences and action spaces of the party and interest groups and will then solve for the subgame perfect equilibrium of the game. In Section 2.4 we extend the party's preferences to allow policy to affect it directly. Finally, in Section 2.5 we discuss broader questions around agency breadth and institutional design.

2.1 The Political Party

We consider a political party currently in control of the legislature. We focus on the party in power (abstracting from strategic dynamics within the legislature) because it mirrors our empirical context where the available survey data asks about the influence of Democrats in Congress (who controlled the House and Senate at the time). In our baseline formulation, we assume that the party only cares about maximizing the campaign contributions that it receives (in exchange for influencing agencies), subject to effort costs it incurs by exerting influence.[6,7]

In our empirical analysis, we consider several hundred interest groups. Thus, we treat the party-in-power as a monopolist and allow them to set the price of influence. We let π_i denote

[5]We present the model with a single agency for simplicity. In reality, there are many agencies, and interest groups are often regulated by multiple agencies. It is straightforward to extend our results by changing interest group preferences in Section 2.2 to allow multiple agencies to affect it in an additively separable way.

[6]The party's goal of maximizing campaign contributions in order to obtain reelection is consistent with the model used by Grossman and Helpman (1996). We consider this to be a simplification of the incentives present in a more complex contest which is "locally" valid when the probability of the party winning is near one half.

[7]In Section 2.4, we extend the model to allow for the legislature to have different ideological preferences for different groups.

the price that the party charges group i (to be paid in campaign contributions) in exchange for one unit of influence, and $\boldsymbol{\pi}$ denote the vector of π_i for all i. The total contributions the party receives from interest group i is $\pi_i S_i(\boldsymbol{\pi})$, where S_i is the amount of influence i purchased. However, we assume that the party's efforts to influence the agency are imperfectly targeted: if the legislature seeks to influence group i's task of interest, then only a fraction of its influence will actually affect that task, while the rest will spill over onto other tasks. For every unit of influence the legislature applies to the task of group i – we denote the amount of this targeted influence as S_i – each other interest group receives η units of influence, where $0 < \eta < 1$. Likewise, the agency's actions on i's task of interest are affected by spillovers from influence over other tasks, so the total influence exerted on task i is not only S_i, but also the spillovers arising from S_j for $j \neq i$. We denote total influence on task i as

$$A_i(\boldsymbol{\pi}) = S_i(\boldsymbol{\pi}) + \eta \sum_{j \neq i} S_j(\boldsymbol{\pi}),$$

which implies that the total effort exerted by the party is

$$\begin{aligned} \sum_{i=1}^{n} A_i(\boldsymbol{\pi}) &= \sum_{i=1}^{N} \left[S_i(\boldsymbol{\pi}) + \eta \sum_{j \neq i} S_j(\boldsymbol{\pi}) \right] \\ &= \sum_{i=1}^{N} (1 + (N-1)\eta) S_i(\boldsymbol{\pi}). \end{aligned}$$

This assumption – that $\eta > 0$ so that Congressional influence over one task affects the performance of other tasks the agency is responsible for – is the key ingredient of our model.[8] We view it as a realistic feature of many federal agencies. For instance, in June, 2018, top investigators from the Homeland Security Investigations (HSI) unit of the US Immigration and Customs Enforcement (ICE) agency requested that their unit be split off into a separate, independent agency (Texas Observer, 2018). They argued that investigations of transnational criminal organizations like drug cartels and human trafficking rings was "unnecessarily impacted

[8]It is also plausible that spillovers might be *negative*, such that the party's influence partially redirects agency scrutiny away from other interest groups. We consider this model in Appendix D.

by the political nature" of immigration enforcement. A former ICE deputy director went so far as to say that agents worried the unit was "just becoming a political pawn" and that "because of this whole immigration rhetoric – that immigrants are bad, they're criminals and rapists and all that – the focus is totally off mission." In other words, efforts to influence politically charged immigration enforcement were affecting totally unrelated tasks and responsibilities housed within the same agency.

This is unsurprising. Many of the methods by which legislatures influence agencies – such as appointing directors (Wood and Waterman, 1991) or imposing oversight hearings (Kriner and Schwartz, 2008; Parker and Dull, 2009) – are necessarily blunt. Oversight hearings focused on one specific program or set of operations create chilling effects on other responsibilities and redirect priorities and resources, even if only senior managers' attention.

Even the most targeted methods for Congressional influence – so-called "limitation riders" in appropriations bills that pledge certain funding to specific tasks or prohibit certain uses of funds – can spill over. Often, appropriations bills give agencies a block of funding with an explicit requirement that it is used for a specific purpose. Money, of course, is fungible, and so in many cases agencies can redirect some of their resources that otherwise would have been applied to the task. Other times Congress explicitly bans the use of funds for certain tasks but these, too, can spill over. In a well-known example, the 1995 Emergency Timber Salvage Rider barred agencies from reviewing and blocking certain land sales. But subsequent court rulings applied these bans to more than twice the sales originally targeted (Zellmer, 1997); arbitrarily specific statutory language is often not legally enforceable. These are exactly the sort of spillovers that our model captures.

Again let S_i be the influence the party exerts on behalf of i and A_i be the total influence produced that affects interest group i. We assume that the party in power pays linear costs on this total amount of influence (an important assumption that we discuss shortly). Letting c

denote the effort costs, the party's problem is to choose the vector of prices $\boldsymbol{\pi}$ to solve:

$$\max_{\boldsymbol{\pi}} \sum_{i=1}^{N} \pi_i S_i(\boldsymbol{\pi}) - cA_i(\boldsymbol{\pi}).$$

Critical to our model is that the legislature pays effort costs for all influence, even the spillovers. Of course, just because there *are* spillovers does not necessarily mean they are costly for the legislature. Assuming that spillovers incur effort costs is a reduced form way of modelling a wide range of consequences these spillovers might have. For example, the legislature may have preferences over the way that an agency implements all of its tasks. If the mechanisms described above cause influence over one task to spill over onto others, then it might push implementation of these other tasks away from the legislature's bliss point, incurring utility costs rather than effort costs. Similarly, the legislature might have preferences for competence and quality in implementation. Redirecting resources from other tasks in response to Congressional influence applied to one task can undermine performance on those other tasks, and this performance reduction can be costly to a legislature that considers social welfare.[9] Finally, cross-task spillovers might have political consequences that affect the legislature. For example, in 1993, a raid gone wrong by the Bureau of Alcohol, Tobacco, and Firearms (ATF) led to the disastrous 51-day siege in Waco, TX. Republicans in control of Congress responded with a series of hearings, budget cuts, and reforms targeting the ATF's investigations of armed militias (many of which supported the conservative populist wing of the party). But these efforts to influence the ATF also affected the routine inspection of licensed gun retailers (Washington Post, 1995), and claims that Republicans have handicapped the enforcement of laws on day-to-day gun sales are a key theme that gun control activists use to organize and motivate voters to support Democrats. Our model's assumption (that spillovers are costly to the legislature in terms of effort) stands in for any of these dynamics that might be occurring in the background.

[9]Consider the example described in the introduction, where Congressional hearings about the FBI's international banking investigations spill over into its counter-terrorism operations. Alternatively, the legislature might be concerned that politicizing the agency pushes out some of the most experienced staff (Richardson, 2019).

2.2 Interest Groups

Interest groups receive utility from two sources: "mission spending" and policy. We seek a formulation that allows a broad notion of interest groups, including collections of firms (in which case "mission spending" might be investments to improve future profits, wages to pay for current production, etc.) or not-for-profit entities or citizen groups (in which case "mission spending" might be public opinion campaigns, spending on conservation, provision of membership benefits, etc.). We denote the mission spending of interest group i as m_i.

With respect to policy, we assume that each interest group cares about some task being performed by a government agency. To increase the payoffs they receive from this task, they can either lobby the agency directly (ℓ_i) or contribute to the party in control of Congress in exchange for that party to influence the agency on the group's behalf. In either case, the spending uses up some of the group's budget which could otherwise be devoted to mission spending.[10]

As above, we denote the total support interest group i purchases with campaign contributions as S_i and the total amount of action that the party takes on i's behalf as A_i. With these elements, we model the interest group's problem as:

$$\max_{m_i,\ell_i,S_i} m_i + \omega \ell_i^{\gamma_1} A_i^{\gamma_2}$$

subject to the budget constraint $m_i + \ell_i + \pi_i S_i = R_i$ where A_i is defined as before. To ensure that the solution to the interest group's problem is interior, we assume that the interest group's returns from spending on policy instruments are concave, so $\gamma_1 + \gamma_2 < 1$. We also assume that given the parameter ω which represents how important policy is to the interest group, the interest group's budget R is sufficiently large so that the interest group finds it worth spending money on their mission.

[10]We allow interest groups to directly lobby agencies (in addition to purchasing indirect influence from Congress via campaign contributions) in order to motivate our empirical measure of breadth, which is based on observed lobbying expenditures. Our core result, that breadth reduces Congressional influence, does not require us to model direct lobbying of agencies, as can be seen by setting $\gamma_1 = 0$ below.

With this specification of interest group preferences, lobbying and Congressional influence are complementary and there are decreasing marginal returns to the total amount spent on them.[11] Consider, for instance, a firm that contracts with the political party to purchase indirect influence that leads an agency to define a policy (e.g., a regulatory standard). We assume this influence will be less effective without the firm also lobbying the agency directly to shape how that policy is implemented (e.g., how the standard is measured and applied). The spending will first go towards removing the most onerous aspects of the regulations facing the firm, followed by those which are less costly. Eventually, the returns to spending on the firm's other (non-political) interests becomes more valuable than spending to change policy.

2.3 Timing and Equilibrium

All players have complete information. The party first chooses what price to charge each interest group, after which the interest groups simultaneously choose how to allocate their budgets. Since this is a dynamic game of complete information, we solve for the subgame perfect equilibrium using backward induction.

Interest groups will exhaust their budgets on lobbying, influence, and spending on their mission, so their budget constraint can be substituted back into their objective function. Taking first order conditions and combining interest group best responses, we get

$$\ell_i^*(\boldsymbol{\pi}) = \left(\frac{\gamma_1 \pi_i}{\gamma_2}\right)^{-\frac{\gamma_2}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \tag{1}$$

$$\begin{aligned} S_i^*(\boldsymbol{\pi}) = {} & \frac{-(N-2)\eta - 1}{(N-1)\eta^2 - (N-2)\eta - 1} \left(\frac{\gamma_1 \pi_i}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \\ & + \sum_{j \neq i} \frac{\eta}{(N-1)\eta^2 - (N-2)\eta - 1} \left(\frac{\gamma_1 \pi_j}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \end{aligned} \tag{2}$$

Thus, the party in power essentially faces the monopolist's problem, with the additional

[11] The assumption of complementarity is consistent with existing evidence (Tripathi et al., 2002; You, 2017), but not important for our results. Below, we show that lobbying increases when the allied party takes control of Congress, lending support to this formulation.

complication that it will only be paid for a proportion of what it produces. We can plug the interest groups' demand functions back into the political party's problem to find the optimal price level. Lemma 1 presents this result (see Appendix A for the proof).

Lemma 1 *In the unique pure strategy subgame perfect Nash equilibrium, the political party charges price*

$$\pi_i^* = \frac{c(1-\gamma_1)}{\gamma_2}((N-1)\eta + 1) \tag{3}$$

to interest group i for influence.

Equation (3) gives the price that the party in power charges for targeted influence. The price optimally trades off between bringing in more campaign contributions and paying higher effort costs. Even though the marginal cost is constant, this price is *increasing* in the number of regulated interest groups due to influence spillovers.

Proposition 1 *The political party's average influence on an agency is decreasing in agency breadth.*

Proposition 1 follows immediately from Lemma 1 and the fact that each interest group's demand is decreasing in the price they pay. Notice that an increase in N leads to a fall in *both* $S_i^*(\boldsymbol{\pi}^*)$, the amount of influence that the interest group pays for, and $A_i(\boldsymbol{\pi}^*)$, the total amount of influence (including spillovers) affecting interest group i. For each additional interest group, the party in power has to exert more effort to produce the same amount of targeted influence. Because of this, the party charges higher prices, and each interest group demands a lower quantity.

Restricting the party to offer a simple linear price mechanism for the sale of influence is partially responsible for this equilibrium outcome. Because the party interacts with each interest group individually, interest groups have an incentive to free ride, lowering their demand. More complex contracts which condition the amount of influence put towards one task on the amount

demanded for other tasks could internalize these externalities, eliminating the relationship between breadth and influence.[12] We consider these types of contracts to be unrealistic. Contracts based on campaign contributions cannot be legally enforced; such *quid pro quo* exchanges are illegal. While we follow Grossman and Helpman (1996) in allowing members of Congress to set a "price" for influence, we reiterate their logic that these prices "are intended as metaphors, rather than as literal descriptions of explicit contracts. In practice, offers of political support are conveyed as much by the public posture of a lobby as by any private communications it may have with the politicians. Accordingly, the *quid pro quo* for campaign support may come to be common knowledge among the parties (p. 272)." Certainly in a repeated game, expectations of behavior and willingness to make exchanges form as reputations build. This reputational enforcement, however, becomes more difficult to imagine the more complex contracts become. The types of contracts that are capable of internalizing these externalities and eliminating the relationship between breadth and influence require complex exchanges that explicitly condition the exchange with each interest group on the behavior of the rest.

The theoretical result found in Proposition 1 implies that when controlling for other observable characteristics of a government agency, we should expect broad agencies (those performing tasks that affect more interest groups) to report being less influenced than narrow agencies. This result is our primary empirical focus.[13]

2.4 Interest group heterogeneity and lobbying

In the baseline model, interest groups lobby an agency more when they are able to buy more political influence over that agency from the party-in-power. This arises due to the assumption of complementarity between lobbying and influence. Within the context of the model, an interest group lobbying an agency implies that they're also paying politicians to influence that

[12]Examples of such contracts are available from the authors upon request.

[13]Another prediction of our model is that interest groups will spend less (on average, per group) lobbying broad agencies. This is because breadth reduces Congressional influence, and Congressional influence and lobbying are complements. We thank an anonymous referee for pointing this out. In Appendix C.6, we test this, find a negative but non-significant relationship, and discuss several challenges unique to this exercise.

agency. The relationship between lobbying and demand for Congressional influence is what allows us to identify which agencies an interest group wants politicians to influence.

While the model does not include any heterogeneity among interest groups, minor modifications allow for lobbying and influence to vary between the political party's supporters and opponents. Without making any changes to the interest group preferences which generate Equations (1) and (2), we modify the political party's preferences to include support of or opposition to interest groups' policy goals. More specifically, in the party's problem we add the utility that each interest group receives from policy multiplied by the scalar θ_i, which represents the party's value for the interest group's policy goals. Each interest group is either a supporter with $\theta_i = \theta_S > 0$ or an opponent with $\theta_i = \theta_O < 0$. Thus, the party's problem can be written as

$$\max_{\boldsymbol{\pi}} \left(\sum_{i=1}^{N} \pi_i S_i(\boldsymbol{\pi}) - cA_i(\boldsymbol{\pi}) \right) + \left(\sum_{i=1}^{N} \theta_i \ell_i(\boldsymbol{\pi})^{\gamma_1} A_i(\boldsymbol{\pi})^{\gamma_2} \right)$$

In this modified model, the party's basic problem is the same, but each price it chooses now has an additional effect: Raising prices is less beneficial when the interest group is a supporter, but more beneficial when they are an opponent. While the slightly more complex model no longer gives a simple solution for the price as in Lemma 1, we can show that lobbying and political influence vary in an intuitive way with control of the legislature.

Proposition 2 *In the modified model with heterogeneity, both influence and lobbying are higher for the political party's supporters.*

Proposition 2, which we prove in Appendix A, implies that lobbying activity responds to changes in the partisan control of Congress. Specifically, the party-in-power influences agencies to implement policies in a way that is more favorable to its allies. We test these predictions in Section 5.2.

2.5 Institutional Design of Bureaucratic Agencies

In this section we discuss broader issues related to the institutional design of bureaucratic agencies. While we do not formally model or empirically test these issues, we discuss their relevance for future work.

Modern governments are responsible for an incredible array of different tasks. These tasks not only differ from one another in many important respects (discussed below), but there are complex links *between* them. Sometimes, different tasks require closely related skills (such as evaluating the efficacy of medical equipment and evaluating the efficacy of vaccines). In these cases, there is a clear efficiency gain from grouping these tasks into the same agency. Since different tasks surely have different degrees of overlap with others, some agencies will naturally be more broad (because those tasks have more natural complements), while others will be more narrow.[14] This is important for our analysis since it provides a non-political conceptual underpinning for our implicit assumption that agencies differ in breadth.

In reality, however, agencies are created by the legislature, and this complicates the considerations behind agency creation in several important ways. First, it is not obvious that the legislature *wants* to increase its influence over agencies. As pointed out by Macey (1992) and de Figueiredo (2002), since the legislature anticipates partisan turnover over time, they must account for how the opposition party will influence policy implementation when they come into power.

Second, even taking as given whether the legislature wants to increase or decrease its influence *on average*, the heterogeneity across tasks is important. The literature on delegation has pointed out that the incentives to put a task under the control of politicians or bureaucrats depends on the extent to which social preferences (Alesina and Tabellini, 2008) or market conditions (Montagnes and Wolton, 2017) change over time, the importance of substantive expertise (Epstein and O'Halloran, 1999) and minority protections (Maskin and Tirole, 2004), and

[14] Of course, grouping all tasks into one agency would surely produce an unwieldy agency, and splitting each task into a separate agency would surely miss important potential efficiency and operational gains.

whether bureaucrats are likely to be intrinsically motivated or effort-averse (Bueno De Mesquita and Stephenson, 2007).[15] Our model, which emphasizes that agencies are responsible for *multiple* tasks and influence spills over across these tasks, further complicates the problem. Now, the optimal degree of Congressional influence depends not only on the features of a given task, but also on the features of *other* tasks that share natural substantive complementarities with it. The example above, in which Homeland Security Investigations wished to be separated from the rest of Immigration and Customs Enforcement, is an illustration. Given the considerations from above (e.g., the extent to which social preferences change over time), a designer might want a great deal of political influence over immigration enforcement. However, even though there is a natural complementarity between different law enforcement tasks that focus on border security, the designer might hesitate in the face of risks that this influence spills over onto transnational crime investigations.

Finally, it is important to note that institutions are designed amidst imperfect information about the future. For example, the Federal Communications Commission (FCC) oversees the licensing of television, radio, and telephone companies, regulates pricing and content control in internet provision, and helps negotiate international agreements on orbital satellites. When Congress established the FCC in 1934, it is difficult to imagine that they anticipated the central role of communications technology in the US economy or citizens' lives. What may have began as a relatively narrow agency overseeing radio frequency allocations eventually became extremely broad as new media and communications technologies were developed which were naturally grouped in with radio.

These different mechanisms create complex incentives for the allocation of tasks to bureaucratic agencies. A thorough analysis of the institutional design problem is beyond the scope of

[15]These issues have a long history in both economics and political science. Within economics, most analyses are normative (i.e., they focus on social welfare and the optimal division of responsibilities, though Alesina and Tabellini (2008) is a notable exception) and models rarely give politicians ex post opportunities for influence over the bureaucracy. Besley and Coate (2003), Maskin and Tirole (2004), and Alesina and Tabellini (2007) are important contributions. Within political science, most analyses are positive (i.e., most, not all, focus on how much authority the politician will choose to delegate, though political scientists have debated the normative questions for over a century), and ex post opportunities for influence are a key theme. Huber and Shipan (2008) and Gailmard and Patty (2012) provide reviews.

this paper. However, we believe that future work should account for the multi-task nature of the problem, which we see as under-studied, and particularly for how the breadth of tasks an agency oversees affects the legislative opportunities for ex post influence.

3 Empirical strategy

3.1 Measuring breadth

One contribution of this paper is developing a novel measure of the breadth of agencies. In our model, we defined an agency's breadth as the number of interest groups who are affected by the tasks that the agency oversees (for simplicity, we sometimes refer to this as the number of interest groups regulated, though our logic applies beyond regulatory agencies). While this number is not directly observable, our model assumes that interest groups have an incentive to lobby the agencies that regulate it. Thus, we will infer which interest groups are regulated by an agency by identifying which interest groups lobby that agency. We do so using lobbying disclosure data from the Center for Responsive Politics (CRP; `www.opensecrets.org`), used extensively in past work (e.g., Blanes i Vidal, Draca, and Fons-Rosen (2012), Kang (2015), You (2017)).[16]

The CRP data include lobbying of federal agencies and identifies the "category" of the organization hiring or employing the lobbyist. We refer to these categories as interest groups. They are organized hierarchically, ranging from 16 coarse 1-digit codes to 115 2-digit, 367 3-digit, and 424 4-digit codes.

It is helpful to consider an example. Among the 16 1-digit codes, the interest group "H: Health, Education, and Welfare" spent the most on lobbying agencies in our sample. Table

[16]Blanes i Vidal et al. (2012) estimate lobbyists' financial returns to being connected to members of Congress. Kang (2015) estimates a dynamic model of interest groups' strategic interactions and lobbying decisions on energy policy in order to back out the returns to lobbying. You (2017) studies the distinction between lobbying for policy passage and lobbying for its implementation. A minority of the literature focuses on lobbying of agencies (as opposed to lobbying Congress), and ours is the first paper to use lobbying data to infer structural characteristics of agencies.

B1 in the appendix shows how this single broad group breaks down into six narrower 2-digit groups, such as "H1: Doctors and health practitioners," "H2: Inpatient health facilities," and "H4: Medical supplies." These codes are further broken down into 3-digit codes. For instance, doctors includes "H11: Physicians" and "H14: Dentists," health facilities includes "H21: Hospitals" and "H22: Nursing homes," and medical supplies includes separate categories for manufacturers of medical equipment (H41) and pharmaceuticals (H43).

These 3-digit codes are far more precise, and it is easy to think of circumstances in which hospitals and nursing homes, for instance, might have different policy preferences or be affected by different agencies. These 3-digit codes are the level of precision that we use for our main specification, though we show our results are robust for all four levels of aggregation.

Finally, Table B1 shows that only one of the 19 3-digit codes breaks into separate 4-digit codes (physicians are divided into Optometrists, Other specialists, and Physicians not elsewhere classified).

For our primary measure of breadth, we use all lobbying disclosure forms available from 1998 to 2016. We define interest groups according to 3-digit CRP codes, and convert their lobbying expenditures of an agency into real 2017 dollars. Often a single lobbying contract involves multiple agencies being lobbied but with only one expenditure total. In these cases, we divide those lobbying expenditures equally across lobbied agencies. We then aggregate total lobbying expenditure (across the full period) up to the interest group/agency dyad. We exclude any case in which an interest group spent less than $10,000 in 2017 dollars lobbying an agency (over the full 19 years) so as to isolate an appreciable amount of activity. Finally, for each agency we calculate the total fraction of all interest groups that are observed lobbying that agency. We refer to this share as the "breadth" of the agency. This describes our primary measure of breadth, but we show that our results are robust to the level of aggregation, the use of the $10,000 cutoff, and the choice to normalize multi-agency lobbying contracts.

The lobbying-based measure of breadth connects directly our model and is a flexible and continuous measure that captures the interests of politically-involved actors and the diversity

of politically-relevant tasks that an agency is engaged in. We discuss several examples below that illustrate this. However, a disadvantage is that the decision to lobby is endogenous, complicating the interpretation of this measure. We present a series of robustness checks. A rich set of evidence suggests that this endogeneity is not a problem for our analysis. This *does not* mean that the decision to lobby is not endogenous; it certainly is. However, because we set an extremely low threshold ($10,000) and look at a very long period (19 years), our analyses suggest that we capture the full range of relevant interest groups. Our assumption is that any interest group which is meaningfully affected by the actions of an agency will spend *some* money lobbying that agency at some point during a 19 year period. We find this assumption realistic.[17] Under this assumption, realistically endogenous decisions – such as whether or not to lobby during some particular year, or how much to spend on lobbying one agency compared to another – will not affect our measure.

Nonetheless, because lobbying is an endogenous decision, we present all of our analyses jointly using an agency-level measure of breadth from Clinton et al. (2014): the number of different policy areas under which the agency was classified during a review by the Office of Management and Budget conducted during the Bush Administration. This number ranges from 1 to 17, and we discuss these policy areas, as well as several examples of specific agencies, below when we compare this measure to our lobbying-based measure.

3.2 Measuring influence

To measure the degree of Congressional influence, we turn to the existing political science literature and use the measure from Clinton, Lewis, and Selin (2014).[18] That measure is drawn

[17]The magnitudes of lobbying are important to keep in mind. The *average* interest group in our sample spends $144 million on agency lobbying during our sample.

[18]Berry and Gersen (2017) develop a creative alternative by focusing on how the geographic distribution of government spending responds to partisan control of Congress. Because of limited information in the spending data, the authors focus on only 22 cabinet-level agencies (mostly large departments). The only data on spending of detailed agencies comes from USA Spending, which is only available from 2005 onward. With such a short panel, one cannot reliably estimate agency-level spending responses to control of Congress. Data limitations aside, a conceptual advantage of the Clinton et al. (2014) measure is that it captures influence over the full range of an agency's responsibilities, rather than simply where it spends its money.

from the authors' 2007 Survey on the Future of Government Service, which collected data from 2,368 federal agency administrators and program managers (what we refer to as "high-level bureaucrats"). Clinton et al. (2014) describe the data collection methods in detail.

Among other questions, respondents were asked to rate on a scale of 1 to 5 how much influence various groups have "over policy decisions in your agency." Options ranged from "a great deal" of influence to "none." The question was asked of Democrats in Congress (who controlled both the House and the Senate at the time), the White House (the president at the time was a Republican), and others. Clinton, Lewis, and Selin (2014) explicitly prime respondents to think about the *relative* influence of different groups.

For this reason, they intentionally use a simultaneous list to show respondents all nine groups at once. They do this to account for inherent differences across respondents in how to interpret "a great deal" of influence, "some" influence, etc. Because respondents answer about all groups at once, their measure of influence is calculated by taking the reported influence of Democrats in Congress and subtracting the reported influence of the president.[19] This is a natural normalization. These are executive agencies; therefore, they are explicitly designed to be underneath the President and it is intuitive that the degree of Congressional influence would be defined *relative to the statutory principal*.

One limitation of this measure is that it is only available from a single point in time (2007), and therefore under a single set of political conditions. Our interest is in identifying general structural features of an agency that facilitate or mitigate Congressional influence, so it is plausibly problematic that we cannot assess the breadth/influence relationship under different conditions. While we cannot observe variation over time in these conditions, we can indirectly test for their importance using variation in political circumstances across agencies. If, for example, the relationship between breadth and influence were systematically different when Democrats control congress because of differences in the groups that support Democrats, then we would expect for this to be reflected in comparisons across agencies. In Appendix C.5,

[19]Technically, Clinton, et al., use the negative: Presidential influence minus Congressional Democrats'.

we test whether the relationship between breadth and influence differs across agencies that primarily oversee Democratic-allied groups compared to those which oversee Republican-allied groups. We find no heterogeneity along this dimension.[20] We find this reassuring that the partisan composition at the time of our measurement does not distort the breadth/influence relationship that we are interested in.

Nonetheless, we acknowledge that this point-in-time measurement is problematic. In particular, we cannot rule out features of the political environment that are *not* related to the composition or partisan-alignment of interest groups. For example, the Democratic party might have a different objective function through which the costs of spillovers are evaluated, or the Democratic party might have a different valuation of professionalized, independent bureaucracies (since bureaucrats are more likely to hold liberal ideological views). These concerns are important, and we acknowledge that the difficulty in measuring Congressional influence is a key challenge for empirical work on the topic.

3.3 Summary statistics

We create our final dataset by merging our lobbying-based measure of breadth and the survey-based measure of influence for every agency in the CRP data and the available Clinton, Lewis, and Selin (2014) data. The Data Appendix has further details. In total, we are left with 70 federal agencies. Table 1 presents summary statistics on these agencies, as well as the interest groups observed lobbying them.

Panel A considers interest groups. The average 3-digit interest group lobbied 27 of the 70 agencies in our main sample, though there is wide variation. Across the 367 groups, 10% lobbied 7 or fewer and 10% lobbied 46 or more. When we restrict to agencies the groups spent $10,000 or more lobbying (again, over a 19 year period), these numbers fall, but only slightly because

[20]It is not the case that our test is simply under-powered. We *do* find evidence for heterogeneous effects depending on groups' political alignment; we simply *do not* find that it depends whether they are allied with Democrats or Republicans. Instead, we find that influence declines more sharply in breadth when regulated groups tend to be extreme (as opposed to moderate). This does not show up when testing for Democratic- or Republican-alignment because the effect is symmetric; far-right and far-left groups are equally important.

typical lobbying expenditures dramatically exceed $10,000. The average lobbying relationship (conditional on exceeding the $10,000 threshold) sees $158,000 spent lobbying an agency *each year* (median: $66,000). This amount is per agency, and is large relative to the amount spent on Congressional campaign contributions. Across our 367 groups, the median spends 9.3 times as much lobbying agencies in our sample as it spends on Congressional campaigns, closely resembling the 10:1 figure from Tripathi, Ansolabehere, and Snyder (2002).[21] As is seen in the far right column, groups that lobby more lobby more agencies, more per agency, and spend more on Congressional campaigns.

[Table 1 about here.]

Panel B presents statistics on the 70 agencies used in our analysis. The first four rows summarize our lobbying-based measure of breadth for different levels of aggregation, always interpretable as the *fraction* of groups that lobby the agency. Using the coarsest measure of breadth (with only 16 interest groups), we are left with the impression that nearly all groups lobby nearly all agencies (the average agency is lobbied by 84% of groups, and the median is 94%). When adopting a more precise set of interest group codes, however, this figure falls rapidly, stabilizing at 3-digits, where the average agency is lobbied by 36% of all groups (median: 29%). The variation is large: The most narrow 10% of agencies are lobbied by less than 4% of groups, while the most broad 10% are lobbied by 75% of groups. The fifth row shows the number of policy areas under which the agency is classified (up to 17). The median agency is classified under only two policy areas, but 10% of agencies are classified under 11 or more areas (examples are discussed below). Importantly, the correlation between breadth measured using lobbying and policy areas is high (.663), which we find reassuring.

Most agencies report more presidential influence than Congressional influence (as expected, given that these are *executive* agencies). Our average agency has 48,000 employees, though this varies dramatically. The 10^{th} percentile is only 364 employees and the 90^{th} is 131,000.

[21] That lobbying spending exceeds campaign spending is a point emphasized elsewhere (see, for instance, Drutman (2015) and You (2017)).

Importantly, the correlation between employment and lobbying-based breadth is only .22, which in practice means that our regressions should be able to separate the two and we can avoid conflating broad agencies with large ones.

The final two rows show the number of Congressional oversight committees responsible for the agency (the substantive focus of Clinton, Lewis, and Selin (2014)) and the prevalence of political appointees (the substantive focus of Berry and Gersen (2017)). The correlation between breadth and political appointees is small (-.16), and so our regressions should be able to easily separate them. The correlation with oversight committees is larger (.50), as would be expected: Broad agencies are overseen by more committees. Nonetheless, below we show that controlling for this has little effect on our estimates.

3.4 Examples of agencies

Although summary statistics illustrate aggregate patterns in the data, it is helpful to consider some specific agencies to better understand exactly what our lobbying-based measure of breadth captures. We divide the agencies in our main sample into quartiles based on their breadth. We then identify the agency, within each quartile, that minimizes the squared residual from some of the regressions that we estimate later on. Thus, these agencies are literally the representative cases from our regressions. The representative agencies are shown in Table 2.

[Table 2 about here.]

The most representative agency from the highest breadth quartile is the Federal Communications Commission (FCC), which "regulates interstate and international communications by radio, television, wire, satellite, and cable" and "implement[s] and enforc[es] America's communications law and regulations." This is clearly a broad mandate, and with the changing role of the internet in society, the FCC has become increasingly relevant for retail, entertainment, and banking. Unsurprisingly, then, the agency is lobbied by over 50% of all interest groups in the data, but communications services companies (including internet and wireless telephone

companies) do the most lobbying.

The most representative agency from the lowest breadth quartile, on the other hand, is the Bureau of Labor Statistics (BLS), which is responsible for "measuring labor market activity, working conditions, and price changes." It might seem surprising that interest groups lobby this organization, and even more surprising that it is manufacturers (mostly pharmaceutical manufacturers). When we explore the disclosure reports, most state that the lobbying is in relation to the Occupational Safety and Health Act (OSH Act). While they are not more specific, we can speculate.

The OSH Act was passed in 1970 and is primarily enforced by the Occupational Safety and Health Administration (OSHA). Under the OSH Act, employers must adopt potentially expensive workplace protections to guard against certain hazards. Current OSHA regulatory standards require employers to *proactively* guard against "recognized hazards," including those recognized as common, recurring dangers within the industry. Determining which hazards are common and recurring within the industry depends on the Survey of Occupational Injuries and Illnesses (SOII), designed and conducted by the BLS.

In other words, a single BLS data collection program provides the foundation that OSHA uses to determine recognized hazards, which determines which risks employers must actively prevent. As a result, manufacturers (and especially chemically-intensive pharmaceutical manufactures) are obviously greatly affected by relatively mundane details like how the BLS classifies certain injuries or incidents and where the BLS draws the line between different industries. For our purposes, this is a perfect example of an agency with only a single narrowly-defined task that directly affects interest groups.[22] It matches well with the notion of breadth that we model: It is unlikely that any spillovers caused by Congressional influence over the SOII would meaningfully affect other agency operations in any way that matters to donating interest groups.

Table 2 shows that among agencies that typify our sample and drive our main results, our

[22]The BLS, of course, has many more responsibilities, but these are largely irrelevant for interest groups. We do observe some lobbying on behalf of trade groups and employee membership organizations to adjust industry and occupation codes, but the lion's share of lobbying relates to the OSH Act.

lobbying-based measure is reflective of an agency's breadth, and that the lobbying groups seen in the data have a clear connection to agency policy decisions in very much the same conceptual setting as our model.

3.5 Comparing measures of breadth

As mentioned above, we perform all of our analyses using both our lobbying-based measure of breadth *and* a measure from Clinton et al. (2014) based on the number of policy areas under which an agency has been classified. These measures are highly correlated (.66), but in Figure 1 we show some important differences. For example, Figure 1 shows that the Food and Drug Administration (FDA) and the Occupational Safety and Health Administration (OSHA) are both classified as appearing under only one policy area, specifically Health and Well-Being. Despite only appearing in this one policy area (which is itself a very broad area), both agencies handle a diverse array of responsibilities. The FDA regulates *all* products related to food or medicine (including tobacco, livestock feed, cosmetics, dietary supplements, medical equipment and devices, vaccines, prescription and non-prescription drugs, condoms and sperm donations, and more). While these are, indeed, all related to health and well-being, it is a broad mandate, as is OSHA's regulatory authority over all health and safety work conditions in the United States. This should be contrasted with other agencies that also only appear under a single policy area like the Bureau of Prisons (which manages the 110 federal prisons in the United States) and the Peace Corps (which places service workers in developing countries). According to the OMB's classification, all four agencies are equally broad, however our lobbying data shows that 6 times as many interest groups lobby the FDA as the Bureau of Prisons, and our primary measure interprets that as evidence that the FDA is responsible for a broader set of tasks. Several such examples are displayed in Figure 1.

[Figure 1 about here.]

However, Figure 1 shows another subtle but important distinction between the OMB clas-

sification and our lobbying-based one. The Administration for Children and Families (ACF) appears under 7 policy areas, the same number as the Department of the Treasury. The ACF runs 60 different programs related to adoption assistance, child support enforcement, welfare, foster care, and child abuse, programs which span criminal justice, health, housing, education, and more. It's mission is to create "opportunities for families to lead economically and socially productive lives," a mandate which is surely no less broad than that of the Treasury Department. In the lobbying data, however, Treasury is lobbied by over 3 times as many interest groups, ranging from financial institutions to computer software developers and oil and gas companies.[23] The interpretation we find most compelling is that the ACF may well be as broad as Treasury, but it attracts less lobbying because its activities are less political. Our lobbying-based measure, then, captures the breadth of politically-relevant tasks (rather than the breadth of all tasks), which is plausibly what drives Congressional influence behaviors.

Finally, it is important to point out that some of the policy areas OMB defines are more broad than others. For example, "Business and commerce" is clearly more broad than "Disaster relief" and "Health and well-being" is clearly more broad than "Veterans benefits." A measure based on the lobbying behavior of different groups within, say, the business community might be a more accurate reflection of the breadth of tasks an agency oversees.

3.6 Econometric strategy

Our primary estimates correspond to a simple OLS specification in which we regress agency-level reported influence on agency-level breadth of tasks:

$$Influence_a = \alpha + \beta Breadth_a + \varepsilon_a \tag{4}$$

We present a rich set of robustness tests to address various measurement-related concerns

[23]Looking through the disclosure reports, computer companies often lobby Treasury on issues related to e-commerce taxation, software for cybersecurity and counterterrorism and financial intelligence (which the Department oversees), and eligibility rules governing R&D tax credits. Lobbyists on behalf of oil and gas companies tend to vaguely lobby for "US government support with respect to the client's investment abroad."

regarding the lobbying data, the reliability of the underlying survey measure of influence, and the role of outliers in our small sample.

We do not have an explicit exogenous or quasi-random source of variation in $Breadth_a$. Instead, our strategy is to take seriously several identification threats which we think are plausible and to provide realistic, fair tests for them.

Specifically, we consider the possibility that agency breadth is correlated with other structural features of the agency, including every control from the past literature, as well as several others. Next, we consider the possibility that the negative correlation we observe is caused by characteristics of the interest groups rather than the agency. We exploit the fact that the same interest group is often overseen by multiple agencies, allowing us to include interest group fixed effects so that identification is driven solely by different agencies overseeing the same interest groups. Finally, we consider the possibility of reverse causality by instrumenting for the breadth of an agency using the timing of its creation.

In none of these tests do we find evidence for an alternative, non-causal explanation of the breadth-influence relationship. We find these tests reassuring. However, our core result is cross-sectional and there are naturally many potential concerns about causality. It is difficult to imagine a different approach. Our primary measure of influence is survey data which we have for only one time period. Even if we could measure influence over time, there is likely little over-time variation in the breadth of an agency's responsibilities, and the variation there is may well be just as endogenous as the cross-sectional variation. Sometimes tasks are shifted from one agency to another, which affects breadth. However, these shifts are part of broader agency restructuring, meaning that one must still account for changes in staffing, funding, and policies (the exact identification threats we face cross-sectionally). Moreover, without a *task-level* measure of influence (which we think is unrealistic to expect), one would still need to prove that changes in agency-level influence resulted from changing *the breadth of* responsibilities as opposed to changing *which* responsibilities agencies' held. In other words, a time-varying measure of influence would not change the identification threats we consider.

4 Results

4.1 Main results

Our core result is that more broad agencies report less Congressional influence. Figure 2 shows this flexibly using the raw data on the 70 agencies in our main sample. On the x-axis is the breadth of the agency (measuring using lobbying data in Panel (a) and policy area classifications in Panel (b)). On the y-axis is reported relative Congressional influence. Both figures show an obvious negative relationship that is statistically significant.[24]

[Figure 2 about here.]

Column 1 of Table 3 presents the formal econometric results behind Figure 2. Again, Panel A uses lobbying-based breadth while Panel B uses that based on policy area classifications. Interpreting these coefficients in light of the summary statistics in Table 1, a one standard deviation increase in lobbying-based breadth is associated with a .43 standard deviation decrease in reported influence, and a one standard deviation increase in policy areas is associated with a .34 standard deviation decrease in influence.

[Table 3 about here.]

4.2 Robustness

4.2.1 Robustness related to the lobbying-based measure

Table C1 shows the results using our lobbying-based measure are nearly unchanged for different levels of aggregating interest groups. Table C2 shows they are invariant to the use of our $10,000 cutoff and how we handle multi-agency contracts. Table C3 shows the results are

[24]Panel (a), based on lobbying-based breadth, shows a clear outlier: the Office of Management and Budget (OMB). This agency's responsibility is to "assist the President in meeting his policy, budget, management, and regulatory objectives." This is nearly identical to the Congressional Budget Office, which is designed to assist Congress in the same matters. This likely explains why OMB experiences so little Congressional influence. OMB is also the agency that did the policy area classifications, and since it did not classify itself during the project, it does not appear in Panel (b).

stronger when breadth is measured using only lobbying that occurred close to the timing of our influence survey (2007). Figure C1 shows that our results become stronger as we restrict to only interest groups that are strongly attached to the agency (i.e., those who persistently lobby the agency year after year), and exclude those who lobby it only infrequently.

These results all suggest that our core result (that broad agencies experience less Congressional influence) is robust to sensible changes in developing our lobbying-based measure, in addition, of course, to being robust to our policy areas classification that has nothing to to with lobbying. While lobbying decisions are endogenous (as we show empirically below), our measure is sufficiently conservative (i.e., based on the extensive margin of lobbying measured over a very long time period) that it does not seem to be substantially affected by this endogeneity.

4.2.2 Additional robustness

Table C4 shows that our results hold across a variety of agencies (excluding OMB, military agencies, or cabinet-level departments), and weighting by employment, respondents, or response rates. Both measures of breadth are always statistically significant and show remarkable stability, despite our small sample.

4.3 Identification

Thus far, we have been careful to describe our empirical results as correlations. However, our model lays out a clear channel by which an agency's breadth might causally affect the amount of Congressional influence. Is there a clear *alternative* explanation for the correlation that we document? In this section, we consider three potential alternatives.

4.3.1 Other agency characteristics

First, it is possible that breadth is simply correlated with some other agency characteristic that affects influence. As noted in Table 1, breadth is correlated with both Congressional oversight and the prevalence of political appointees, which Clinton et al. (2014) and Berry and

Gersen (2017), respectively, have suggested affect Congressional influence.

Our core approach to this concern is including controls. Given the paucity of previous research on this topic, we are able to essentially tie our hands and use the full set of controls used in the entire past literature. The results are in Table 3.

In column 2 we include the full set of controls from Clinton, Lewis, and Selin (2014), including the number of oversight committees (their focus) and the share of political appointees (Berry and Gersen's focus). In addition to controlling for key explanations from the existing literature, these controls also account for core alternative hypotheses, such as large agencies being more difficult to influence (since we control for log employment), narrow agencies being intrinsically more political or salient (since we control for whether or not the agency was an important part of the Bush Administration's agenda), and the possibility that average ideology systematically differs for broad agencies (since we include for a survey-based measure of the liberal/conservative ideology of bureaucrats).

Given the small sample, including eight additional controls substantially increases the standard errors for both measures, but the coefficients change only slightly and remain statistically significant.[25] For brevity, coefficients on the control variables are in the appendix (Tables C8 and C9). Combining the coefficient estimates with the standard deviations presented in Table 1's summary statistics, the magnitude of a one standard deviation change in breadth is generally (though not always) larger than a one standard deviation change in committees (Clinton, et al.) or political appointees (Berry and Gersen).

In column 3, we control for the factors that Selin (2015) develops based on 50 statutory features of agency design.[26] Controlling for these factors leaves our estimates virtually unchanged and still statistically significant.

Columns 2 and 3 control for, essentially, the exhaustive set of controls identified in the past literature. There are other potential concerns, however. We consider two.

[25]Figure C2 depicts the relationship visually in a Frisch-Waugh plot. The downward slope is clear and strong.

[26]She uses a Bayesian latent factor model to identify two factors of independence-by-design (one describing the independence of key decision makers, and one describing the independence from political review).

First, it is possible that not every agency regulating the same group is equally important for that group. It is possible that some agencies regulate many groups, but in a relatively marginal way, while the agencies whose actions are most important tend to be more specialized. If Congress only seeks to influence the important actions, then we would observe more influence in narrow agencies. To account for this, we control for the log of average lobbying spending per lobbying group. If narrow agencies were doing much more important activities, then we would expect a group to spend more on one of those agencies than it would on a broad one.

Second, it is possible that there are fixed costs of establishing expertise, and that broad agencies regulating many groups have paid those fixed costs. For this to bias our results, it would have to be the case that Congress systematically avoided influencing expert agencies. While we are ex ante skeptical that politicians exercise this type of restraint, this explanation is plausible to some. To control for agency expertise, we use data from Lewis (2008) on the occupational composition of each agency. We define expertise as the share of workers in "professional" occupations, defined as "white collar occupations that require knowledge in a field of science or learning characteristically acquired through education or training equivalent to a bachelor's or higher degree with major study in or pertinent to the specialized field... [This work] requires the exercise of discretion, judgment, and personal responsibility for the application of an organized body of knowledge."[27] Within our sample, the professional share of employees varies from 4.4% (Federal Motor Carrier Safety Administration) to 70% (Food and Drug Administration).

Column 4 controls for these potential explanations. Again, these characteristics are correlated with breadth and so the standard errors increase, but the coefficients are roughly the same as in our baseline specification and remain significantly different from zero.[28]

[27]The other 5 occupation categories in the Lewis (2008) data include administrative, technician, clerical, other white collar, and blue collar.

[28]When we control for all twelve alternative controls at once, and therefore restrict ourselves to a sample size of 65 or less with 13 independent variables, breadth is not statistically significant, but the coefficient is actually larger (more negative) than in our baseline specification. Variable selection methods (e.g., Lasso) always select breadth as an important predictor. Thus, despite the rich set of potential agency-level confounds that we consider, we conclude that the influence/breadth relationship is not spuriously driven by other agency characteristics.

4.3.2 Interest group characteristics

As an alternative interpretation, our evidence that broader agencies experience less influence might have nothing to do with features of the agency, but with features of the regulated interest groups instead. For instance, it may be that any agency that oversees a highly divisive, politicized group (e.g., labor unions) will experience large amounts of influence, but such groups might be concentrated under relatively narrow agencies. To investigate this hypothesis, we estimate a modified form of our main specification based on a dyadic data structure. That is, we create a dataset of agency-group dyads in which each agency appears alongside each group that lobbied it (equivalently, each group alongside each agency it lobbied). We then estimate our main specification including interest group fixed effects:[29]

$$Influence_{ia} = \alpha_i + \beta Breadth_a + \varepsilon_{ia}$$

Ultimately, this modified data structure uses the exact same variation as our primary specification: We are interested in agency-level influence and agency-level breadth, neither of which varies across interest groups (i.e., neither of which varies within agency). To understand why this addresses concerns about the set of regulated groups, note that this regression could not be estimated if there were never multiple agencies regulating the same interest group (β would not be identified). If each interest group were only regulated by one agency, there would be no "within interest group" variation in breadth (no variation would be left after the interest group fixed effects absorbed the between group variation) and we could not estimate β. Thus, this regression is identified only from the fact that different agencies (with different breadth) sometimes regulate the same interest group(s). The group fixed effects, however, account for any feature of the group itself, ensuring that our results do not simply reflect agencies experiencing more influence simply due to the groups they regulate.

Interest group fixed effects are included in column 5. For both measures of breadth, the

[29] We use two-way clustered standard errors, clustered at the interest group and agency levels.

coefficients are quite similar and still statistically significant. Thus, the relationship between breadth and influence is not explained by features of the regulated groups.

4.3.3 Reverse causality

Finally, one might worry that the relationship is not driven by omitted agency-level or group-level variables, but is actually a causal relationship in the opposite direction. For instance, suppose that some agencies are exogenously subject to more Congressional influence. This influence might prevent "mission creep" among these agencies (where they accumulate more responsibilities over time), a key focus of the literature on bureaucracies. Thus, we might see that Congressional influence is lower among narrow agencies, but it is because the influence reduces breadth rather than the other way around.

To address this possibility, we develop an instrument for the breadth of an agency so as to isolate variation in breadth that is certainly *not* caused by current Congressional influence. In doing so, we draw on evidence that an agency's design is affected by the national political circumstances in place at the time of its creation (Lewis, 2004). Specifically, we note that periods of rapid agency creation tended to produce more narrow agencies. This is unsurprising: When *many* new agencies are being created, new responsibilities are more likely to be split between them rather than condensed into one agency out of convenience.

The logic for this is shown in appendix Table C5. During the Franklin D. Roosevelt (FDR) administration (the Great Depression and the New Deal), agencies were created at a rate unmatched before or immediately after (the Truman and Eisenhower administrations). These agencies were significantly more narrow than other agencies, regardless of whether measured using today's lobbying or today's policy area classification. Similarly, the next period of rapid agency creation was under the John F. Kennedy/Lyndon B. Johnson (JFK/LBJ) administrations, when the Great Society programs were launched. This period, too, saw the rapid creation of new agencies, which tended to be relatively narrow. Table C6 shows the formal first stage: Agencies created during the FDR, JFK, or LBJ administrations are more narrow than other

agencies in our sample.[30] We use a dummy variable that pools the three administrations as an instrument for agency breadth.

Importantly, our instrument is non-monotonic in agency age. Our sample includes agencies created before FDR, after LBJ, and between FDR and JFK. Thus, the instrument neither isolates the oldest nor the youngest agencies (nor those of intermediate age). We see no obvious reason why this particular feature of the timing of agency creation would *directly* affect Congressional influence 50 years later, relative to agencies that are a decade older or younger.[31]

This instrument does not solve all identification concerns. While these agencies tend to be more narrow than others, they may differ in other design characteristics as well. Thus, in interpreting these IV results, it is important to keep in mind that column 2 showed that the breadth-influence relationship is *not* explained by other agency traits.[32] Of course, we cannot rule out that the characteristics at the time of creation affect the general culture or lobbying in other ways, or that it affects design features that we do not observe. Thus, while we find the IV results informative and helpful for ruling out one class of plausible alternative explanations, we do not see them as being independently definitive.

Column 6 of Table 3 shows the results. For both of our measures of breadth, we estimate a larger, negative, and statistically significant relationship between breadth and influence. Thus, we conclude that the breadth-influence relationship is not driven by reverse causality.

In sum, we document that broader agencies report less Congressional influence, regardless of how we measure breadth. Our model suggests this is because breadth reduces legislators' willingness to exert influence. We rule out three alternative explanations: We find no evidence

[30]The coefficient is statistically significant for both measures of breadth. However, since the conventional standards for avoiding weak instruments are actually quite a bit more demanding than statistical significance ($F \geq 10$, which is equivalent to $t \geq 3.16$), the instrument does not exceed conventional standards for the policy areas classification. This implies that, in one of our two specifications, it is a weak instrument, with the associated caveats.

[31]It is worth mentioning that these administrations were all Democratic, and these agencies tend to be younger and more likely to be commissions. In Table C7, we consider each of these three controls. They weaken the first stage substantially, so the standard error on breadth rises, and the coefficient is not always statistically significant. Nonetheless, the point estimates are quite similar to our primary IV specification.

[32]Put differently, if our IV results *did not* find a significantly negative effect of breadth, then we would have good cause to worry about reverse causality. Finding a negative effect, however, does not address all possible identification concerns. It only rules out reverse causality.

that our results are explained by other observable agency characteristics or features of the regulated groups, and our results are not explained by reverse causality. While we cannot possibly rule out every potential identification threat, and the breadth of an agency's design will never be randomly decided and unrelated to other characteristics, these findings help support a causal interpretation.

5 Mechanism

5.1 An alternative mechanism: Balance

The core mechanism in our model is compensation for spillovers: the idea that the legislature cannot perfectly target its influence to only affect a single specific task, which matters because of the legislature's ability to contract on influence. The broader the agency, the greater the incidental spillovers than the legislature cannot be compensated for.

An alternative mechanism by which breadth might matter is balance. If an agency exclusively regulates groups the legislature opposes, its influence might focus on increasing oversight of one group without worrying about whether this influence spills over onto other groups (since they, too, are enemies of the legislature). Likewise, if the agency only regulates supportive groups, then the legislature might be perfectly fine with legislative influence intended to benefit one group spilling over onto other allies. If an agency is balanced between allies and opponents, however, some influence intended to benefit allies will spill over onto opponents, and vice versa.

Thus, when effort cannot be perfectly targeted and spillovers are important, agencies' ideological balance creates a disincentive for legislative influence. If broad agencies are more likely to have a balanced mix of groups (through a law of large numbers type argument), while narrowly defined agencies sometimes only regulate left-leaning or only right-leaning groups, then we would expect average influence to fall for broad agencies due to their increasing balance.

We define the ideology of an interest group using the share of Congressional campaign contributions going to Democrats, and normalize this preference to be mean zero across groups.

To get an agency-level measure of balance, we take the average of Democratic preferences across all groups we observe lobbying the agency. If this measure is very positive then pro-Democratic groups vastly outnumber pro-Republican groups, and vice versa if it is negative. If it is near zero, though, the agency has an even balance of left-leaning and right-leaning groups.

In the appendix, Figure C3 shows the distribution of average Democratic preference across agencies. It is, indeed, the case that broad agencies are more balanced *on average*. That is, there are many balanced agencies which are narrow, but agencies become more and more likely to become balanced as they become broad.

Table 4 investigates whether this increasing balance can explain why influence declines in breadth. In column 1, we replicate our baseline estimates from before. Column 2 presents evidence that balanced agencies, on average, experience significantly less influence. This is a necessary condition for balance to drive our main findings. However, in column 3, when we control for breadth and balance simultaneously, the coefficients for breadth hardly change while those for balance decline substantially. This horserace suggests that breadth is important above and beyond (and not due to) balance.

[Table 4 about here.]

Of course, balance might matter non-linearly. In columns 4-6, we progressively drop more and more imbalanced agencies. The idea is to focus only on the most balanced agencies, and see whether influence still decreases in breadth. Even among extremely balanced agencies (the most balanced 25% of the sample in column 6), we continue to find a strong negative, significant relationship between breadth and influence. In sum, then, although ideological balance is more common among broad agencies and is negatively correlated with influence, balance cannot explain our core results. This suggests a model in which breadth matters for other reasons, and our model based on the contractability of spillovers is one such possibility.

5.2 Lobbying responses by agency breadth

In Section 2.4 we present an augmented model in which the political party is more willing to exert effort on behalf of their political supporters than their political opponents. This, along with the assumption of complementarity between influence and lobbying, leads to two further predictions which we test with our data. First, a group's lobbying increases when its allied party is in control. Second, because Congressional influence is lower in broad agencies, the swing in policy implementation (and therefore the response of complementary lobbying) should be smaller for broad agencies.

We test this using our 19 years of lobbying data. Specifically, we estimate the following modification of a triple-difference specification:

$$\begin{aligned}\text{Lobbying}_{iat} =& \alpha_{ia} + \delta_{at} + \beta_1 1\{i\text{'s supported party controls Congress}\}_{it} \\ &+ \beta_2 1\{i\text{'s supported party controls Congress}\}_{it} \times Breadth_a + \varepsilon_{iat}\end{aligned}$$

where i denotes interest groups, a denotes agency, and t denotes year.[33]

If a group's lobbying increases when its allied party is in control, then $\beta_1 > 0$. If the swing is smaller for broad agencies, then $\beta_2 < 0$. This first hypothesis is simply a function of the complementarity that we assume in our model, while the second hypothesis (that β_2 is opposite signed from β_1) is our main substantive interest: the effect of breadth on influence. We see this specification as being closely related to a triple-difference specification because one difference is variation in control of Congress over time, one difference is variation in breadth across agencies, and one difference is variation in partisan preferences across interest groups. A fully flexible pure triple-difference specification would include fixed effects for each pairwise combination of the three dimensions of variation (i.e., group-by-agency fixed effects, agency-

[33]When using the lobbying-based measure of breadth, lobbying expenditures appear on both the right-hand and left-hand side of the regression. We recognize that this is unusual. We emphasize that *i*) the results are nearly identical when measuring breadth using policy areas, *ii*) identification in this regression is about *when* groups lobby agencies, which is conceptually distinct from variation in *which* groups lobby, which is what determines our measure of breadth, and *iii*) because we include agency fixed effects, identifying variation is mechanically uncorrelated with the number of groups lobbying the agency (i.e., breadth).

by-time fixed effects, and group-by-time fixed effects). In that case, β_1 could not be identified (control of Congress would be colinear with the group-by-time fixed effects), but β_2 could be. However, our main theoretical prediction is that β_1 and β_2 are opposite signed, which obviously cannot be confirmed without estimating β_1. Thus, we prefer this "modified" triple-difference specification. Nonetheless, if we implement a pure triple-difference specification (including group-by-time fixed effects), our estimate of β_2 is virtually unchanged (results available upon request).

Our specification accounts for i's time-invariant tendency to contribute to a (with the group-agency fixed effect α_{ia}) and the universal (i.e., cross-interest-group) tendency to contribute to agency a in a particular year (with the agency-year fixed effect δ_{at}), which might be driven by the changing importance of policy issues that a works on. Identification comes from changes in partisan control of Congress, and differences in how different groups respond (for the case of β_1) and which agencies see the largest lobbying responses (β_2). β_1 reflects the lobbying change for an extremely narrow agency ($Breadth_a = 0$) and $\beta_1 + \beta_2$ is the change for the broadest possible agency (lobbied by all groups, $Breadth_a = 1$).

We determine each group's partisan support by dividing all interest groups into three equally sized terciles based on the share of Congressional campaign contributions going to Democrats. This identifies Republican-aligned groups (the lowest tercile), Democratic-aligned groups (the highest), and centrist groups. We code a group's supported party as controlling Congress only when they control both houses. This setup implies that some groups are not connected to any party (centrist groups) and that in some years neither party controls Congress (the chambers are split), though none of these proves to be important for our conclusions (results available upon request).

Table 5 presents the results using two approaches to normalize lobbying expenditures: the inverse hyperbolic sine and dividing each period's lobbying by the full-period average level of group-agency lobbying. Both approaches allow us to include years in which there was zero

observed lobbying of the agency.[34] Interest groups do appear to increase their lobbying expenditures when the allied party is in power. These main effects (i.e., ignoring the interaction) are statistically significant in three of the four specifications and are often substantively large (we interpret magnitudes momentarily). This is consistent with our assumption that direct lobbying and Congressional influence are complements for interest groups.

[Table 5 about here.]

However, more important for our primary focus, the interaction coefficients are statistically significantly negative in all four columns. Regardless of how we measure breadth, interest groups' lobbying responds less to control of Congress for broad agencies than it does for narrow ones. To interpret the magnitudes, the bottom of the table presents the implied change depending on the breadth of the agency. Looking at column 1, for instance, implies that when a group's allied party takes control of Congress, it's lobbying of an agency at the 10^{th} percentile of breadth would rise by roughly 30%, while it's lobbying of an agency at the 90^{th} percentile is virtually unchanged. In other words, our results suggest that lobbying only responds to partisan control for narrow agencies. In our model, this is because there is little Congressional influence over broad agencies, so the control of Congress is irrelevant.

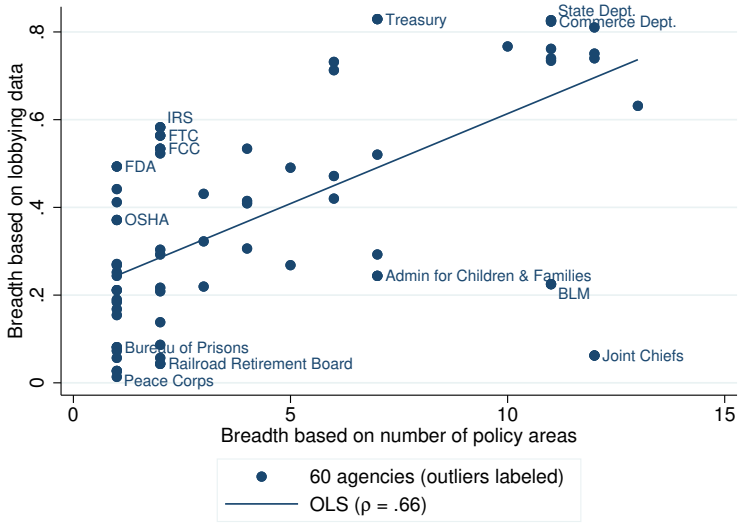
6 Conclusion

We have studied the relationship between regulatory agency breadth and Congressional influence. We first show theoretically that the party in power in the legislature will exert more effort influencing very narrow agencies, because their incentives for influence decline when the agency becomes broad. We then show empirically that breadth is negatively correlated with Congressional influence. This relationship is robust to a number of identification strategies, and we show evidence consistent with the mechanisms of our model.

[34] In the appendix, we separately estimate extensive margin (binary indicators) and intensive margin (natural logarithm) responses (Table C10).

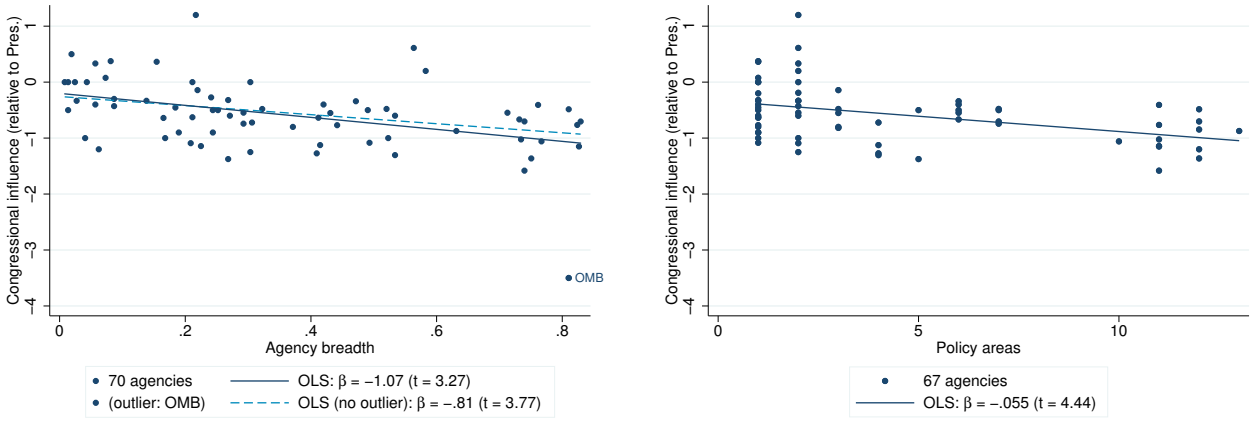
Our model has taken the allocation of interest groups across agencies as given. A clear pathway for future work is to study the strategy behind agency formation and interest group allocation. Those forming the agency must consider both how they will be able to influence it, as well as how the opposition will do so in the event that they come into power. At the same time, technical and practical concerns create constraints preventing agencies from being too broad or narrow. Empirically, it would be useful to generate data that studies how congressional influence varies over time, as well as cross-country analysis comparing how differing institutions and political environments affect agency formation and influence.

Figure 1: Relationship between two measures of breadth



Each observation is an agency. Figure shows relationship between lobbying-based measure of breadth and measure based the number of different policy areas under which the agency was classified during a Bush Administration Office of Management and Budget review (ranging from 1 to 17). Selected agencies are labeled to help interpret the two measures. FDA: Food and Drug Administration. OSHA: Occupational Health and Safety Administration. IRS: Internal Revenue Service. FTC: Federal Trade Commission. FCC: Federal Communications Commission. BLM: Bureau of Land Management.

Figure 2: Agency breadth and political influence



(a) Breadth based on lobbying data

(b) Breadth based on policy areas

Each observation is an agency. In panel (a), breadth is measured as the share of all interest groups lobbying the agency. In panel (b), breadth is measured as the number of policy areas under which the OMB classifies the agency. Corresponding regression results can be found in Table 3 column 1.

Table 1: Summary statistics

	Panel A: Interest group characteristics ($n = 367$)							
	Mean	Standard deviation	Percentiles 10^{th}	25^{th}	50^{th}	75^{th}	90^{th}	Corr. with log(Lobbying)
Num. of agencies lobbied	27.0	14.1	7	18	27	36	46	.819
Num. of agencies lobbied 10K+	25.0	13.5	6	16	25	34	43	.834
Lobbying per agency per year (*th.*)	158	280	10.4	24.4	66.0	158	351	.653
Congressional contrib. per year (*th.*)	865	1,882	.736	23.2	141	809	2,591	.294
Democratic share	.447	.235	.204	.299	.421	.513	.883	-.052
Ratio: Agency lobbying to contributions	342	3,297	.742	3.13	9.34	24.5	105	.032
	Panel B: Agency characteristics ($n = 70$)							
	Mean	Standard deviation	Percentiles 10^{th}	25^{th}	50^{th}	75^{th}	90^{th}	Corr. with Breadth
Lobbying-based breadth (1-digit)	.837	.206	.531	.813	.938	.938	.938	.599
Lobbying-based breadth (2-digit)	.527	.274	.117	.365	517	.739	.895	.965
Lobbying-based breadth (3-digit)	.355	.256	.042	.165	.293	.534	.756	1
Lobbying-based breadth (4-digit)	.347	.255	.036	.150	.283	.519	.748	.999
Policy areas	4.45	3.97	1	1	2	7	11	.663
Congressional influence	-.582	.634	-1.23	-1	-.549	-.320	.138	-.432
Year founded	1933	53.1	1856	1913	1947	1970	1979	-.244
Employees (*th.*)	48.4	120	.364	1.29	5.30	36.0	131	.220
Number of oversight committees	3.06	.580	2.37	2.63	3.00	3.42	3.81	.498
Political appointee share	.137	.172	0	0	.102	.182	.300	-.159

Panel A is based on 3-digit interest groups that ever lobby an agency in the main sample. "Corr. with log(Lobbying)" refers to the correlation with the log of the inflation-adjusted amount of total lobbying of all agencies during the full period (1998-2016). "Number of agencies lobbied" (resp., "10K+") refers to the number of agencies in our main sample ($n = 70$) that the interest group lobbied (resp., spent $10,000 or more (in 2017 dollars) lobbying during the full period). "Lobbying per agency per year" is measured in thousands of 2017 dollars (as is Congressional contributions) among agencies which the group spent $10,000 or more on. "Democratic share" refers to the share of the group's Congressional contributions spent on Democratic candidates. "Ratio of agency lobbying to Cong. contribs" is the ratio of the group's average annual lobbying expenditures (on *all* agencies) to its average annual Congressional campaign spending. Panel B is based on 70 agencies that appear in the lobbying data and the Clinton et al. (2014) data. "Breadth (n-digit)" is the share of all n-digit interest groups that are observed lobbying the agency by $10,000 (in 2017 dollars) or more during the period. Policy areas ranges from 1 to 17 and is based on the number of policy areas under which the OMB classified the agency in budget and performance review documents. To obtain "Congressional influence" (which we take from Clinton et al. (2014)), each respondent's Likert scale response is normalized by his/her own response about presidential influence, and a simple average is taken across respondents within the same agency. "Employees" refers to 2007 employment (when the survey was conducted). "Number of oversight committees" and "Political appointee share" are also averaged over survey responses.

Table 2: Examples of more and less broad agencies

Agency group	Representative agency	Key groups lobbying agency
Most narrow (breadth range: .008 - .165)	Bureau of Labor Statistics (breadth: .087)	Most lobbying from (main group): Pharm. manufacturing Furthest right group: Pro-business associations Furthest left group: Labor unions
Second quartile (range: .168 - .293)	Federal Deposit Insurance Commission (breadth: .252)	Main group: Commercial banks Right: International trade associations Left: Human rights associations
Third quartile (range: .304 - .523)	Department of the Air Force (breadth: .322)	Main: Defense aerospace contractors Right: Pro-business associations Left: For-profit educational institutions
Most broad (range: .534 - .829)	Federal Communications Commission (breadth: .534)	Main: Communications services Right: International trade associations Left: Courts and justice system actors

"Agency group" is based on quartiles of the agency breadth distribution. Within each quartile, we choose the agency with the smallest squared residual from the regression of influence on breadth without the OMB outlier (i.e., the regression in Table C4 column 2). Thus, these agencies are those for which our regressions are most representative. The agencies that minimize the squared residual from the regressions *with* the outlier are very similar (in order: BLS, FDIC, Dept. of the Navy, Dept. of the Interior). "Main group" refers to the interest group (3-digit CRP category) that spent the most on lobbying the agency. "Furthest left" (and "furthest right," respectively) group is that with the highest share of Congressional contributions going to Democrats (lowest share, respectively), among groups spending more than $10,000 lobbying the agency.

Table 3: Evidence that breadth causally affects influence

DV: Influence	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Breadth based on lobbying data					
Breadth	-1.072***	-0.987*	-0.941**	-0.950*	-1.053**	-1.492**
	(0.328)	(0.562)	(0.456)	(0.564)	(0.473)	(0.735)
R^2	0.187	0.394	0.292	0.188	0.136	0.158
N	70	69	66	65	9871	70
First stage F						13.9
	Panel B: Breadth based on policy areas					
Policy areas	-0.055***	-0.040**	-0.032**	-0.045***	-0.042**	-0.166*
	(0.013)	(0.019)	(0.015)	(0.016)	(0.016)	(0.095)
R^2	0.171	0.461	0.321	0.183	0.145	
N	60	59	56	57	9160	60
First stage F						3.4
Controls		CLS-14	Selin-15	Other		
Agency-IG panel					Yes	
IG FE					Yes	
IV						Yes

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. In Panel A, breadth is measured as the fraction of interest groups that lobby the agency. In Panel B, breadth is measured as the number of policy areas (1-17) under which the agency is classified, according to the OMB and taken from Clinton et al. (2014). Column 2: 8 controls from Clinton, Lewis, and Selin (2014) are log employment, number of Congressional oversight committees, whether it is a commission, whether agency is cabinet-level, whether it has field offices, the share who are political appointees, whether it was part of the Bush administration's agenda, and the Clinton and Lewis (2008) ideology (missing for one agency). Column 3: 2 controls are independence estimates from Selin (2015). Column 4: 2 controls are average lobbying spending per group (logged) and agency expertise (see text). See Table C8 for estimated coefficients on the controls. The instrument is an indicator for whether the agency was established during the Franklin D. Roosevelt, John F. Kennedy, or Lyndon B. Johnson administrations, which tended to be less broad agencies (see Table C5 for evidence that these periods produced more agencies and Table C6 for the first stage). "IG" stands for "Interest group".

Table 4: Ideological balance does not explain breadth-influence relationship

DV: Influence	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Breadth based on lobbying data					
Breadth	-1.072***		-0.957***	-1.213***	-1.049***	-1.650***
	(0.328)		(0.351)	(0.418)	(0.291)	(0.522)
Balance		-3.003**	-1.452			
		(1.227)	(1.129)			
R^2	0.187	0.071	0.201	0.208	0.209	0.299
N	70	70	70	52	35	18
	Panel B: Breadth based on policy areas					
Policy areas	-0.055***		-0.052***	-0.064***	-0.096***	-0.134***
	(0.013)		(0.014)	(0.017)	(0.022)	(0.033)
Balance		-2.757	-1.853			
		(2.327)	(2.231)			
R^2	0.171	0.046	0.191	0.185	0.282	0.386
N	60	60	60	43	27	12
Drop what share of least balanced agencies?				25%	50%	75%

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. To measure "Balance," we first calculate the share of Congressional campaign contributions from each interest group that go to Democrats. We subtract the average value (roughly .4) so this variable is mean zero, and refer to this as the Democratic preference of groups. For each agency, we calculate the average Democratic preference among all groups observed lobbying the agency. This is the average Democratic preference of regulated groups. We calculate the absolute value of this, which measures the partisan bias of regulated groups, or the imbalance of regulated groups. Balance is simply the negative of imbalance (across our 70 agencies, min: -.355, max: -.003, mean: -.050, sd: .056).

Table 5: Lobbying responses to changes in partisan control

	(1)	(2)	(3)	(4)
DV: Lobbying expenditures (L_{iat})	$sinh^{-1}(L_{iat})$	$L_{iat}/\bar{L}_{ia}$	$sinh^{-1}(L_{iat})$	$L_{iat}/\bar{L}_{ia}$
Supported Party in Power	0.299***	0.133**	0.187	0.107*
	(0.102)	(0.055)	(0.126)	(0.057)
Supp. Party Power × Breadth	-0.702***	-0.248***		
	(0.222)	(0.092)		
Supp. Party Power × Policy areas			-0.038**	-0.015**
			(0.016)	(0.006)
R^2	0.541	0.060	0.557	0.032
N	285399	285399	156104	156104
Fixed effects	ia, at	ia, at	ia, at	ia, at
Implied effects at 10^{th} percentile	0.292***	0.131**	0.149	0.092*
Implied effects at 90^{th} percentile	-0.040	0.013	-0.233*	-0.057

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an interest group-agency-year triad. Standard errors (two way clustered at the agency and interest group levels) are in parentheses. All columns include agency-by-group fixed effects and agency-by-year fixed effects. Columns 2 and 4 ($L_{iat}/\bar{L}_{ia}$) is observed lobbying divided by the time-invariant agency-group mean.

References

Alesina, A. and G. Tabellini (2007). Bureaucrats or politicians? part i: a single policy task. *The American Economic Review 97*(1), 169–179.

Alesina, A. and G. Tabellini (2008). Bureaucrats or politicians? part ii: Multiple policy tasks. *Journal of Public Economics 92*(3), 426–447.

Berry, C. and J. Gersen (2017). Political control of administrative agencies. *Yale Law Journal 126*(4), 1002–1049.

Besley, T. and S. Coate (2003). Elected versus appointed regulators: Theory and evidence. *Journal of the European Economic Association 1*(5), 1176–1206.

Blanes i Vidal, J., M. Draca, and C. Fons-Rosen (2012). Revolving door lobbyists. *American Economic Review 102*(7), 3731–48.

Bonica, A. (2013). *Database on Ideology, Money in Politics, and Elections: Public version 1.0 [Computer file]*. Stanford, CA: Stanford University Libraries.

Bueno De Mesquita, E. and M. C. Stephenson (2007). Regulatory quality under imperfect oversight. *American Political Science Review*, 605–620.

Clinton, J. D., A. Bertelli, C. R. Grose, D. E. Lewis, and D. C. Nixon (2012). Separated powers in the united states: the ideology of agencies, presidents, and congress. *American Journal of Political Science 56*(2), 341–354.

Clinton, J. D. and D. E. Lewis (2008). Expert opinion, agency characteristics, and agency preferences. *Political Analysis 16*(1).

Clinton, J. D., D. E. Lewis, and J. L. Selin (2014). Influencing the bureaucracy: The irony of congressional oversight. *American Journal of Political Science 58*(2), 387–401.

de Figueiredo, R. J. (2002). Electoral competition, political uncertainty, and policy insulation. *American Political Science Review*, 321–333.

Downey, M. (2017). Congressional elections and union officer prosecutions. *Working Paper*.

Drutman, L. (2015). *The business of America is lobbying: How corporations became politicized and politics became more corporate*. Oxford University Press.

Epstein, D. and S. O'Halloran (1999). *Delegating powers: A transaction cost politics approach to policy making under separate powers*. Cambridge University Press.

Frankel, A. (2016). Delegating multiple decisions. *American economic journal: Microeconomics 8*(4), 16–53.

Gailmard, S. and J. W. Patty (2012). Formal models of bureaucracy. *Annual Review of Political Science 15*, 353–377.

Grossman, G. and E. Helpman (1994). Protection for sale. *American Economic Review 84*(4), 833–50.

Grossman, G. M. and E. Helpman (1996). Electoral competition and special interest politics. *The Review of Economic Studies 63*(2), 265–286.

Huber, J. D. and C. R. Shipan (2008). Politics, Delegation, and Bureaucracy. In D. A. Wittman and B. R. Weingast (Eds.), *The Oxford Handbook of Political Economy*. Oxford, UK: Oxford University Press.

Jackson, M. O. and H. F. Sonnenschein (2007). Overcoming incentive constraints by linking decisions 1. *Econometrica 75*(1), 241–257.

Kang, K. (2015). Policy influence and private returns from lobbying in the energy sector. *The Review of Economic Studies 83*(1), 269–305.

Kriner, D. and L. Schwartz (2008). Divided government and congressional investigations. *Legislative Studies Quarterly 33*(2), 295–321.

Lewis, D. (2004). *Presidents and the politics of agency design: Political insulation in the United States government bureaucracy, 1946-1997*. Stanford University Press.

Lewis, D. E. (2008). *Politicizing administration: Policy and patronage in presidential appointments*. Princeton, NJ: Princeton University Press.

Macey, J. R. (1992). Organizational design and political control of administrative agencies. *Journal of Law, Economics, & Organization 8*(1), 93–110.

Maskin, E. and J. Tirole (2004). The politician and the judge: Accountability in government. *The American Economic Review 94*(4), 1034–1054.

Montagnes, B. P. and S. Wolton (2017). Rule versus discretion: regulatory uncertainty, firm investment, and bureaucratic organization. *The Journal of Politics 79*(2), 457–472.

Parker, D. C. and M. Dull (2009). Divided we quarrel: The politics of congressional investigations, 1947–2004. *Legislative Studies Quarterly 34*(3), 319–345.

Richardson, M. D. (2019). Politicization and expertise: Exit, effort, and investment. *The Journal of Politics 81*(3), 878–891.

Selin, J. L. (2015). What makes an agency independent? *American Journal of Political Science 59*(4), 971–987.

Stigler, G. J. (1971). The theory of economic regulation. *The Bell journal of economics and management science*, 3–21.

Texas Observer, T. (2018). Ice criminal investigators ask to be distanced from detentions, deportations in letter to kirstjen nielsen. *Jason Buch June 27*(2018).

Ting, M. M. (2002). A theory of jurisdictional assignments in bureaucracies. *American Journal of Political Science*, 364–378.

Tripathi, M., S. Ansolabehere, and J. Snyder (2002). Are pac contributions and lobbying linked? *Business and Politics 4*(2), 1–25.

Washington Post, T. (1995). A way of life for atf: Fending off gun lobby efforts to kill it. *Mintz, John July 24*(1995).

Wood, B. D. and R. W. Waterman (1991). The dynamics of political control of the bureaucracy. *American Political Science Review 85*(03), 801–828.

You, H. Y. (2017). Ex post lobbying. *The Journal of Politics 79*(4), 1162–1176.

Zellmer, S. B. (1997). Sacrificing legislative integrity at the altar of appropriations riders: A constitutional crisis. *Harv. Envtl. L. Rev. 21*, 457.

Zachary Breig and Mitch Downey

Agency Breadth and Political Influence

Online Appendix

A Theory

Lemma 1 *In the unique pure strategy subgame perfect equilibrium, the political party charges price*

$$\pi_i^* = -\frac{c(\gamma_1 - 1)}{\gamma_2}((N-1)\eta + 1)$$

to interest group i for influence.

Proof. Given interest group i's problem, we take first order conditions over ℓ_i and S_i to obtain

$$\begin{aligned}
\ell_i\colon\ & \omega\gamma_1\ell_i^{\gamma_1-1}\left(S_i + \eta\sum_{j\neq i} S_j\right)^{\gamma_2} = 1 \\
S_i\colon\ & \omega\gamma_2\ell_i^{\gamma_1}\left(S_i + \eta\sum_{j\neq i} S_j\right)^{\gamma_2-1} = \pi_i.
\end{aligned}$$

Combining these equations and assuming that spillovers won't be too large (which they aren't in equilibrium) gives

$$\begin{aligned}
\ell_i^*(\boldsymbol{\pi}) &= \left(\frac{\gamma_1\pi_i}{\gamma_2}\right)^{-\frac{\gamma_2}{1-\gamma_1-\gamma_2}}(\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \\
S_i^*(\boldsymbol{\pi}) &= \left(\frac{\gamma_1\pi_i}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}(\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} - \eta\sum_{j\neq i} S_j.
\end{aligned}$$

We can then rewrite the best response functions for each interest group as a system of linear equations where

$$\begin{bmatrix} 1 & \eta & \cdots & \eta \\ \eta & 1 & \cdots & \eta \\ \vdots & \vdots & \ddots & \vdots \\ \eta & \eta & \cdots & 1 \end{bmatrix}\begin{bmatrix} S_1^*(\boldsymbol{\pi}) \\ S_2^*(\boldsymbol{\pi}) \\ \vdots \\ S_N^*(\boldsymbol{\pi}) \end{bmatrix} = \begin{bmatrix} \left(\frac{\gamma_1\pi_1}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}(\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \\ \left(\frac{\gamma_1\pi_2}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}(\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \\ \vdots \\ \left(\frac{\gamma_1\pi_N}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}(\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \end{bmatrix},$$

which has the solution given in Equation (2). Substituting this demand back into the party's problem, we get

$$\max_{\boldsymbol{\pi}} \sum_{i=1}^{N} S_i\pi_i - cA_i = \sum_{i=1}^{N} \pi_i \Bigg[\frac{-(N-2)\eta - 1}{(N-1)\eta^2 - (N-2)\eta - 1} \left(\frac{\gamma_1\pi_i}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} + \sum_{j\neq i} \frac{\eta}{(N-1)\eta^2 - (N-2)\eta - 1} \left(\frac{\gamma_1\pi_j}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \Bigg] - c\sum_i \left(\frac{\gamma_1\pi_i}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}}$$

First order conditions with respect to $\boldsymbol{\pi}$ then eventually lead to Equation (3). ■

Proposition 2 *In the modified model with heterogeneity, both influence and lobbying are higher for the political party's supporters.*

Proof. In the problem with modified party preferences, the party is solving

$$\max_{\boldsymbol{\pi}} \sum_{i=1}^{N} S_i\pi_i = \sum_{i=1}^{N} \pi_i \Bigg[\frac{-(N-2)\eta - 1}{(N-1)\eta^2 - (N-2)\eta - 1} \left(\frac{\gamma_1\pi_i}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} + \sum_{j\neq i} \frac{\eta}{(N-1)\eta^2 - (N-2)\eta - 1} \left(\frac{\gamma_1\pi_j}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}} \Bigg] + \sum_{i=1}^{N} \theta_i\omega \left(\frac{\gamma_1\pi_i}{\gamma_2}\right)^{-\frac{\gamma_2}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{\gamma_1+\gamma_2}{1-\gamma_1-\gamma_2}} - c\sum_{i=1}^{N} \left(\frac{\gamma_1\pi_i}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} (\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}}.$$

Defining N_S as the number of supporters among the interest groups, the first order conditions for the supporters simplify to

$$\left[\left(\frac{-\gamma_2}{1-\gamma_1-\gamma_2}\right)\frac{-(N-N_S-1)\eta}{(N-1)\eta^2-(N-2)\eta-1} + \frac{-\theta_S}{1-\gamma_1-\gamma_2}\right]\pi_S + \frac{(N-N_S)\eta}{(N-1)\eta^2-(N-2)\eta-1}\pi_O^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}\pi_S^{1-\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} + \frac{\gamma_1-1}{1-\gamma_1-\gamma_2}\frac{(N-N_S)\eta}{(N-1)\eta^2-(N-2)\eta-1}\pi_O = \frac{c(\gamma_1-1)}{1-\gamma_1-\gamma_2},$$

while those for opponents simplify to

$$\left[\left(\frac{-\gamma_2}{1-\gamma_1-\gamma_2}\right)\frac{-(N_S-1)\eta}{(N-1)\eta^2-(N-2)\eta-1}+\frac{-\theta_O}{1-\gamma_1-\gamma_2}\right]\pi_O$$
$$+\frac{N_S\eta}{(N-1)\eta^2-(N-2)\eta-1}\pi_S^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}\pi_O^{1-\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}$$
$$+\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}\frac{N_S\eta}{(N-1)\eta^2-(N-2)\eta-1}\pi_S=\frac{c(\gamma_1-1)}{1-\gamma_1-\gamma_2}.$$

We can then combine these, divide by π_O, relabel $\frac{\pi_S}{\pi_O}$ as R, and divide by $R^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}$. Then we get

$$\left[\left(\frac{-\gamma_2}{1-\gamma_1-\gamma_2}\right)\frac{-(N-N_S-1)\eta}{(N-1)\eta^2-(N-2)\eta-1}+\frac{-\theta_S}{1-\gamma_1-\gamma_2}\right]R^{1-\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}$$
$$+\frac{(N-N_S)\eta}{(N-1)\eta^2-(N-2)\eta-1}R^{1-2\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}+\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}\frac{(N-N_S)\eta}{(N-1)\eta^2-(N-2)\eta-1}R^{-\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}$$
$$-\left[\left(\frac{-\gamma_2}{1-\gamma_1-\gamma_2}\right)\frac{-(N_S-1)\eta}{(N-1)\eta^2-(N-2)\eta-1}+\frac{-\theta_O}{1-\gamma_1-\gamma_2}\right]R^{-\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}$$
$$-\frac{N_S\eta}{(N-1)\eta^2-(N-2)\eta-1}-\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}\frac{N_S\eta}{(N-1)\eta^2-(N-2)\eta-1}R^{1-\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}=0$$

Notice that $\frac{(N-N_S)\eta}{(N-1)\eta^2-(N-2)\eta-1}$ is negative for $\eta<1$, so as $R\to\infty$, the left-hand side of the equation is negative. Furthermore, $\frac{N_S\eta}{(N-1)\eta^2-(N-2)\eta-1}$ is negative, so as $R\to 0$, the left-hand side is positive. When $R=1$, the left-hand side has the same sign as $\theta_O-\theta_S$. This implies that when $\theta_O<\theta_S$, the ratio which solves this is less than 1, so $\pi_O>\pi_S$ and the party charges higher prices to the opposition. Combining this fact with the demand functions for lobbying and influence gives the result. ■

B Data

B.1 Data construction

The CRP lobbying disclosure data sometimes does not include "catcode" (which we refer to as "category" or "interest group"). We exclude those contracts, rather than attempting to manually code them. Data on the amount of lobbying is merged with the agencies lobbied using the unique contract ID provided. Sometimes a contract involves lobbying an agency and a non-agency (e.g., a member of Congress). In these cases, we made no effort to account for non-agencies in our normalization (i.e., we divided the lobbying amount by the number of *agencies* only). However, as we show in Table C4, our results are not sensitive to our normalization.

For campaign contribution data, we use the DIME data from Bonica (2013), though the variables we use are entirely drawn from the CRP version of the data that underlies the DIME. We keep only contributions made by committees (contributor type: C) and to federal House or Senate candidates. We include only contributions with an identified contributor category (our formalization of interest group and again created by the CRP), and exclude transactions of type 24A (independent expenditures *against* the candidate) and 24N (communication costs *against* the candidate) and negative transactions (which most often reflect repayment of a loan that appeared earlier in the data). We also exclude contributions to non-Democrat, non-Republican candidates. We include contributions to candidates from either of these parties, regardless of whether those candidates made it to the general election.

Direct, publicly available replication data from Clinton, Lewis, and Selin (2014) does not include agency names (making it impossible to merge with data from other sources, such as the CRP lobbying disclosure reports). Agency names were added using three different sources: a supplemental file provided by the authors (which was our main source, but excluded agencies with few respondents), response rates included in the replication data and published in the appendix of Clinton et al. (2012), and Clinton and Lewis (2008) scores included in the replication data. Sometimes combinations of these variables were used to match names to agencies. Our

sample is smaller than that of Clinton, Lewis, and Selin (2014) partly because some agencies were not included in the lobbying data and partly because some agencies could not be identified. In all regressions, follow Clinton, Lewis, and Selin (2014) to average over all respondents within the agency.

We merged the CRP lobbying data with the Clinton, Lewis, and Selin (2014) and Selin (2015) data using a crosswalk of agency names that we created and are happy to provide to interested researchers. We coded agency birth years ourselves using publicly available sources (primarily Wikipedia).

B.2 Data examples

[Table B1 about here.]

Table B1: Multi-digit interest group codes (Example: H: Health, Education, and Welfare)

2-digit code	3-digit codes (if any sub-codes)	4-digit codes (if any sub-codes)
H0: Health, education, and welfare, NEC		
H1: Doctors and health practitioners	H11: Physicians	H110: Physicians, NEC H112: Optometrists & Ophthalmologists H113: Other physician specialists
	H14: Dentists H15: Chiropractors H17: Other Health Practitioners	
H2: Inpatient health care facilities	H21: Hospitals H22: Nursing homes	
H3: Health services	H30: Health services, NEC H31: Home care H32: Outpatient facilities H33: Optical/vision services H34: Medical laboratories	
H4: Medical supplies	H41: Medical supplies manufacturing H43: Pharmaceutical manufacturing H44: Pharmaceutical sales	
H5: Education	H50: Education, NEC H51: Schools and colleges H52: Technical and vocational schools	
H6: Welfare and social work		

Interest group codes are based on a scheme developed by the Center for Responsive Politiccs (`www.opensecrets.org`), and provided in both campaign contribution data and lobbying disclosure data. We thank them for making this resource available. "NEC" stands for "Not elsewhere classified".

C Additional Results

C.1 Measurement-related robustness

[Table C1 about here.]

[Table C2 about here.]

[Table C3 about here.]

[Figure C1 about here.]

C.2 Sample-related robustness

[Table C4 about here.]

C.3 Identification

C.3.1 IV strategy

[Table C5 about here.]

[Table C6 about here.]

[Table C7 about here.]

C.3.2 Other identification-related results

[Figure C2 about here.]

[Table C8 about here.]

[Table C9 about here.]

C.4 Mechanisms

[Figure C3 about here.]

[Table C10 about here.]

[Table C11 about here.]

C.5 Heterogeneity

How does influence depend on the characteristics of the groups that the agency oversees? Here, we focus on the most politically salient characteristic: their partisan alignment. Specifically, we ask whether there is a different relationship between breadth and Congressional influence among agencies that regulate more Republican-leaning or Democratic-leaning interest groups. One particularly important interpretation of these results relates to the fact that we only observe Congressional influence at one point, when our measure reflects the difference between the influence of Democrats in Congress compared to the Republican President. If there were stark partisan patterns in the influence-breadth relationship, we might be hesitant to interpret our results during other periods, and we might be particularly concerned about using a measure based on the *relative* influence of Congress.

Table C12 displays the results. In column 1, we simply replicate our baseline specification. The coefficient (-1.07) implies that a one standard deviation increase in breadth (.256) reduces influence by .43 standard deviations. In column 2, we calculate the share of each interest group's Congressional campaign contributions which go to Democrats, and take a weighted average across all groups that we observe lobbying the agency (using the amount of lobbying observed as the weights). For interpretation, we normalize this measure to have mean zero and unit standard deviation across the agencies in the sample. Column 2 shows that the interaction between breadth and this measure of Democratic-alignment of regulated groups is non-significant. Next, in column 3, we split all interest groups into two equal sized groups: Those who are more aligned with Democrats and those more aligned with Republicans (again,

based on Congressional campaign contributions). Echoing the result in column 2, we find non-significant heterogeneity depending on the share of regulated groups that is pro-Democrat (as opposed to pro-Republican). The coefficient magnitudes imply that an agency which *only* regulates Republican-leaning groups sees influence fall by .41 standard deviations for every standard deviation increase in breadth, while an agency that only regulates Democratic-leaning groups sees it fall by .47 standard deviations, a difference which is small and non-significant.

[Table C12 about here.]

However, these results mask substantial heterogeneity. In column 4, instead of dividing interest groups into two categories, we divide them into *three* equal-sized categories, separating centrist groups from those that lean substantially Democrat or Republican. The results show that it is agencies which regulate especially partisan interest groups which show the strongest negative relationship between breadth and influence. Reallocating 25% of regulated groups from the centrist category (the omitted category) to the pro-Democrat category increases the effect of breadth by the full amount of our baseline estimates,[35] with a similar effect of reallocating groups to the pro-Republican category. The effect of breadth is significantly stronger when regulated groups include more Democratic-aligned ($p < .05$) or Republican-aligned ($p < .10$) interest groups. Column 5 splits groups into five equally sized categories instead of three, and shows the same result: The presence of extreme groups significantly increases the role of breadth, relative to centrist groups. Importantly, the results are remarkably symmetric, which is the reason why the simple heterogeneity tests in columns 2 and 3 found no difference; it is not important whether groups lean Democrat or Republican, rather how far they are from evenly split centrists.

We believe that these results have three interpretations. First, the symmetry suggests that we sacrifice very little information by having our data restricted to a period when Democrats controlled Congress and Republicans the White House. If this were an important limitation,

[35] $.25 \times 4.882 = 1.221$

then we would expect (for instance) more influence among agencies regulating Democratic-aligned groups. Our finding that there is equal influence regardless of partisan-alignment, but that it is instead important how extreme the groups are, suggests that reversing control would flip the influence results around, but since they are symmetric, this would not change our core result of breadth reducing influence.

Second, these results support one of our alternative interpretations for why spillovers are costly. In our model, spillovers incur effort costs, but as noted in Section 2.1, one way to think of this is as a reduced form for a richer model in which the party-in-power has a bliss point for every task that the agency is responsible for. In this model, spillovers would be costly to the party-in-power because they would push other tasks away from the party's bliss point. One might reasonably assume that the utility costs of pushing tasks away from the party's bliss point become *larger* as the tasks become more *politically divisive*. In other words, the higher are the political stakes, the greater are the consequences of accidental interference with the task. Consistent with this, it is when agencies regulate especially extreme groups (either far left-leaning or far right-leaning), and can their tasks can therefore be thought of as especially politically divisive, that the legislature's influence declines most rapidly with breadth.

Finally, these results bolster our argument that our findings suggest guidance for shielding politically divisive tasks from Congressional influence, one of our key motivations. For example, Downey (2017) shows evidence of Congressional influence over the decision to investigate and indict different officers of politically-active labor unions. This sort of influence undermines both judicial and democratic institutions. Our results here suggest that concentrating the interests of such a divisive group (labor unions) into an extremely narrow agency is part of the explanation for why there is so much Congressional influence over the process. This suggests that relocating those tasks into a broader agency might reduce influence, even if it continues to only oversee such partisan lightning rods.

Table C13 replicates this heterogeneity analysis using policy areas to measure breadth. Unfortunately, the results do not replicate (unlike all of the other results throughout the paper,

which are quite similar for both measures). None of the interactions are individually or jointly statistically significant. It is important to note that there is an inherent logical tension in this exercise. In Section 3.5 above, we argued that the lobbying-based measure has a number of advantages. The key disadvantage – which motivates the use of policy areas in the first place – is that the decision to lobby is endogenous, which creates some potential concerns for interpretation. Using policy areas avoids this, but to measure the characteristics of regulated groups, we must again rely on the lobbying data. Thus, when we examine heterogeneity depending on the characteristics of lobbying interest groups, it obviates the advantages of using policy areas in the first place.

[Table C13 about here.]

C.6 Does breadth decrease lobbying?

In our model, direct lobbying of agencies is a complement to Congressional influence. Thus, as breadth reduces average Congressional influence, our model also implies that average direct lobbying of an agency will fall.[36] Is this true in the data? Before testing this implication, we point out two separate sets of concerns, first conceptual and then empirical.

Conceptually, there are two important distinctions between this exercise and our primary empirical results. First, our main result is that Congressional influence is decreasing in breadth. Our model does not require lobbying and Congressional influence to be complements in order to deliver this result. We model them as complements because this matches what we find in Section 5.2: Interest groups lobby more when their allied party controls Congress. While other evidence also suggests that lobbying and Congressional influence are complements (Tripathi et al., 2002), we found it just as plausible that they would be substitutes, *ex ante*. Thus, we believe it is important to distinguish between our model's predictions which are generated by the assumptions that we vigorously defend and justify (those which motivated our analysis in

[36]By "average lobbying," we mean lobbying per interest group. Since broad agencies, by definition, are lobbied by more interest groups, we do not predict that the *total* amount of lobbying will fall.

the first place), and those generated by assumptions of convenience that we use to simplify exposition and functional forms.

The second conceptual point worth emphasizing is that regressing the amount of lobbying on breadth actually uses a very different source of identifying variation than what we use in the rest of the paper. The analysis of mechanisms in Section 5.2 (the other results based on complementarity) relies on over-time variation *within agency-group pair* to identify that complementarity (formally, we include agency-by-group fixed effects and identification comes from changes in the control of Congress over time). That specification accounts for any time-invariant agency-level features that might affect the amount of lobbying. This is important. Simply regressing the log of average lobbying per group on the amount of Congressional influence yields a negative (non-significant) correlation. If the complementarity between these two could be cross sectionally identified, then this coefficient would be positive.

While our main results (breadth reduces Congressional influence) also rely on cross sectional variation, these two still rely on different variation. Specifically, even when measuring breadth based on lobbying, we rely only on the *extensive* margin of lobbying. The assumption in our model is that any time an agency regulates the activities of an interest group to any meaningful extent, we will observe *some* lobbying at some point during the 19-year window we consider. We view this as a realistic assumption. However, to assume that there are no omitted variables that influence *the amount* of lobbying seems, to us, to be a much stronger assumption. Moreover, we consider it important that we have performed a battery of empirical tests that show our results are not sensitive to various concerns about the extensive margin (defining a minimum threshold, the handling of multi-agency contracts, accounting for the number of years with positive lobbying, etc.). Thus, we believe a regression based on *extensive* margin lobbying decisions actually requires meaningfully weaker assumptions than one based on *intensive* margin decisions.

In addition to these conceptual differences, there are two important empirical details to account for. First, our primary measure of breadth is based on the number of groups lobbying

the agency. When regressing the *average amount of lobbying* on the *number of groups lobbying*, there is a clear mechanical correlation. Thus, this analysis is restricted to only the measure of breadth based on the number of policy areas, which is a limitation because we are able to show that the rest of our results are all robust to the use of *both* measures.

Finally, the unit of observation in the lobbying data is a lobbying *contract*. The contract reports the unique client (and thus each contract provides a single, unique interest group for that client), the amount of the contract, and all agencies lobbied as part of the contract. It does *not*, however, report the amount of time or resources spent on each of those agencies. To study the intensive margin of lobbying, we need an assumption allowing us to allocate total spending across those agencies, which is not necessary when studying the extensive margin. This is important. 54% of contracts include multiple agencies (up to 187 agencies), and since these tend to be larger contracts, it is an even larger share of total lobbying expenditures. Past empirical results on lobbying are sensitive to issues like this,[37] although our analysis in Section 5.2 is not, likely because group-by-agency fixed effects account for substantial unobserved heterogeneity (see Table C11). Thus, to analyze whether the average amount of lobbying decreases in breadth, we restrict to contracts that only include one agency.

The results are shown in Equation (5):

$$\ln(\text{Total amount of lobbying})_a = \underset{(.105)}{13.1 - .017} \text{ Policy Areas}_a + \varepsilon_a \qquad (5)$$

$$R^2 = .002, N = 45$$

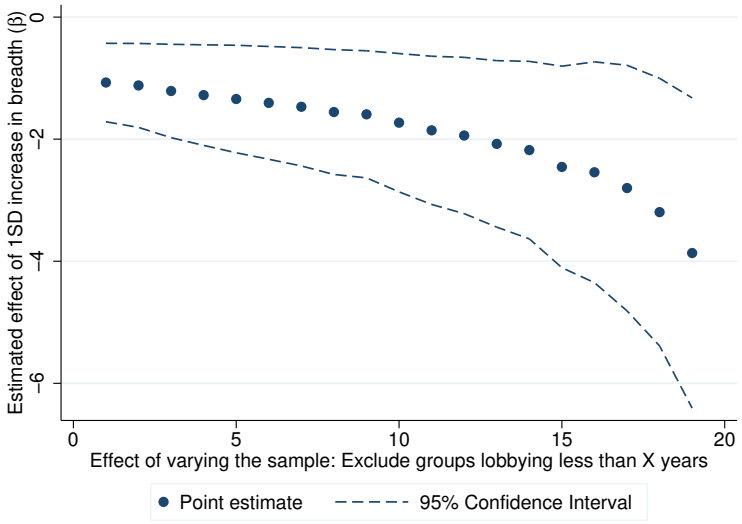
The point estimate (-.017) does imply that the total amount of lobbying is decreasing in breadth. Although the standard error is large (.105) and the estimate is not statistically

[37]Blanes i Vidal, Draca, and Fons-Rosen (2012) confront a similar issue. Lobbying contracts list all lobbyists who worked on the contract (just as they list all agencies involved in the contract), and a decision must be made as to how the spending is allocated across these lobbyists. In their study of how a lobbyists' pay is affect by her political connections, Blanes i Vidal et al. (2012) find similar returns to connections in the Senate regardless of how this issue is handled, but estimate a significant 9% return to connections to House Members (Table 2) which turns negative and non-significant when alternative allocation rules are used (Table A2 of their online appendix).

significant, the magnitude is non-trivial. It implies that a one standard deviation increase in the number of policy areas that the agency oversees (2.8) is associated with a 5% decrease in the amount of lobbying the average interest group does.[38] Including our primary set of controls (those taken from Clinton, Lewis, and Selin (2014)), the coefficient becomes more negative and the standard error shrinks, but the estimate is still not statistically significant.

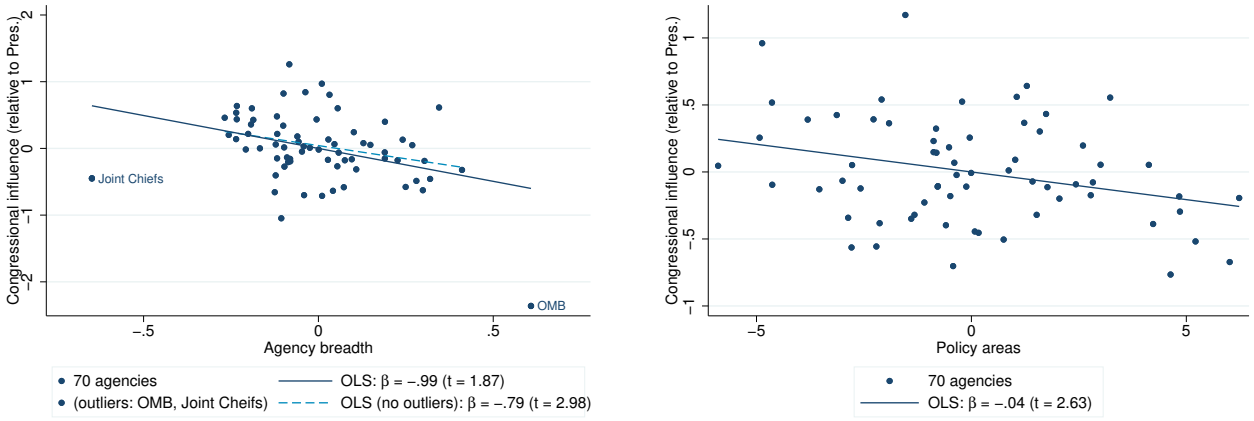
[38]The standard deviation is different from the one reported in Table 1 because focusing on single-agency contracts leads to a smaller sample of agencies.

Figure C1: Effect of excluding weakly attached interest groups from breadth calculation



Each dot is the coefficient from a separate regression corresponding to our main estimating equation (equation (4)). For each regression, we re-calculate agency-level breadth excluding interest groups that lobby the agency during fewer than X years. For instance, the far left dot corresponds to our primary specification: Breadth is calculated using every interest group that lobbied the agency during even just one year of the sample. The far right dot corresponds to the strictest subset: Breadth is calculated using only interest groups that lobbied the agency during each of the 19 years of the sample.

Figure C2: Frisch-Waugh plot of agency breadth and political influence

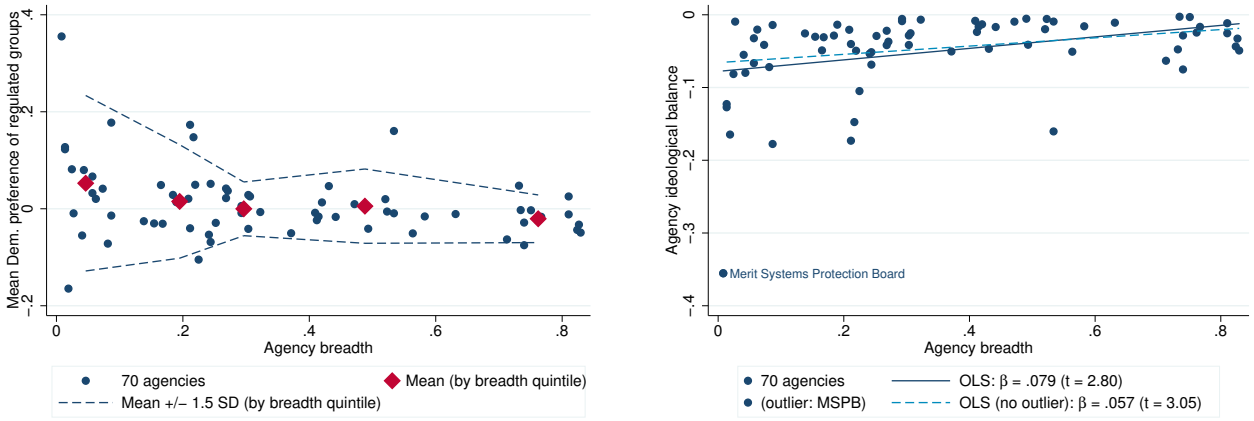


(a) Breadth based on lobbying data

(b) Breadth based on policy areas

Each observation is an agency. In panel (a), breadth is measured as the share of all interest groups lobbying the agency. In panel (b), breadth is measured as the number of policy areas under which the OMB classifies the agency. All observations are residualized of the controls used in Table 3 column 2.

Figure C3: Broad agencies become ideologically balanced



(a) Average Democratic Preferences

(b) Average Balance

Each observation is an agency. To calculate the Average Democratic Preferences (Panel a), we first calculate the share of Congressional campaign contributions from each interest group that go to Democrats. We subtract the average value (roughly .4) so this variable is mean zero, and refer to this as the Democratic preference of groups. The agency-level Average Democratic Preferences is simply the average Democratic preference among all groups observed lobbying the agency. To calculate Balance (Panel b), we calculate the absolute value of Average Democratic Preferences, which measures the partisan bias of regulated groups, or the imbalance of regulated groups. Balance is the negative of imbalance. The Merit Systems Protection Board is a quasi-judicial agency to protect the employment rights of federal employees. It is overwhelmingly lobbied by Democratically-aligned labor unions. Results based on policy areas are similar (available upon request).

Table C1: Robustness to aggregation of interest groups

DV: Influence	(1)	(2)	(3)	(4)
Breadth (1-digit)	-0.927***			
	(0.267)			
Breadth (2-digit)		-1.002***		
		(0.262)		
Breadth (3-digit)			-1.072***	
			(0.328)	
Breadth (4-digit)				-1.069***
				(0.332)
R^2	0.091	0.188	0.187	0.184
N	70	70	70	70

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. Breadth is measured as the fraction of interest groups that lobby the agency (for 1-, 2-, 3-, and 4-digit levels of aggregation; see Table B1 for an example). Because they measure the fraction of all possible interest groups, coefficient magnitudes are comparable across columns.

Table C2: Robustness to changes in measuring breadth

DV: Influence	(1)	(2)	(3)	(4)
Interest group digits:	1	2	3	4
	Panel A: \$10k cutoff, normalized (main spec.)			
Breadth	-0.927***	-1.002***	-1.072***	-1.069***
	(0.267)	(0.262)	(0.328)	(0.332)
R^2	0.091	0.188	0.187	0.184
N	70	70	70	70
	Panel B: \$100k, normalized			
Breadth	-0.821***	-0.997***	-1.171***	-1.179***
	(0.222)	(0.281)	(0.383)	(0.388)
R^2	0.116	0.186	0.175	0.174
N	70	70	70	70
	Panel C: No cutoff cutoff, normalized			
Breadth	-1.153***	-1.011***	-1.053***	-1.048***
	(0.309)	(0.260)	(0.313)	(0.318)
R^2	0.087	0.185	0.187	0.184
N	70	70	70	70
	Panel D: \$10k cutoff, non-normalized			
Breadth	-1.124***	-1.013***	-1.054***	-1.050***
	(0.313)	(0.261)	(0.314)	(0.319)
R^2	0.081	0.185	0.188	0.185
N	70	70	70	70

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. Breadth is measured as the fraction of interest groups that lobby the agency (for 1-, 2-, 3-, and 4-digit levels of aggregation). The "cutoff" refers to the total amount of lobbying expenditure that must be exceeded (total over a 19-year period) for us to count the interest group as being regulated by the agency. The "normalized" indicates that we divide the amount of a lobbying contract across multiple agencies if it included multiple agencies.

Table C3: Robustness to changes in lobbying data

DV: Influence	(1)	(2)	(3)	(4)
Lobbying data years	1998 - 2016	2001 - 2013	2004 - 2010	2007 - 2007
Breadth	-1.072***	-1.127***	-1.171***	-1.455***
	(0.328)	(0.345)	(0.372)	(0.489)
R^2	0.187	0.193	0.182	0.149
N	70	70	70	70
SD of breadth	0.256	0.247	0.231	0.169
Effect of 1SD change	-0.274	-0.279	-0.271	-0.245

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. Breadth is measured as the fraction of 3-digit interest groups that lobby the agency.

Table C4: Assorted robustness

DV: Influence	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Panel A: Breadth based on lobbying data						
Breadth	-1.072***	-0.811***	-0.859***	-1.218***	-1.731**	-0.796***	-0.858***
	(0.328)	(0.215)	(0.280)	(0.339)	(0.725)	(0.226)	(0.232)
R^2	0.187	0.148	0.141	0.228	0.227	0.195	0.151
N	70	69	70	64	55	70	70
	Panel B: Breadth based on policy areas						
Policy areas	-0.055***	-0.055***	-0.050***	-0.062***	-0.075***	-0.049***	-0.055***
	(0.012)	(0.012)	(0.012)	(0.013)	(0.016)	(0.014)	(0.012)
R^2	0.176	0.176	0.179	0.197	0.168	0.240	0.173
N	67	67	67	61	52	67	67
Excluded agencies		OMB (outlier)		Military agencies	Cabinet-level departments		
Weights			Log of emp.			Num. of respondents	Response rate

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. That OMB is an outlier can be seen in Figure 2 (note: OMB is missing data on policy areas). Military agencies are the Joint Chiefs of Staff, the Marine Corps, and the Departments of the Army, Navy, Air Force, and Defense. Cabinet-level departments are Agriculture, Commerce, Defense, Education, Energy, Health & Human Services, Homeland Security, Housing & Urban Development, Justice, Labor, State, Interior, Treasury, Transportation, and Veterans Affairs. "Actual respondents" and "response rate" are based on responses to the Clinton, Lewis, and Selin (2014) survey from which our dependent variable is drawn.

Table C5: Periods of rapid agency creation produce narrow agencies

	(1)	(2)	(3)	(4)	(5)
Period	Years	Agencies created	Agencies per year	Average breadth	Policy areas
Pre-FDR	158	22	.14	.46	5.2
FDR	12	9	.75	.17	2.8
Between FDR & JFK	16	11	.68	.42	4.8
JFK & LBJ	8	9	1.13	.24	3.3
Post-LBJ	40	19	.48	.33	4.6

FDR, JFK, LBJ short for Franklin D. Roosevelt, John F. Kennedy, and Lyndon B. Johnson, respectively. All calculations are based on 70 agencies in the regression sample (i.e., for which survey-based Congressional influence is measured).

Table C6: First stage for IV strategy

DV: Breadth	(1)	(2)	(3)	(4)	(5)
	Panel A: Breadth based on lobbying data				
FDR	-0.209***			-0.234***	
	(0.061)			(0.063)	
JFK		-0.136		-0.184	
		(0.144)		(0.148)	
LBJ			-0.127*	-0.167**	
			(0.075)	(0.077)	
FDR+JFK+LBJ					-0.202***
					(0.054)
R^2	0.076	0.008	0.023	0.125	0.121
N	70	70	70	70	70
F	11.81	0.88	2.91	5.13	13.88
	Panel B: Breadth based on policy areas				
FDR	-1.895			-2.122	
	(1.241)			(1.290)	
JFK		-0.946		-1.400	
		(1.862)		(1.918)	
LBJ			-1.374	-1.733*	
			(0.963)	(1.015)	
FDR+JFK+LBJ					-1.900**
					(0.911)
R^2	0.027	0.002	0.010	0.046	0.045
N	67	67	67	67	67
F	2.33	0.26	2.04	1.51	4.35

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. FDR: Agency was created between 1933 and 1944. JFK: Agency was created between 1961 and 1963. LBJ: Agency was created between 1964 and 1968.

Table C7: Including controls for IV strategy

DV: Influence	(1)	(2)	(3)	(4)	(5)
	OLS	IV	IV	IV	IV
	Panel A: Breadth based on lobbying data				
Breadth	-1.072***	-1.492**	-1.775**	-1.351	-1.440
	(0.323)	(0.735)	(0.854)	(1.172)	(0.962)
N	70	70	70	70	70
First stage F		13.9	10.8	5.4	9.0
	Panel B: Breadth based on policy areas				
Policy areas	-0.055***	-0.166*	-0.201	-0.260	-0.184
	(0.013)	(0.095)	(0.122)	(0.213)	(0.135)
N	60	60	60	60	60
First stage F		3.4	2.5	1.3	2.6
Controls					
Agency birth year			Yes		
Created under Dem. Pres.				Yes	
Agency is commission					Yes

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. The instrument is an indicator for whether the agency was established during the Franklin D. Roosevelt, John F. Kennedy, or Lyndon B. Johnson administrations, which tended to be less broad agencies.

Table C8: Estimated coefficients on controls (lobbying-based breadth)

DV: Influence	(1)	(2)	(3)	(4)
Breadth	-1.072***	-0.987*	-0.941**	-0.950*
	(0.328)	(0.562)	(0.456)	(0.564)
Log employment		0.112		
		(0.076)		
Commission		-0.232*		
		(0.125)		
Num. of oversight committees		0.743**		
		(0.295)		
Cabinet-level agency		0.185		
		(0.175)		
Has field offices		0.153		
		(0.320)		
Political appointee share		0.983		
		(0.604)		
Explicit part of Pres. Bush's policy agenda		-0.048		
		(0.124)		
Clinton-Lewis agency ideology measure		0.017		
		(0.080)		
Statutory decision-maker independence			0.097	
			(0.183)	
Statutory independence from political review			0.126	
			(0.129)	
Log average lobbying expenditures per group				-0.023
				(0.090)
Agency expertise				0.447
				(0.409)
R^2	0.187	0.394	0.292	0.188
N	70	69	66	65
Controls		CLS-14	Selin-15	Other

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. Column 2: 8 controls from Clinton, Lewis, and Selin (2014) are log employment, number of Congressional oversight committees, whether it is a commission, whether agency is cabinet-level, whether it has field offices, the share who are political appointees, whether it was part of the Bush administration's agenda, and the Clinton and Lewis (2008) ideology (missing for one agency). Column 3: 2 controls are independence estimates from Selin (2015). Column 4: 2 controls are average lobbying spending per group (logged) and agency expertise (see text).

Table C9: Estimated coefficients on controls (policy areas)

DV: Influence	(1)	(2)	(3)	(4)
Policy areas	-0.055***	-0.040**	-0.032**	-0.045***
	(0.013)	(0.019)	(0.015)	(0.016)
Log employment		0.049		
		(0.048)		
Commission		-0.254**		
		(0.105)		
Num. of oversight committees		0.795***		
		(0.274)		
Cabinet-level agency		0.096		
		(0.148)		
Has field offices		0.445		
		(0.332)		
Political appointee share		0.609		
		(0.675)		
Explicit part of Pres. Bush's policy agenda		0.057		
		(0.117)		
Clinton-Lewis agency ideology measure		0.061		
		(0.064)		
Statutory decision-maker independence			0.326**	
			(0.141)	
Statutory independence from political review			-0.045	
			(0.082)	
Log average lobbying expenditures per group				-0.067
				(0.054)
Agency expertise				0.207
				(0.385)
R^2	0.171	0.461	0.321	0.183
N	60	59	56	57
First stage F				
Controls		CLS-14	Selin-15	Other

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. Column 2: 8 controls from Clinton, Lewis, and Selin (2014) are log employment, number of Congressional oversight committees, whether it is a commission, whether agency is cabinet-level, whether it has field offices, the share who are political appointees, whether it was part of the Bush administration's agenda, and the Clinton and Lewis (2008) ideology (missing for one agency). Column 3: 2 controls are independence estimates from Selin (2015). Column 4: 2 controls are average lobbying spending per group (logged) and agency expertise (see text).

Table C10: Intensive and extensive margins of lobbying responses

	(1)	(2)	(3)	(4)
DV: Lobbying expenditures (L_{iat})	$1\{L_{iat} > 0\}$	$\ln(L_{iat})$	$1\{L_{iat} > 0\}$	$\ln(L_{iat})$
Supported Party in Power	0.025***	0.106**	0.013	0.077
	(0.009)	(0.050)	(0.011)	(0.049)
Supp. Party Power × Breadth	-0.062***	-0.128		
	(0.018)	(0.078)		
Supp. Party Power × Policy areas			-0.003**	-0.006
			(0.001)	(0.005)
R^2	0.477	0.710	0.486	0.708
N	285399	103031	156104	66152
Fixed effects	*ia*, *at*	*ia*, *at*	*ia*, *at*	*ia*, *at*
Implied effects at 10^{th} percentile	0.024***	0.105**	0.010	0.071
Implied effects at 90^{th} percentile	-0.005	0.044	-0.023**	0.010

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an interest group-agency-year triad. Standard errors (two way clustered at the agency and interest group levels) are in parentheses. All columns include agency-by-group fixed effects and agency-by-year fixed effects.

Table C11: Lobbying responses to changes in partisan control (non-normalized contracts)

	(1)	(2)	(3)	(4)
DV: Lobbying expenditures (L_{iat})	$sinh^{-1}(L_{iat})$	$L_{iat}/\bar{L}_{ia}$	$sinh^{-1}(L_{iat})$	$L_{iat}/\bar{L}_{ia}$
Supported Party in Power	0.323**	0.154***	0.088	0.099**
	(0.126)	(0.036)	(0.132)	(0.046)
Supp. Party Power × Breadth	-0.560***	-0.211***		
	(0.206)	(0.067)		
Supp. Party Power × Policy areas			-0.019	-0.011**
			(0.013)	(0.004)
R^2	0.516	0.057	0.500	0.048
N	110228	110228	70399	70399
Implied effects at 10^{th} percentile	0.317**	0.152***	0.069	0.088**
Implied effects at 90^{th} percentile	0.052	0.052*	-0.120	-0.018

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an interest group-agency-year triad. Standard errors (two way clustered at the agency and interest group levels) are in parentheses. All columns include agency-by-group fixed effects and agency-by-year fixed effects. Columns 2 and 4 ($L_{iat}/\bar{L}_{ia}$) is observed lobbying divided by the time-invariant agency-group mean. Compared to Table 5, the lobbying expenditures used in this table are not divided across all the agencies listed in the contract.

Table C12: Heterogeneity by partisan alignment of regulated groups

	(1)	(2)	(3)	(4)	(5)
Number of quantiles for groups:			2	3	5
Breadth	-1.072***	-1.221**	-1.025	0.752	2.539
	(0.328)	(0.538)	(0.817)	(0.725)	(1.572)
Breadth × Avg. Dem. share		-0.492			
		(0.379)			
Breadth × Share of lobbying from groups who are:					
Most pro-Democrat			-0.145	-4.882**	-4.456*
			(1.435)	(2.301)	(2.419)
Somewhat pro-Democrat					-8.150*
					(4.130)
Somewhat pro-Republican					-2.353
					(2.897)
Most pro-Republican				-3.192*	-8.451**
				(1.807)	(3.199)
R^2	0.187	0.211	0.189	0.249	0.309
N	70	70	70	70	70
F test for heterogeneity				2.66*	2.35*

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. Breadth is measured as the fraction of interest groups that lobby the agency. Column 1 replicates our main specification. Other columns analyze interest groups' partisan preferences (based on their Congressional campaign contributions) for interest groups observed lobbying the agency. Column 2 calculates the weighted average share of contributions going to Democrats among lobbying interest groups, where we use the amount of lobbying as weights. Columns 3-5 divide all interest groups into equal sized quantiles (2, 3, and 5 quantiles, respectively), and calculates the share of lobbying coming from groups in each quantile. The main effect corresponds to the omitted category: relatively Republican-leaning groups in column 3 and centrist groups in columns 4 and 5.

Table C13: Heterogeneity by partisan alignment of regulated groups (policy areas)

	(1)	(2)	(3)	(4)	(5)
Number of quantiles for groups:			2	3	5
Policy areas	-0.055***	-0.054***	-0.068	-0.070*	-0.129
	(0.013)	(0.016)	(0.044)	(0.038)	(0.107)
Policy areas × Avg. Dem. share		-0.007			
		(0.026)			
Policy areas × Share of lobbying from groups who are:					
Most pro-Democrat			0.026	0.030	-0.020
			(0.077)	(0.116)	(0.167)
Somewhat pro-Democrat					0.209
					(0.338)
Somewhat pro-Republican					0.152
					(0.151)
Most pro-Republican				0.049	0.200
				(0.085)	(0.196)
R^2	0.171	0.184	0.175	0.180	0.231
N	60	60	60	60	60
F test for heterogeneity				0.21	0.44

* $p < .10$, ** $p < .05$, *** $p < .01$. Unit of observation is an agency. Breadth is measured as the number of policy areas (1-17) under which the agency is classified, according to the OMB and taken from Clinton et al. (2014). Column 1 replicates our main specification. Other columns analyze interest groups' partisan preferences (based on their Congressional campaign contributions) for interest groups observed lobbying the agency. Column 2 calculates the weighted average share of contributions going to Democrats among lobbying interest groups, where we use the amount of lobbying as weights. Columns 3-5 divide all interest groups into equal sized quantiles (2, 3, and 5 quantiles, respectively), and calculates the share of lobbying coming from groups in each quantile. The main effect corresponds to the omitted category: relatively Republican-leaning groups in column 3 and centrist groups in columns 4 and 5.

D Negative Spillovers

This appendix considers a variant of the model of Section 2 which allows for negative rather than positive spillovers. Section D.1 summarizes the changes in the model and gives intuition for how and why results change. Section D.2 contains the formal theory.

D.1 Summary

Allowing spillovers to be negative requires a few changes to the model. First, we assume that the spillover parameter η is negative rather than positive. Thus, additional interest groups being regulated *decrease* the net influence that is exerted in favor of any individual interest group. Making η negative then requires the assumption that rather than effort costs being proportional to the net influence an interest group receives, the party pays for total *absolute* influence.

In the equilibrium of the model in Section 2, the sum of absolute demand for influence depends only on the price the party charges. Because spillovers lead the party to charge higher prices with more interest groups, total demand decreases with N. The model with negative spillovers has two countervailing forces: spillovers still lead to the party charging higher prices with more interest groups, decreasing demand for *net* influence. However, as more interest groups are added each individual interest group demands more positive influence to counteract the negative influence coming from the spillovers, increasing total influence. The sum of these effects can be either positive or negative, depending on the other parameters of the model.

D.2 Theory

Here, we allow for negative rather than positive spillovers in the model. The interest group still receives

$$A_i = S_i + \eta \sum_{j \neq i} S_j$$

total influence, but η will be negative rather than positive. To account for the possibility that A_i is negative, we adjust the interest group's utility function to be

$$\max_{m_i, \ell_i, S_i} m_i + \omega \ell_i^{\gamma_1} \left(\max\{A_i, 0\}\right)^{\gamma_2}$$

Obviously, with this specification the interest group's utility function is not concave in the amount they spend on influence, so we need an additional assumption that η and N are small enough for an interior solution to be optimal. With these assumptions, equilibrium demand for influence will still satisfy Equation (2).

Next, we change the sign of η in the Party's utility function to ensure that it "pays" for the influence spillovers. The party solves

$$\max_{\boldsymbol{\pi}} \sum_{i=1}^{N} S_i(\boldsymbol{\pi})\pi_i - cS_i(\boldsymbol{\pi}) + c\eta \sum_{j \neq i} S_j(\boldsymbol{\pi}),$$

which can be rewritten as

$$\max_{\boldsymbol{\pi}} \sum_{i=1}^{N} (\pi_i - c + (N-1)\eta c) S_i(\boldsymbol{\pi}).$$

This modified setup leads us to a slightly different pricing function for the party.

Lemma 2 *In the unique pure strategy subgame perfect equilibrium of the game with negative spillovers, the political party charges price*

$$\pi_i^* = \frac{c(1-\gamma_1)}{\gamma_2}[1 - (N-1)\eta] \tag{6}$$

to interest group i for influence.

Proof. The proof is algebraic and follows the steps of the proof of Lemma 1. ■

Thus, even with spillovers going in the opposite direction, the relationship between price and N holds: the party charges higher prices when the agency regulates more interest groups.

In the main model, average influence is defined as $\frac{1}{N}\sum_{i=1}^{N} A_i$. This is not the appropriate variable of interest in the model with negative spillovers, because it is not the total amount of influence that the party produces. A_i is the sum of the positive and negative influences on a particular agency, but influence is the sum of the absolute values of these influences. Thus, with negative spillovers we define average influence as

$$\frac{1}{N}\sum_{i=1}^{N}\left[S_i - \eta\sum_{j\neq i} S_j\right].$$

Proposition 3 *When spillovers are negative, increasing agency breadth has an ambiguous effect on the political party's average influence.*

Proof.

The use of symmetry in combination with the above definition gives that average influence is equal to

$$[1-(N-1)\eta]S_i.$$

When we plug in equilibrium prices and demand, we get

$$[1-(N-1)\eta]S_i = \frac{[1-(N-1)\eta]^{\frac{-\gamma_2}{1-\gamma_1-\gamma_2}}}{1+(N-1)\eta}\left(\frac{\gamma_1}{\gamma_2}\right)^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}(\omega\gamma_1)^{\frac{1}{1-\gamma_1-\gamma_2}}\left[\frac{(1-\gamma_1)c}{\gamma_2}\right]^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}.$$

The first part of this equation is the only part which depends on N, so that is what we will

focus on. The derivative is

$$\left[\frac{\gamma_2\eta}{1-\gamma_1-\gamma_2}\right][1+(N-1)\eta]^{-1}[1-(N-1)\eta]^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}} - \eta[1+(N-1)\eta]^{-2}[1-(N-1)\eta]^{\frac{-\gamma_2}{1-\gamma_2-\gamma_2}}$$

which further simplifies to

$$\left[\frac{\gamma_2}{1-\gamma_1-\gamma_2}\eta - \eta + \left[\frac{-\gamma_2}{1-\gamma_1-\gamma_2} - 1\right](N-1)\eta^2\right]\frac{[1-(N-1)\eta]^{\frac{\gamma_1-1}{1-\gamma_1-\gamma_2}}}{[1+(N-1)\eta]^2}.$$

The sign of this value is ambiguous. For instance, when γ_2 is low, total influence tends to increase with N. On the other hand, when γ_2 is large total influence can decrease with N. ■