# Agency Design and Distributive Politics

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## Abstract

This paper targets the intersection of two generally distinct literatures: political control of administrative agencies and distributive politics. Based on a comprehensive database of federal spending that tracks allocations from each agency to each congressional district for every year from 1984 through 2007, we analyze the responsiveness of agency spending decisions to presidential and congressional influences. Our research design uses district-by-agency fixed effects to identify the effects of a district's political characteristics on agency spending allocations. Because most agencies distribute federal funds, we are able to provide empirical evidence about the relationship between structural features of administrative agencies and the degree of political responsiveness of their spending decisions. Because allocation of funds constitutes a readily comparable metric over time and across agencies, we are able to evaluate a host of competing hypotheses about the political control of the bureaucracy by both Congress and the President.

## INTRODUCTION

One of the central issues in modern separation of powers debates is whether and how Congress and the President can control the bureaucracy. Yet, while existing work shows both that political principals structure agencies in ways that seem consistent with attempts to enhance political control, and that certain agency decisions seem responsive to the preferences of Congress or the President, there is virtually no large-*n* scholarship that demonstrates an actual link between agency design and responsiveness to political principals. By identifying an output of agency decisionmaking that is common across agencies and varies within an agency over time, we are able to test the proposition that structural features of agency design long hypothesized to constrain bureaucratic decisionmaking actually do so. In the process, we reemphasize the critical role of administrative agencies in distributive politics. Scholars of distributive politics have come to deemphasize agencies and scholars of bureaucratic politics have all but ignored spending as a relevant variable of interest. This article bridges these two important literatures.

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A significant and influential body of formal and empirical literature posits a principal-agent problem between the legislature and the bureaucracy, the President and the bureaucracy, or both. It then takes agency structure as the dependent variable and analyses the design choices made by Congress and the president (e.g. Epstein and O'Halloran 1999; Lewis 2008; 2003). Whether or not these attempts to constrain the bureaucracy via institutional design are actually effective is a distinct and equally—if not more—important question. To address this question, a related literature attempts to document political influence exerted by congress or the president on a specific agency or policy domain (for example showing that congressional views affect a specific agency's regulations or adjudication decisions).[1]

Studies of individual agencies and particular policies have been enormously important, but they are largely incapable of identifying the role of agency design on responsiveness for two simple reasons. First, the relevant institutional features almost never vary within a single agency. Second, most policy outputs—where one would look to see evidence of political control—are not readily comparable across agencies. Regulations or enforcement decisions are difficult if not impossible to compare across agencies because there is no obvious metric for evaluating the responsiveness of a regulation promulgated by the Environmental Protection Agency implementing the Clean Air Act relative to a decision by the Federal Trade Commission to prohibit a proposed merger. As a consequence, there has been very little quantitative scholarship that establishes a link between agency design and a similar agency output across agencies or over time.[2] This article focuses on an activity common to and comparable across many agencies: the distribution of federal moneys.

Allocative spending decisions are, of course, the main focus of distributive politics. Of late, however, this literature has become almost exclusively focused on the legislature.[3] This omission is unfortunate because after Congress authorizes and appropriates funds the ultimate spending allocation decisions are usually made by the bureaucracy. Importantly, this is true not only for general programmatic appropriations—those lacking earmarks designating recipients—but also the vast bulk of earmarked appropriations (Porter and Walsh 2008). Most earmarks are contained in committee reports or other aspects of the legislative history of a bill not enacted as part of the formal statute (Crespin, Finocchario, and Wanless 2009; Frisch 1998; Schick 2000), and therefore not legally binding on the agencies (GAO 2004). Agencies, of course, might well exercise their discretion so as to implement whatever legislative deal was struck; but, given the familiar principal-agent problem between the bureaucracy and political principles (Huber and

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[1] This literature is fairly large, but generally follows Weingast and Moran (1983). Other illustrate examples include Weiganst and Moran (1983) (FTC); Moe (1985) (NLRB) Spence (1999) (FERC); Scholz and Wood (1998) (IRS); Hird (1991) (Corps of Engineers); Gilligan, Marshall, and Weingast (1989) (ICC); Sabatier, Loomis, and McCarthy (1995) (Forest Service); Ringquist (1995) (EPA Office of Water Quality); Moore, Maclin, and Kershner (2001) (FERC); Krause (1994) (Federal Reserve); Coate, Higgins, and McChesney (1990) (FTC); de Vault (2002) (International Trade Commission); Wood (1990) (EEOC); Wood (1988) (EPA).

[2] Lewis (2008) has evaluated the link between agency design and program performance, essentially asking whether political appointees make bad bureaucrats/bad policy. This is a different issue, of course, than agency responsiveness per se.

[3] Bertelli and Grose (2008) and Ting (2009) reach the same conclusion. As discussed below, this was actually not the case of early distributive politics scholarship. For example, Arnold (1984) was expressly concerned with spending decisions made by the bureaucracy. A pocket of recent distributive politics literature has focused on the President rather than agencies (Berry, Burden, and Howell 2010; McCarty 2000a, 2000b). But for one reason or another, the pork barrel politics evolved to be almost exclusively focused on the legislature.

Shipan 2006; 2002), there is no shortage of reasons that an administrative agency might not perfectly implement legislative preferences. So long as agencies act as intermediaries in the process of allocating federal dollars, the failure to account for the bureaucracy in work on distributive politics is a glaring omission.

In essence, the distributive politics literature displays a historical blind spot for agencies, while scholarship on the bureaucracy has generally ignored spending as an important class of agency behavior. This article bridges these two important literatures and in the process provides novel quantitative evidence about the relationship between agency design and political control of the bureaucracy.

After next discussing the relevant literature in greater detail, we estimate a series of models of the distribution of federal funds by agencies to congressional districts. The analysis estimates the interaction between features of agency design and political conditions the distributive politics literature has established are associated with changes in the allocation of federal funds. That is, our empirical strategy tests whether political factors that are known to affect the receipt of federal funds by congressional districts (e.g. whether a district is represented by the President's party) matter more for agencies with structural features that are thought to make them more susceptible to political influence. Our method allows us to test whether agency design is actually associated with political responsiveness, something the existing literature has been unable to test.

## I. BACKGROUND AND RELATED LITERATURE

Our work relates to two longstanding literatures, one on the nature of political control of the bureaucracy by Congress and the President, and a second on distributive politics. We discuss each literature briefly and then discuss how insights from each field can help shed light on residual puzzles in the other.

### A. Political Control of the Bureaucracy

Early scholarship tended to emphasize the bureaucracy's technocratic expertise and celebrated agency insulation from politics (Landis 1938). A second generation took the lack of agency accountability to be a problem for governance rather than a solution, culminating in the 1970s with a boon of scholarship emphasizing the pathologies of unaccountable bureaucratic entities (e.g., Lowi 1979). Several decades of scholarship then followed emphasizing the various ways in which Congress and more recently the President can (and allegedly do) exercise ex ante or ex post control over agency behavior. Today, both the principal-agent model of the bureaucracy and the potential mechanisms for managing agency problems are largely taken as given.[4]

The main goals for agency design are to select the right type of agent and ensure that the agent exerts effort, utilizes expertise, and implements policy in keeping with political preferences of principals. Because agencies generally have better information or expertise than legislators, but may also have different preferences, some mechanism is necessary to address the twin problems of preference divergence and information asymmetry (Huber and Shipan 2006). Although legislators presumably delegate authority to sympathetic agencies, both career civil servants and political appointees may have views that differ somewhat from the enacting legislative coalition (Nixon 2004). Agencies also have systematically better information than legislators and this informational advantage might refer to better knowledge about the underlying state of the world (regulation needed or not needed), to the technology for implementing policy (price controls versus cap and trade), or to the level of effort required to implement policy (see generally Aghion and Tirole 1997). Agency failure might be the result of good-intentioned mistakes (which Congress would prefer not to punish), or shirking (punish) (Brehm and Gates 1997; 1993) or the intentional implementation of policy different than the enacting legislative coalition desired (which Congress would prefer to punish so long as the enacting coalition continues to exist). Ex post monitoring is important, but it is also costly (Aberbach 1990; Dodd and Schott 1979; Ogul 1976).

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[4] An ongoing modern strain in study of the bureaucracy emphasizes the active role that bureaucratic actors take in establishing policy authority (e.g. Krause and Meier 2003; Carpenter 2001).

A particularly pessimistic account of these agency problems arose in the late 1970s under the 'delegation as abdication' thesis, which dominated academic debates about the bureaucracy. Critics of the administrative state argued that an unaccountable headless fourth branch of government bureaucrats had come to run American politics (Lowi 1979). The unelected and uncontrollable bureaucracy—not the President or Congress—was said to drive important public policy (Schoenbrod 1993).

The next generation of scholars, however, was reared on the *structure and process* thesis articulated by McCubbins, Noll, and Weingast (1987, 1989) and refined by others (e.g., Macey 1992; Bawn 1995; Epstein and O'Halloran 1999; 1994; Balla 1998; Ferejohn 1987). Although the structure and process school now has many variants, the simplest version asserts that legislatures can, in fact, control the exercise of delegated authority, in part, by carefully delineating agency structure and the process by which agency policy is formulated. Given the challenges of ex post monitoring (McCubbins and Schwartz 1984), the structure and process literature tends to emphasize ex ante restrictions that mitigate the informational advantage enjoyed by agencies and stack the deck in favor of certain interests to ensure the durability of the original bargain. The most prominent of these mechanisms are the elaborate procedural requirements like those specified in the Administrative Procedure Act, which, for example, allow parties affected by potential regulations to comment on potential agency policy and provide an opportunity to challenge agency decisions in judicial proceedings (McCubbins, Noll, and Weingast (1989; 1987). A range of complementary mechanisms, however, exist as potential tools for political principals to control bureaucratic action. Restrictions on the appointment and removal of personnel (O'Connell 2008; Eisner and Meier 1990), ex ante review of proposed decisions by the Office of Management and Budget (OMB) (Bagley and Revesz 2006; Kagan 2001), legislative vetoes, and alterations in funding (Wood 1988, 1990) or jurisdiction (Gersen 2007; Macey 1992) are all potential mechanisms for political principals to control administrative agency behavior.

The President of course, no less than Congress, has every reason to try to control the bureaucracy. Yet, the President faces a range of similar problems resulting from the possibility of preference divergence and information asymmetry (Moe 1985). The President's ability to influence the bureaucracy also depends on a range of institutional features, including whether the agency's leadership is insulated from Presidential removal, the organizational location of the agency inside or outside the cabinet hierarchy, and the extent of Presidential appointments in the agency, subject to (or not) Senate approval (Lewis 2003:44-45; Epstein and O'Halloran 1999; Khademian 1996; Seidman 1998; Wood and Waterman 1994).

It is generally thought—though rarely shown—that the agencies outside the cabinet level hierarchy and particularly those headed by boards with staggered fixed terms and for-cause removal provisions (commissions) are more functionally independent from the President and subject to greater Congressional control (Strauss 1984; Seidman 1998; Lewis 2008:47). The imposition of qualifications requirements by congress for political appointees that lead agencies may also generate less Presidential control and (perhaps) greater congressional influence (Lewis 2003: O'Connell 2009). Similarly, having more politically appointed managers relative to civil service employees should enhance Presidential control over agency behavior (Lewis 2008:98).

The structure and process tradition has been accompanied by qualitative evidence of political influence over this agency or that regulatory program. But in the past several years there has been more of a sustained effort to test the structure and process theories systematically (Balla 1998; Eisner and Meier 1990; Wood and Waterman 1993, 1991). Unfortunately, virtually all of these efforts suffer from one key pitfall: studies of political influence on a single agency's policy decisions cannot demonstrate a link between agency structure and political influence because agency structure is a constant in those studies. Moreover, comparing influence across agencies requires some comparable output variable, but adjudications and rulemakings—the most commonly studied form of agency policy output—are virtually impossible to compare across agencies. Although the output we use—spending—is an imperfect one, it nevertheless allows us to make headway in estimating how the potential mechanisms of political influence affect actual agency outcomes.

## B. Distributive Politics

The early distributive politics literature focused expressly on administrative agencies (Arnold 1979), but this emphasis was lost for many years as the literature became increasingly congress-centric. Baron and Ferejohn (1984) develop a model in which a legislator offers a proposal to divide a pot of federal money and show that the distribution of funds will either be to a minimum winning coalition if the amendment rule is closed or a broader distribution if the amendment rule is open. Other distributive models that rely on somewhat different theoretical assumptions make more universalist predictions (Shepsle and Weingast 1981; Weingast 1979, 1989; Niou and Ordeshook 1991), meaning that districts should receive a more or less equal share of overall spending. In practice, both theoretical and empirical work suggests there is significant variation in the ability of legislators to obtain federal money for home districts (Helpman and Persson 2001; McKelvey and Riezman 1992; McCarty 2000; Knight 2005; Persson 1998; Persson and Tabellini 2002).

In much of this work, the power to propose the initial allocation of funds produces an increase in the proportion the legislator is able to obtain (Yildirium 2007:168). Both committees and parties are key gatekeepers for authorization and appropriation of federal funds. Members serving on key committees, particularly in leadership positions, are generally thought to be better positioned to ensure their home districts receive funds (Adler and Lapinski 1997; Deering and Smith 1997; Mayhew 1974; Shepsle and Weingast 1981; Weingast and Marshall 1998). Empirical evidence, however, is mixed. Districts represented on Armed Services or Small

Business receive more funds (Alvarez and Saving (1997), but those on Appropriations and Public works do not. Members on the Agriculture committee seem to receive more agricultural money, while membership on the Transportation committee yields systemic benefits (Knight 2005), but representation on the Education and Labor committee does not (Heitshusen 2001). On net, empirical studies have failed to reveal the sort of consistent benefits the conventional theoretical literature predicts. Moreover, even in studies that find a correlation between committee membership and spending, it is difficult to identify the causal effect of committee membership as distinct from self-selection of members onto committees.

The inherited wisdom about the role of partisan control and congressional spending is similar (see Aldrich 1995; Binder 1997; Rohde 1991). The majority party controls the legislative agenda (Cox and McCubbins 2005, 2007), which might mean that majority party membership should be positively correlated with the volume of federal funds brought home. Majority party members are thought to obtain more federal funds for their local districts, which might help them win reelection (Levitt and Snyder 1997). Empirically, some studies find a positive correlation between federal spending and the partisan affiliation of a district or the majority coalition in congress (Levitt and Snyder 1995; Balla et al 2002; Martin 2003), but some work finds little supporting evidence (Lowry and Potoski 2004; Evans 1994; Bickers and Stein 200_; Lauderdale 2008).

More recent work has emphasized the President's influence over appropriations (Berry, Burden, and Howell 2010). If proposal power matters in bargaining, the President's power to propose the initial budget could tilt the distribution of federal moneys in his favor. Indeed, the data show that districts represented by a member of the President's party do receive more federal funds. In addition to the ex ante proposal influence of the President, the executive also has ways to influence the distribution of funds ex post. A point often left out of political disputes about legislative earmarks is that the most earmarks still entail bureaucratic discretion. Most earmarks are actually contained in legislative history are therefore not legally binding on agencies (Crespin, Finocchario, and Wanless 2009; Frisch 1998; Schick 2000; GAO 2004). To the extent that bureaucratic discretion is sometimes influenced by the President, the role of the executive branch in facilitating compliance or noncompliance with earmarks is obviously critical. A modest point, articulated here and in other recent work is that distributive politics models ought to give more attention to the executive branch rather than focusing solely on the internal dynamics of the legislature (Berry, Burden, and Howell forthcoming; Bertelli and Grose 2009; Ting 2009).

However, once the locus of analysis shifts from Congress to the executive branch, both theoretical models and empirical analyses need to explicitly acknowledge the role of agencies in the spending process. If principal-agent problems are even fractionally as severe as the bureaucracy literature suggests, there is no good reason to suspect that bureaucratic organizations will be perfect agents with respect to distributing program funds while notoriously imperfect agents in all other policy domains. Indeed, an unwieldy body of law governs spending of budgeted funds (see generally Fisher 1975). In some contexts, the President or agencies may decline to spend appropriated funds at all, or to shift funds across programs within a budget account, or transfer funds from one budget account to another entirely (GAO 2004).

Impoundment, rescission, and transfer of funds across budget accounts are controversial practices, but also fairly common historically.[5]

## C. Administrative Agencies and the Distribution of Federal Funds

The modern focus on the legislature in the distributive politics literature is actually a sharp divergence from early scholarship. Arnold's (1979) seminal work explicitly sought to understand the congressional-bureaucratic relationship with regard to geographic allocation of funds. He argued that rational bureaucrats would form an implicit bargain with the legislature: bureaucrats would distribute funds in a manner desired by legislators in order to maintain budgetary stability (Arnold 1979:22). On this view, agencies allocate funds to Congressional districts in order to curry favor, and therefore, target the districts of representatives who are relatively neutral or mildly opposed to the given program (Arnold 1979:58).

More recently, Stein and Bickers (1995) argue that agencies "have both the opportunity and motivation to be responsive to requests for help from legislators and their constituents (Stein and Bickers 1995:7). In their model, agencies help constituencies become organized by working with interest groups, which will then support the agency's programs in congress (Stein and Bickers 1995:49-50). Here too, agencies are said to desire stable or increasing budgets and therefore have an incentive to help legislators, constituents, and interests groups. A somewhat different account is offered by Bertelli and Grose (2009), who argue that agencies distribute funds in accordance with bureaucratic ideology and presidential electoral objectives. They show that Department of Defense and Department of Labor grants to states vary as a function of the ideological difference between the relevant cabinet secretaries and senators. Unlike Arnold (1974) who emphasizes agency preference for distributing funds to neutral congressional districts, Bertelli and Grose argue that agencies will distribute greater funds to ideological allies. Agencies are able to do this, in part, because: "These [agency] costs attenuate the possibility of political control over the bureau's distributive policy choices increasing *de facto* the autonomy of the bureau to influence policy outcomes by leveraging the ideological distribution in the Senate to enhance support for its programs" (Bertelli and Grose 2009:931).

Our work is very much in the spirit of this scholarship, but diverges in two respects. First, building on Berry, Burden, and Howell (2010), we argue that there are two principals that seek to influence agency spending decisions. It is not only the legislature that cares about bureaucratic spending; the President does as well. We therefore attempt to estimate and explain the influence of the President on the spending decisions of different agencies as well. Second, and more important, we contend that, if the institutional design literature is correct, the degree of responsiveness should itself be a function of agency structure. Rather than assuming that all agencies will be more or less equally responsive to the preferences of political principals, we seek to test whether agency political responsiveness varies as a function of agency structure. That is, our goal is to estimate the effect of agency structure on agency responsiveness.

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[5] *See* Fisher (1975); Circular No. A-11, part 4, Instructions on Budget Execution, Executive office of the President, Office of Management and Budget (June 2008).

In sum then, we take the principal-agent problem that inheres in the relationships between the bureaucracy, the legislature, and the president as a given. As emphasized above, prior studies (e.g., Epstein and O'Halloran 1999; Lewis 2003) take agency structure as a dependent variable and seek to explain when and why the political principals try to use structure and process to constrain the bureaucracy. Rather than treat agency structure as the dependent variable, we treat it as an independent variable and test whether agency structure affects the degree of political responsiveness. To accomplish this, we focus on the federal funds distributed by agencies to congressional districts and ask whether those agencies with structural features claimed to facilitate accountability are more responsive to political factors in their funding allocations. For the reasons discussed above, we believe this is the first paper capable of testing whether agency structure in fact matters for controlling the bureaucracy.

## II. AGENCIES, MONEY, AND POLITICS

### A. Background & Data

The data on federal spending data come from the Federal Assistance Award Data System (FAADS), a government-wide compendium of federal programs. The FAADS archive documents the transfer of almost anything of value from the federal government to a domestic beneficiary; the data include virtually all federal programs other than spending on defense. In total, the database tracks approximately \$25 trillion (in 2004 dollars) in federal expenditures from 1984 to 2007. Bickers and Stein (1995; 1991) assembled and collapsed quarterly FAADS files from fiscal year 1983 to 1997 into annual data files. Berry, Burden, and Howell (2009) extended the data through 2007. The complete database tracks the total dollar amount awarded by each non-defense federal program to recipients in each of 435 congressional districts during each of the fiscal years. To reflect the fact that money spent this year is based on the budget passed during the prior year, outlays in year $t$ are assigned to the legislator who represented the district in year $t - 1$.[6]

Unlike prior studies using FAADS, we disaggregate the data by federal agency. The revised dataset tracks the annual receipts of each congressional district from each originating federal agency. The total database contains nearly 200,000 agency-by-district-by-year observations. The term *agency* actually has several meanings in the political science and economics literatures and it is a term of art in administrative law. For example, an administrative law, the Administrative Procedure Act applies only to agencies, a term that has been interpreted broadly by courts to apply to most entities of the federal government that exercise significant government authority. Descriptively, an administrative agency tends to denote organizational units of the executive branch. Sometimes scholars use *agency* to mean large cabinet-level bureaucratic entities within the executive branch hierarchy (e.g. Department of Interior), sometimes smaller organizational entities within cabinet-level entities (e.g. the Bureau of Land Management within the Department of Interior), sometimes stand-alone bureaucratic entities (e.g. Environmental Protection Agency), and sometimes so-called independent agencies (e.g. Federal Communications Commission). In the current analysis, we focus on the highest possible of level of aggregation in the data, for example, analyzing spending flows from the Department of Interior rather than the sub-unit like the Bureau of Land Management. In other work, we plan to focus on spending patterns by these smaller units within larger agencies.

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[6] In the year following redistricting, such matches are not possible, and hence we drop these cases.

To use the flow of federal dollars from agencies to districts as a way of evaluating the role of agency structure on political responsiveness, a first empirical challenge is to distinguish *politically responsive* agency spending from *mission driven* spending. To illustrate the distinction, observe that the Department of Housing and Urban Development (HUD) tends to distribute most of its outlays to urban areas. Urban areas have more Democratic voters and are more likely to elect Democratic members to represent them in Congress. Therefore, districts represented by Democrats receive most of the grant awards from HUD. It would be unwarranted, however, to conclude based on these facts that HUD's grant allocations are being driven by political responsiveness to Democrats. Rather, the natural mission driven constituency of the agency overlaps the traditional political constituency of one of the two major parties, leading to an observed correlation between agency spending and district partisanship.

Figure 1 shows that partisan correlations in agency outlays are a fairly general phenomenon. The figure presents a variable we call Democratic "tilt," which is defined as the ratio of an agency's annual outlays going to Democratic controlled districts relative to the share of seats in the House controlled by Democrats. Numbers greater than one indicate that Democratic districts receive more money from an agency than would be expected based on their seat share. For instance, if an agency gave 60 percent of its funding to Democratic districts when Democrats controlled only 50 percent of House seats, the observed tilt would be 1.2.

Figure 1 demonstrates that all but four agencies in our data exhibit positive Democratic tilt. FEMA and NASA are among the agencies with the most extreme Democratic tilt, while the Department of the Interior is one of the few agencies that tilts in favor of Republicans. Nevertheless, because agencies have mission-driven objectives, and these objectives may happen to coincide with the presence of partisan voters in a district, it is not possible to conclude based on the sort of evidence shown in Figure 1 that particular agency spending allocations are (or are not) based on political considerations. That is, these summary data cannot establish whether the patterns result from underlying agency preferences, statutory constraints, mission driven priorities, or effective political control. To successfully identify a link between agency structure and political responsiveness, one needs a method to disentangle mission-related partisan correlations from allocations that are related to political forces.

Our empirical strategy is as follows. We estimate the outlays received by each congressional district from each agency in each year as a function of the political attributes of the district's representative, for example whether the district's representative is a member of the majority party in congress, holds a committee chair, and so on. To partial out spending allocations based on natural mission driven connections between the agency and the district, we include *district-by-agency fixed effects*. This method accounts for any inherent factors that make a particular district more or less likely to receive funding from a particular agency. We are then able to estimate whether a district receives more (less) federal funds that it would be expected to receive, given mission driven spending. Identification in the models comes from changes in spending allocations and political variables, *within* a district-agency pair, *over time*.

More formally, consider the following baseline model:

$$\ln(\text{outlays}_{ijt}) = \alpha_{ij} + \delta_t + \boldsymbol{\psi}\mathbf{X}_{it} + \varepsilon_{ijt} \qquad (1)$$

where subscript $i$ denotes (redistricting-specific) congressional districts, $j$ denotes the originating federal agency, and $t$ denotes the year. This method accounts for all observable and unobservable, time-invariant characteristics of both districts and agencies, as well as the interactions between districts and agencies, by including $\alpha_{ij}$, which are agency-specific-congressional district fixed effects. To control for secular changes in federal domestic spending over time, we include dummies, $\delta_t$, for all but one year per redistricting period. The vector $\mathbf{X}_{it}$ contains variables measuring the political influence of the districts' congressional representatives, explained below. The vector $\boldsymbol{\psi}$ contains regression coefficients, and $\varepsilon_{it}$ is an error term, which we cluster by district.

Within this framework, the coefficients $\boldsymbol{\psi}$ represent our measures of politically responsive spending. For example, when $\mathbf{X}_{it}$ contains a dummy variable equal to one for members of the Democratic party, a positive coefficient indicates that a district receives more federal funding during those years in which it sends a Democrat to Washington. The key identifying assumption is that the non-political attributes of a district make it otherwise prone to receive federal funds do not change simultaneously with the change in the political characteristics of its representative.[7] To illustrate, return to the previous HUD example. If HUD gives more money to Democrats, on average, we do not consider this to be politically responsive spending. If, however, HUD gives significantly more money to the same district after it replaces a Republican representative with a Democrat, we consider this to be a politically responsive change in agency spending.

The coefficients $\boldsymbol{\psi}$ are of potential interest to the distributive politics literature in and of themselves. They are not, however, the main quantity of interest for this paper. Rather, our goal is to utilize the spending outcomes to test whether agency design affects political responsiveness. To take one basic example, Strauss (1984) and others argue that agencies located outside the cabinet level hierarchy on the executive branch organizational chart are subject to much greater legislative influence than agencies within the cabinet level hierarchy. Our data allow us to test whether specific organizational features of agencies—long thought to be mechanisms for political principals to control administrative decisionmaking—are actually associated with more politically responsive spending. Econometrically, we investigate these relationships by extending equation (1) to include *interactions* between district political characteristics and agency organizational characteristics, as follows:

$$\ln(\text{outlays}_{ijt}) = \alpha_{ij} + \delta_t + \boldsymbol{\psi}(\mathbf{X}_{it} \cdot \mathbf{Z}_{\mathrm{j}}) + \varepsilon_{ijt} \qquad (2)$$

where $\mathbf{Z}_{\mathrm{j}}$ is a vector of agency attributes, to be explained below, and the remaining terms are as defined above.[8] Note that the main effects of the agency attributes cannot be identified because they are subsumed in the agency-by-district fixed effects. The variables of primary interest—the interactions between agency and district characteristics—are identified by changes within districts over time in the political attributes of their representative. For example, if $\mathbf{X}_{it}$ contains a dummy variable equal to one for members of the majority party, a positive coefficient is indicative of politically responsive spending in favor of the majority, on average across agencies. A significant positive coefficient on the interaction of majority party status and an agency characteristic in $\mathbf{Z}_j$ indicates that agencies with that that structural attribute are *more* politically responsive to the majority party than agencies without that structural feature. In essence, we identify the main political spending effects and then ask whether these effects are different among agencies with structural features hypothesized to facilitate political control.

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[7] This assumption strikes us as particularly reasonable given that we are using redistricting-specific fixed effects, so the amount of time over which a district's attributes may change is at most a decade.

[8] We do not include a time subscript for **Z** because we use time-invariant agency attributes in most of our analyses, as explained below. However, in the robustness section we also report results using time-varying agency attributes.

In principle, any agency characteristic that is thought to influence political responsiveness is a candidate for inclusion in $\mathbf{Z}_j$. We build on Lewis (2008) and focus mainly on one key organizational design variable: the proportion of political appointees in the upper echelons of the agency. Many of the fiercest recent debates in law and politics concern control over appointment and removals of agency personnel (Lewis 2008, 2003; Calabresi and Yoo 2008; Lessig and Sunstein 1994; Moe 1985). The basic intuition is that as the top level of an agency is filled with political rather than civil service staff, the agency's decisionmaking will be more susceptible to political influence, more responsive to demands of political principals such as members of Congress or the executive branch. To measure this aspect of agency politicization, we compute the proportion of the agency's top leadership positions that are politically appointed as compared to being career Senior Executive Service (SES) positions. The SES represents the most senior policymaking positions for career civil servants, and the ratio of political appointees to SES personnel is an indicator of the extent to which the key policymakers in an agency are directly chosen by their political principals. A close variant of this measure of agency politicization features prominently in the work of David Lewis (2008; 2003) and is a straightforward initial way to summarize the degree of agency insulation.

The number of political appointees within an agency may change over time (Lewis 2008). Some of these shifts in the number of appointees are the result of legal recategorization of existing agency jobs; others are the result of new jobs. Empirically, therefore, one might use either time-varying agency indicators of political insulation or an average indicator across years. Our results are robust to using either approach. However, for most of our analyses, we opt to report results using average agency politicization. Our reasoning is twofold. First, as shown in **Table X**, changes over time in this measure agency politicization are relatively small and inconsistent. Hence we are reluctant to place much weight on them. Second, to the extent that agency politicization may be endogenous—a point we address explicitly below—using the average across 25 years mitigates the possibility that our results are being driven by changes in politicization that are caused by an agency's recent past behavior. These points notwithstanding, we also report results using time-varying agency data in the robustness section below.

### C. Findings: Agency Design and Political Control

The data on politicization and other structural features of administrative agencies come from Lewis, who generously makes his data publicly available.[9] We matched the Lewis structural data with the FAADS spending data based on the originating agency for each federal spending program. Figure 2 shows the distribution of politicization among the agencies in our data. It appears that science-oriented agencies, such as NASA and NSF, have relatively low levels of politicization, as do agencies that administer major entitlement programs, such as the Social Security Administration and the Department of Veterans Affairs. The most politicized agencies include the Department of Education, the National Foundation on the Arts and

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[9] Data and codebooks are available at Lewis's web site: http://people.vanderbilt.edu/~david.lewis/data.htm.

Humanities, and the Department of Housing and Urban Development, the Appalachian Regional Commission, and the Corporation for National and Community Service, where political appointees outnumber career SES staff in each case.

Table 1 presents the results of our analysis. Model 1 of Table 1 estimates a version of equation (1) above and shows the impact of political factors on agency spending. For example, a positive coefficient on the variable indicating whether the district's representative is a ranking member of any committee means that the district receives more funds with a ranking member than without a ranking member, all else equal. These are essentially baseline models, replicating the specification in Berry, Burden, and Howell (2010) but using data disaggregated by agency. The results in model (1) are largely consistent with the existing distributive politics literature. Notably, districts receive more federal funds from agencies when their representative is a member of the president's party. Districts receive more funds when their representative has a committee chair or a ranking committee member. Freshman legislators do worse by their districts than more senior legislators. And, representatives elected by slim majorities receive more funds from agencies, which is consistent with the idea that legislators allocate funds to help electorally vulnerable colleagues. Finally, districts receive less federal money when they are represented by Republicans, as previously shown by Levitt and Snyder (1995). The only surprise in model (1) is the negative coefficient for membership on the Ways and Means Committee.

With these baseline models in hand, model (2) estimates a version of equation (2) above. The political variables from the baseline model in the first column are interacted with the measure of agency insulation. It is the interaction coefficient that contains the core results of the paper.[10] Once again, because we include agency fixed effects in our initial model and because we utilize time-invariant measures of agency insulation, we do not estimate the direct effect of insulation on spending. Rather, we interact the agency insulation measure with district political characteristics, asking whether political factors that affect the distribution of federal funds matter more or less for insulated agencies than for politicized agencies. Our main contribution is to estimate this differential responsiveness to political conditions as a function of agency structure.

First consider the interaction between agency politicization a district's representative's membership in the president's party. The main effect of membership remains positive and statistically significant: districts receive more funds from the average agency when represented by a member of the President's party. The interaction term indicates that this effect is larger for more politicized agencies. In other words, being represented by a member of the President's party matters more when agencies are politicized than when they are not. Figure 3 contains a graph of the marginal effect of membership in the president's party as a function of agency politicization. As the proportion of political appointees in an agency increases by 22 percentage points (i.e., one standard deviation), the marginal increase in funding when a district moves into the president's party increases by roughly 6.7 percentage points. Meanwhile, for highly insulated agencies—those with the lowest level of politicization by our measure—membership in the president's party has no significant effect on district funding.

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[10] In all the interaction models, we mean-deviate agency politicization so that the main effects of the other variables can be interpreted as the effects for an agency with the average level of politicization. Without this mean deviation, the coefficients for the other variables would represent the effects for an agency with zero political appointees, something that does not exist in our data.

The interaction between agency politicization and membership in the majority party is also significant, positive, and roughly comparable in magnitude to the interaction with membership in the president's party. However, the main effect for membership in the majority party is smaller, and hence we cannot reject the hypothesis that members of the majority party receive no spending advantage from most agencies. Indeed, Figure 4 indicates that the majority party advantage is significantly greater than zero only for the most highly politicized agencies.

Aside from the interactions of agency politicization with presidential and majority party alignment, note that most of the interaction terms do not yield statistically significant results. In other words, while being represented by a ranking committee member or a committee chair, for example, does produce an increase in funds received by the district, that increase does not depend on whether the agency administering those funds is insulated or politicized. Thus, the evidence indicates that agency insulation can, but does not always, mediate the nature and extent of political influence on bureaucratic action

Given evidence that agency politicization mitigates presidential and congressional partisan factors, we next attempt to disentangle these two sorts of political influence on agencies. To do so, we distinguish political appointees that require Senate confirmation and political appointees that do not require Senate confirmation. If the fact of Senate confirmation provides for greater congressional influence—or put differently—less presidential control, then these two sorts of political appointees in an agency should make for two very different kinds of political influence. A large pocket of non-senate-confirmed political appointees should facilitate Presidential influence, but not congressional influence. A large pocket of appointees on which the Senate must sign off might imply appointees with greater legislative sympathies. The analyses in models (3) and (4) essentially replicate the earlier models using these two different types of agency politicization.

The interaction of district political characteristics with the penetration of Senate-approved appointees to an agency is shown in model (3). The interaction term is highly significant for the majority party variable: the agencies with more Senate-confirmed appointees are more responsive when a district's representative moves into (or out of) the majority party. Meanwhile, the interaction term for the president's party remains positive, though it falls just shy of statistical significance ($p = 0.12$) and is notably smaller than the interaction with the majority party. In other words, agencies with more Senate-confirmed appointees are more responsive to members of the majority party, but not clearly more responsive to members of the president's party. Precisely the opposite is observed with respect to non-Senate confirmed appointees in model (4). The interaction between politicization and membership in the majority party in Congress is statistically insignificant and substantively small. However, the interaction between non-Senate confirmed appointees and membership in the president's party is positive and highly significant.

The overall pattern of results from models (3) and (4) is depicted in Figures 5a-d. In summary, agencies with a density of senate-confirmed appointees are more responsive than agencies with few senate-confirmed appointees when a district changes majority party status. The proportion of non-confirmed appointees has no relationship to the extent of an agency's responsiveness to members of the majority party. Meanwhile, agencies with more non-confirmed appointees are more responsive to membership in the president's party than agencies with fewer such appointees. Even Senate-confirmed appointees appear at least weekly responsive to membership in the president's party, although the response is less than with respect to membership in the majority.

Generalizing somewhat, it appears that adding either type of political appointee makes an agency more responsive to membership in the president's party, while adding Senate-confirmed appointees, but not non-confirmed appointees, makes an agency more responsive to majority party members. This makes good sense of course. As political appointees integrate into agencies, those that did not have to go through senate confirmation are likely to be more responsive to the president and less responsive to the legislature. Politicization via appointments requiring legislative involvement seems to facilitate responsiveness to both political principals, though more so to the congressional majority.

### D. Robustness

In order to assess the robustness of our results, we ran a series of auxiliary models that varied case selection and model specification. First, we re-estimated the basic models of Table 1 using time-varying measures of agency politicization. The data necessary to compute agency politicization are available every four years from the Plum Book (see Lewis 2008) and we linearly interpolated the values for the intervening years to produce annual estimates of agency politicization. Those results are shown in Table 2. Importantly, our estimates of the interactions between agency politicization and membership in the president's and majority parties, respectively, do not change notably. If anything, the interaction terms become a bit larger when using the time-varying measure of politicization. The estimated main effect of agency politicization is itself negative, indicating that agencies receive smaller budgets at times when they are more politicized.[11] This result is true with respect to politicization by non-confirmed appointees (model (3)) but not with respect to politicization by Senate-confirmed appointees (model (2)), which could be interpreted as evidence that Congress attempts to tie the purse strings of agencies when they fall under greater presidential control. As indicated above, however, we are hesitant to make much of the time-varying results.

While pooling multiple agencies together is a key contribution of this paper, one concern may be that pooling agencies as disparate as the Social Security Administration (SSA) and the Appalachian Regional Commission (ARC) is problematic, not least because of the vast differences in the size of their budgets. To a large extent, our agency fixed effects address this problem by limiting the analysis to within-agency changes in spending over time; that is, we compare *changes* in spending within the SSA across years to *changes* in spending in the ARC across years, effectively discarding the average difference in the level of spending between the two agencies. As a further robustness exercise, however, we also removed major entitlement programs from the data. We did so by following a tactic originally proposed by Levitt and Snyder (1995), which is to divide federal programs into "high-variation" and "low-variation" categories.[12] The low-variation category includes 26 major federal programs—all of which are housed in the Social Security Administration, the Department of Health and Human Services (mostly programs within the Centers for Medicare & Medicaid Services), the Department of Veterans Affairs (mostly the Veterans Benefits Administration), and the Railroad Retirement Board—that together account for 76% of total spending in our data set. The high-variation category includes hundreds of smaller programs. If major entitlement programs are less susceptible to political manipulation, we should expect to see our results upheld for the low-variation category but not necessarily for the high-variation category. Indeed, this is precisely what we find, as demonstrated in models (1) and (2) of Table 3. The results for high-variation programs essentially mirror those shown above, while all but one coefficient in the low-variation model is insignificant. The one significant coefficient is the interaction between agency politicization and membership in the president's party, although the substantive magnitude is vanishingly small: moving from a completely insulated to a completely politicized agency increases the presidential party's spending advantage by one percentage point.

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[11] This result seems consistent with McCarty (2004) and McCarty and Razaghian (1999). When the legislature has proposal power over resources given to bureaucrats but has limited control over personnel, except through confirmation of the President's choices (Noken and Sala 2000), outcomes can be inefficient (McCarty 2004). If the President selects an official whose preferences diverge too much from those of the legislature, the legislature responds by reducing resources available to the agency. This appointments dilemma can be solved by centralizing appointment and budgetary authority in the same institution, or minimized by restricting the President's removal power. By restricting the President's ability to control officials after they are in put in office, the President can commit to a more moderate agency, which would in turn induce greater resources from Congress. The basic intuition is that if the President exerts a lot of ex post control of policy (and has preferences different than Congress), then the legislature will be hesitant to give the bureaucracy a lot of resources or discretion.

As further evidence that our results are not being driven by any particular agency, we reran our model repeatedly, dropping one agency at a time. The resulting jackknifed standard errors are reported in model (3) or Table 3. Although the standard errors are, naturally, larger using this approach, all of the results of interest remain statistically significant at conventional levels. In addition, we tried a number of more ad-hoc approaches (results not shown). We dropped the Social Security Administration and the Department of Health and Human Services, which are the two largest agencies in our sample. We also tried removing the Appalachian Regional Commission and the Corporation for National and Community Services, which are the two most politicized agencies in our sample. In each case, the results do not vary in any significant manner.[13]

A well-known issue with the FAADS data (e.g., Bickers and Stein 1994; Levitt and Snyder 1995) is that grants going to a state government are credited to the congressional district in which the state capital is located. As a result, the state capital district's representative appears (spuriously) to be remarkably successful in winning federal projects. Our working assumption has been that the district-by-redistricting period fixed effects satisfactorily account for this issue. To validate this assumption, we also reran the model without including state capital districts. The results, shown in model (4) of Table 3, are not significantly different with this exclusion.

Finally, we note that approximately 15% of the district-agency-year observations are zeroes; that is, there are years in which a given district receives no money from a particular agency. There are reasons to be concerned about the consistency of OLS estimates under these conditions (see Wooldridge 2002, ch. 16), and therefore we also ran a version of the model using Tobit estimation with agency-by-district random effects. As shown in model (5) of Table 3, the results are virtually unchanged.

### E. Other Agency Structures

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[12] For details, see the appendix of Berry, Burden, and Howell (2010).

[13] Complete results are available on request.

As noted above, our empirical strategy is quite general. In theory, our method can estimate the impact of any measurable agency characteristic on the degree of political responsiveness. Although our measure of politicization or insulation is closely tethered to the existing agency design literature and strikes us as a sensible object of focus for our work, there are, of course, many other ways to insulate the bureaucracy from political influence. Almost all of these mechanisms are specified at the time an agency is created and thus existing scholarship tends to emphasize the political conditions during that time period (Lewis 2003; Epstein and O'Halloran 1999). In this section, we analyze a handful of the most common mechanisms and discuss which we can meaningfully analyze within the constraints of our data and method.

To reiterate an earlier point, the literature is not always consistent in its use of terms like insulation, independence, and politicization. In constitutional law, independence is a legal term of art, referring to agencies headed by officials that the President may not remove without good cause. Such agencies are, by legal definition, independent agencies; all other agencies are not. In the economics and political science literatures, however, the idea of independence tends to have a more functional meaning, either referring to the degree of actual or effective control exerted over the agency by other political institutions, or the agency's location on the government organizational chart inside or outside the executive cabinet hierarchy.[14] Descriptively, more functional insulation (less politicization) is thought to result when an agency is created outside the existing bureaucratic structure rather than within an existing cabinet department (Lewis 2003; Wood and Waterman 1994). Empirically, less insulation is associated with strong majorities during unified government and more insulation is associated with strong majorities in Congress in divided government (Lewis 2003: 60).

Statutory limits on the President's ability to appoint or remove agency heads are also thought to diminish Presidential influence. If the President can remove the head of an agency for the failure to do as the President directs, the agency is not meaningfully independent. Less politicization is also said to be associated with a commission or board structure, especially when combined with partisanship requirements and staggered terms (O'Connell 2008; Ho 2007; Strauss 1984). Statutory requirements for commissions may specify the length of term for members of a Commission, require representation of both parties on the board, or limit the President's ability to remove commissioners (O'Connell 2008). The empirical evidence about the impact of these mechanisms, however, is mixed (O'Connell 2006). Hedge and Johnson (2002) find the EEOC and NRC—allegedly more insulated agencies—reduced regulation immediately after the Republicans took control of Congress in 1995. Weingast and Moran (1983) found that the FTC was surprisingly sensitive to changes in the composition of its congressional oversight committee. And Moe (1985) documented extensive political control of the NLRB, notwithstanding its board structure and limits on Presidential removal. Once again, this literature tends to focus on changes in a single agency's behavior over time precisely because agency outputs are very difficult to compare across agencies.

Our analysis reveals no robust associations between these other prominent features of agency design and political responsiveness. Replicating models such as those above but replacing the politicization variable with other attributes generally produces insignificant interactions with district political variables. Having more branches of government controlled by Democrats at the time of the agency's founding does not make an agency more responsive to membership in the Democratic party (or any other political variable). Agencies founded during periods of divided government are no more or less politically responsive than those founded during times of unified government. Nor does the ideology of the president in place at the time of the agency's founding, as measured by his NOMINATE score.

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[14] Lewis, for example, treats the EPA as an independent agency because it is not located within the cabinet hierarchy. It is a stand-alone agency in this sense, even though the head of the EPA is selected by the President without partisan requirements or limitations on the removal power.

We do find evidence that agencies governed by a board or commission structure are more responsive to members of the majority party—i.e., there is a significant interaction between a commission indicator and the majority party dummy (but not the president's party dummy). We emphasize caution with respect to this result, however for two reasons. First, the existence of a commission structure is virtually coterminous with other variables like term limits and limits on Presidential removal power. Any one of these mechanisms might be driving the result and they are observationally equivalent in our data. Second, and related, there are only four commissions in our data and hence we are reluctant to draw firm conclusions based on these results.

Finally, we must acknowledge that there are some important categories of hypotheses in the literature that we simply cannot test using our data and method. Some important agencies—for example, the Federal Elections Commission or the Food and Drug Administration—do not spend much money on grant awards, and hence we can say little about their political responsiveness based on spending data. In addition, some agency structures that are hypothesized to affect political responsiveness do not actually vary across the agencies in our data set. For example, none of the agencies is located within the Executive Office of the President (EOP), and hence we cannot test whether agencies in the EOP are more or less politically responsive. Similarly, there are some agency attributes that are either not available at an appropriate level of aggregation or not easily quantified in a manner suitable for our analysis. For instance, the seminal work of McCubbins, Noll, and Weingast (1989; 1987) emphasizes agency procedures that require public notice and hearings, which have no natural analog in agency grantmaking. Moreover, the structure and process thesis has been elaborated most clearly in the context of the Administrative Procedure Act, which applies to all federal agencies, at least as a default. We have no reason to question the hypothesis that procedural requirements articulated in the APA or an agency's organic statute influence political control of the bureaucracy, but because the rules apply to all agencies, it is a challenging hypothesis to test empirically.

### F. Interpretation & Mechanisms

The results presented above demonstrate a relationship between agency structure and the political responsiveness of agency spending. Agencies with a greater density of political appointees are more responsive to moves into or out of the president's party when making spending allocations. Moreover, agencies with more Senate-confirmed appointees are more responsive to the majority party than to the president's party, while non-confirmed appointees are more responsive to the president's party, though not the majority party.

How one interprets these relationships—that is, whether one believes they are causal or coincidental—will depend on one's beliefs about the sources of variation in politicization across agencies. The prevailing view in the literature is that an agency's level of insulation is heavily determined by the political conditions at the time of its founding (Lewis 2003). For instance, a common view is that during times of divided government, Congress will seek to insulate newly formed agencies from presidential influence by minimizing the number of political appointees relative to career civil servants.[15] If agency politicization is determined by initial political conditions, and if past political conditions do not otherwise influence an agency's current spending decisions, then agency politicization can safely be regarded as exogenous for the purposes of our analysis.

Another plausible view of agency politicization is that presidents seek to place political appointees in those agencies that are otherwise expected to be least supportive—ideologically or programmatically—of the president (Lewis 2008). Under this view, the extent of politicization is influenced by expectations about the agency's future political responsiveness (or lack thereof). This is a form of endogeneity that would bias us *against* finding effects of politicization on responsiveness to the president. In other words, our results for membership in the president's party would likely be biased downward if it were the case that the most politicized agencies would be the most unresponsive to the president if the political appointees were removed.

Our results would be biased upward—that is, the significant results related to membership in the president's party and the majority party would be spurious—if political principals placed more appointees in those agencies that would be the most responsive anyway. While, admittedly, we cannot directly reject this possibility with data, we are skeptical about the existence of this form of endogeneity for two reasons. First, the existing literature on the origins of agency politicization does not offer any reasons to believe that this is the case; and indeed, there are reasons to believe just the opposite, as explained above. Second, our results show not only a general relationship between agency politicization and responsiveness, but differential results for Senate-confirmed versus non-confirmed appointees. Agencies with non-confirmed appointees are responsive to membership in the president's party, but not the majority party, while agencies with Senate-confirmed appointees are more responsive to membership in the majority party than in the president's party. Any plausible alternative explanation for our findings would have to account for these differences, and we have yet to identify an endogenous account of agency politicization that would spuriously generate both sets of results.

To this point, we have said relatively little about the precise mechanisms by which agency design does or might facilitate political control. Indeed, our results are consistent with two different types of political influence over agencies. One interpretation of our results is that agencies are proactively seeking to curry favor with legislators by distributing grants to influential members. This theory would be consistent with Arnold (1974), who argued that agencies distribute funds in order to gain favor and maintain legislative support for agency-administered programs. However, importantly, our main empirical finding is not that agencies funnel funds to important districts, but rather that more structurally insulated agencies do so at lower rates than less insulated agencies.

A second interpretation therefore runs roughly as follows. The actual (rather than legislatively agreed upon) distribution of federal funds relies on imperfect bureaucratic agents with preferences potentially divergent from those of the legislature or the president. The ability to select certain individuals that will make decisions about the distribution of federal funds should allow a principal to select the "right type" of appointee: that is, an appointee with preferences sympathetic to the principal. Although our data cannot demonstrate that this mechanism is driving the empirical results, they are at least consistent with this story. Agencies with more appointees subject to legislative confirmation are more responsive to legislature-centered political factors. Agencies with more appointees that do not require legislative confirmation and are therefore picked solely by the President—are more sensitive to Presidential political factors. Ex post mechanisms of control might also facilitate political influence, but ex post mechanisms of control such as oversight hearings and budgetary sanctions are generally equally applicable to agencies dominated by both sorts of appointees. The ex ante selection effect seems quite consistent with the results from Table 2.

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[15] Similarly, Epstein and O'Halloran (1999) emphasize the underlying political conditions (e.g. divided government) at the time a statute is enacted as determinants of the nature and extent of delegated authority.

## III. IMPLICATIONS

Our main result is to demonstrate that one prominent structural feature of agency design—namely, the extent of high-level personnel politicization—affects the degree of political responsiveness by the agency. So far as we are aware, this is the first paper with an empirical strategy capable of showing an actual link between agency structure and political influence. To establish this link, we focus on an output common across agencies: the distribution of federal funds. The results have broad implications for the literatures on agency design, distributive politics, and comparative control of agencies by the President and Congress.

The scholarly literature on congressional control of the bureaucracy has been quite successful in formalizing the nature of the principal-agent problem and providing ex post rational reconstructions of choices about agency design (e.g., Bawn 1993; McCubbins, Noll, and Weingast 1989; Cornell, Noll, and Weingast 1976; Moe 1990). Similarly, enormous progress has been made to show that Congress utilizes structural features of agency design in an attempt to exert greater control over the bureaucracy (Lewis 2003; Epstein and O'Halloran 1999). Related, a long and useful line of scholarship on individual agencies has provided evidence of political influence on particular decisions by particular agencies. Because agency structure does not usually vary within a given agency, such studies are generally incapable of establishing a causal link between agency structure and political control. Indeed, until recently agency structure was rarely actually used as independent variable.

Recently, Lewis (2009; 2007) has argued that agency structure and the degree of politicization in particular affects program performance. Lewis finds that programs that are run by political appointees perform worse—according to independent evaluations— than programs that are not (Lewis 2007). Although our analysis says nothing about agency performance per se, our results fit together reasonably well with these findings. If highly politicized agencies place more weight on political considerations when making programmatic decisions, while less politicized agencies place greater weights on the merits, it would be unsurprising that the latter perform better according to objective criteria. To be clear, our results do not prove that this account is correct, but they do cohere with Lewis' finding in this respect. Similarly, O'Connell (2008) shows that agency structure affects patterns of rulemaking by agencies. Although our analysis goes directly to political responsiveness, there is increasing interest in testing whether agency structure matters for policy outputs in a more systematic way.

The literature on delegation and oversight has long focused mainly on Congressional control of administrative behavior, but more recently the literature has shifted toward the President and the associated multiple-principal problems. When both the President and the legislature seek to influence agency spending decisions, this produces a distinct problem and opportunity for the agency (Berry, Burden, and Howell 2010; Bertelli and Grose 2009). It might be taken to increase agency slack and reduce agency accountability. Our results, however, indicate that agency design affects both legislative and presidential influences on the bureaucracy.

Our work also speaks to the ongoing debate about the degree to which agencies are influenced by Congress versus the President and why. A common critique of the George W. Bush administration was that it politicized the bureaucracy. In an effort to exert greater control over policymaking by administrative agencies, the administration was said to have inserted more layers of political appointees into the bureaucracy.[16] The main objection to this practice was twofold. First, it injected political or ideological influences into domains that were alleged to be better guided by technocratic expertise and neutrality. That is, the practice seemed to allow crass politics to trump scientific judgment. Second, and more important for current purposes, it was alleged to shift the locus of power from administrators to whom Congress had expressly delegated policymaking authority to the President. Presidential politicization was said to increase executive influence at the cost of congressional influence.

Our analysis shows this concern is both right and wrong. It is right in the sense that adding political appointees to an agency does increase agency responsiveness to the President. The concern is wrong—or at least incomplete—in the sense that politicization of this sort can also increase legislative influence. Non-senate confirmed appointees appear to facilitate presidential control, but Senate-confirmed appointees appear to facilitate legislative control. Setting aside the normative status of bureaucratic insulation, we note that the decision to politicize is actually a double-edged sword. Inserting partisans into the agency may facilitate Presidential control, but it may also simultaneously increase the degree of Congressional control.

The results also provide some additional fodder for the broader debate about accountability in the bureaucracy. Contra the delegation as abdication thesis advanced by Lowi in the 1970s and Schoenbrod in the 1990s, we find that agency decisions about funding are, in fact, responsive to political conditions. It may be good or bad to have responsive agencies, but the notion of untethered agencies floating adrift in an ocean of discretion does not seem consistent with the data on the ground. Moreover, the extent of agency accountability to both the President and the Congress is a partial function of how a given agency is structured and designed. At one level, this is a banal claim. Yet, this core assumption of modern political science has gone almost entirely untested empirically.

Political control of the bureaucracy is, of course, imperfect, and therefore our work is directly relevant to the distributive politics literature as well. Crafting a legislative coalition and reaching internal agreement on which district should get which funds is only the starting point for the distribution of federal funds. Ensuring that the legislative bargain is implemented remains. As is the case for other bureaucratically administered federal policies, agencies are not costless pass-throughs for legislative judgments. Both the legislature and the executive must seek mechanisms through which agency discretion can be controlled. A deal that is formed without explicit consideration of these principal-agent problems may go significantly awry. We propose that more serious attention should be given to the agency implementation problem in the domain of distributive politics and to the relationship between agency design and political control, a shift that would extend some of the themes from Arnold (1974) and Bickers and Stein (1995).

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[16] See Lewis (2008) for a comprehensive treatment of historical attempts to politicize agencies.

Such a conceptual move is closely related to the ongoing debate about earmarks in the budget process. Most earmarks constitute not legal obligations but instead statements about legislative views regarding the allocation of federal funds. Given this fact, debates about earmarks that ignore the role of agencies are starkly incomplete. Although most accounts of agencies in the federal budgetary process theorize why agencies have an incentive to implement legislative bargains (Bickers and Stein 1995; Arnold 1974), like Bertelli and Grose (2009), we emphasize that the agency has many reasons not to. There is virtually no domain in which scholarly consensus suggests agencies simply implement congressional views and it would be surprising if this were the case for earmarks and administrative spending.

Indeed, most normative evaluations of earmarks depend on how often those earmarks are implemented by the bureaucracy. If most earmarks are the equivalent of legislator speeches on the floor and virtually ignored by bureaucrats allocating funds, the earmarks debate is much ado about nothing. If the bureaucracy does exactly what legislators request, the earmarks debate is critical. Our point is not that earmarks are unimportant, but rather that the degree of influence will vary depending on how agencies are designed. Like all agency outputs, the ability of political principals to affect agency decisions depends on the extent of the principal-agent problem and the available mechanisms to help solve it. We have focused on only one of several potential measures of bureaucratic insulation and politicization. Nevertheless, the analysis suggests that agency design affects the magnitude of congressional and presidential influence on agency spending decisions.

## CONCLUSION

This paper draws together two largely disparate literatures in an attempt to make headway on core problems in scholarship on the bureaucracy and distributive politics. By focusing on the distribution of federal funds by administrative agencies, we sought to test the proposition that agency design facilitates the control of the bureaucracy by congress and the president. We showed that agency structure is associated with changes in the political responsiveness of agency spending allocations. As such, our analysis provides fodder for several ongoing debates about the relationship between the legislature, the president, and the bureaucracy. Political influence is not uniform across agencies, but varies in predictable ways as a function of agency design. Rather than claiming that some institutional features could plausibly or might theoretically facilitate influence by the president or the legislature, our identification strategy is capable of establishing an empirical link between agency structure and political control. Rather than estimate the probability that Congress relies on structure and process to try to make agencies responsive to their political principals, we show that agencies are in fact more responsive to both congress and the president as a function of these structural features. Importantly, however, we also find null results for several features of agency design that are said to facilitate political control of administrative agencies. To be sure, our analysis focuses only on one type of agency output: agency spending. We cannot rule out the possibility that agency behavior with respect to rulemakings and adjudications differ entirely. Nor can we persuasively analyze all features of agency design that might facilitate political control. Nevertheless, we believe our method and analysis provide a novel approach to one of the core issues in the modern study of political institutions.

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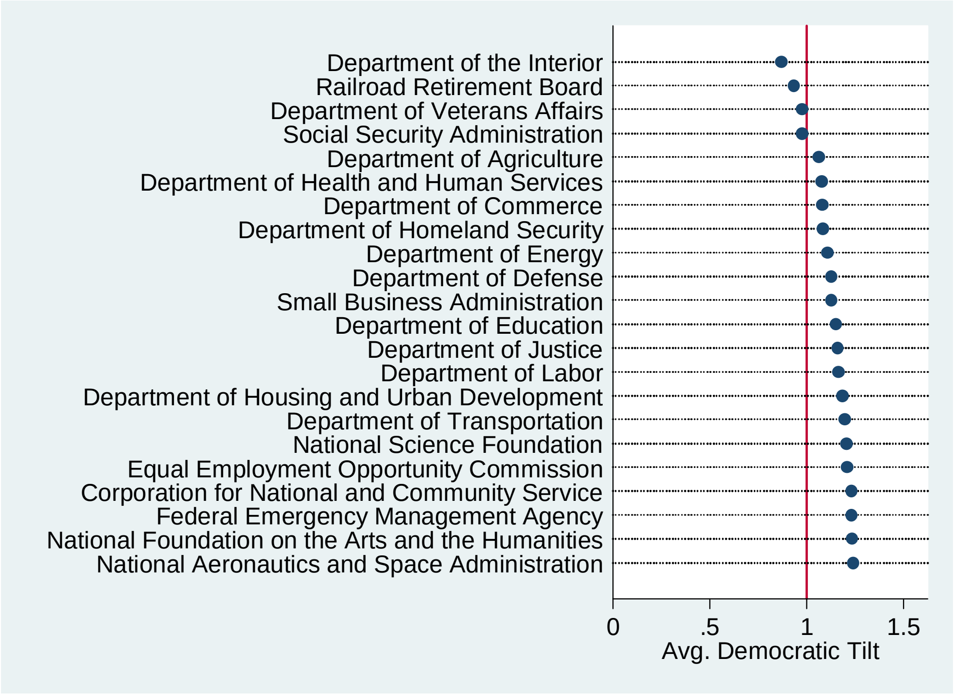

**Figure 1: Democratic Tilt by Agency**

Note: Tilt is defined as the percentage of the agency's dollar awards going to Democrat-represented districts divided by the percentage of House seats held by Democrats.

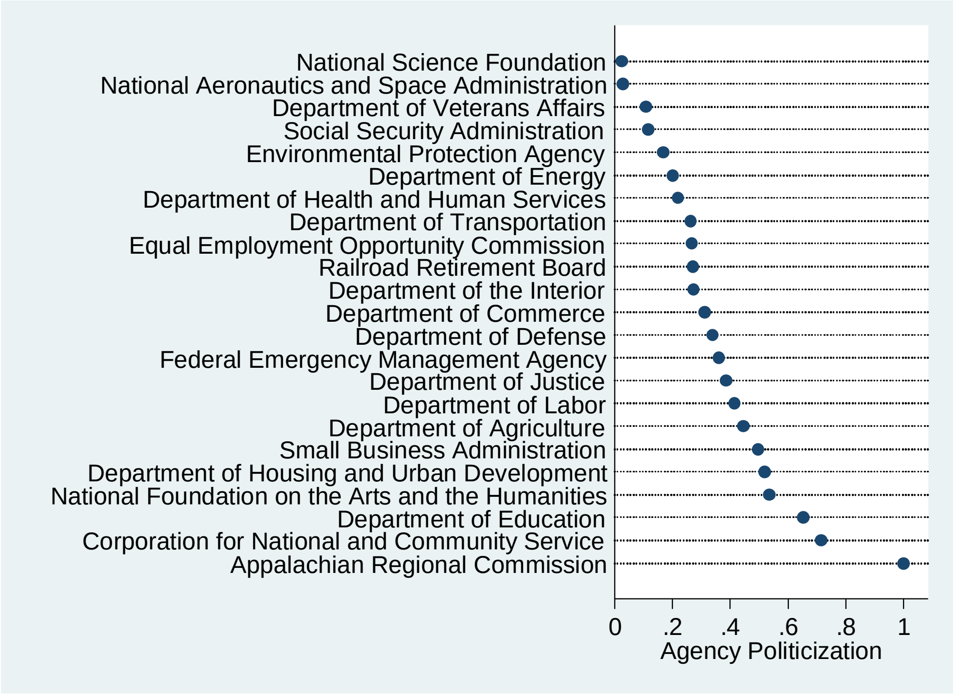

**Figure 2: Agency Politicization**

Note: Politicization is defined as the average number of political appointees divided by the sum of the average number of political appointees plus the average number of SES personnel in the agency, 1984-2008.

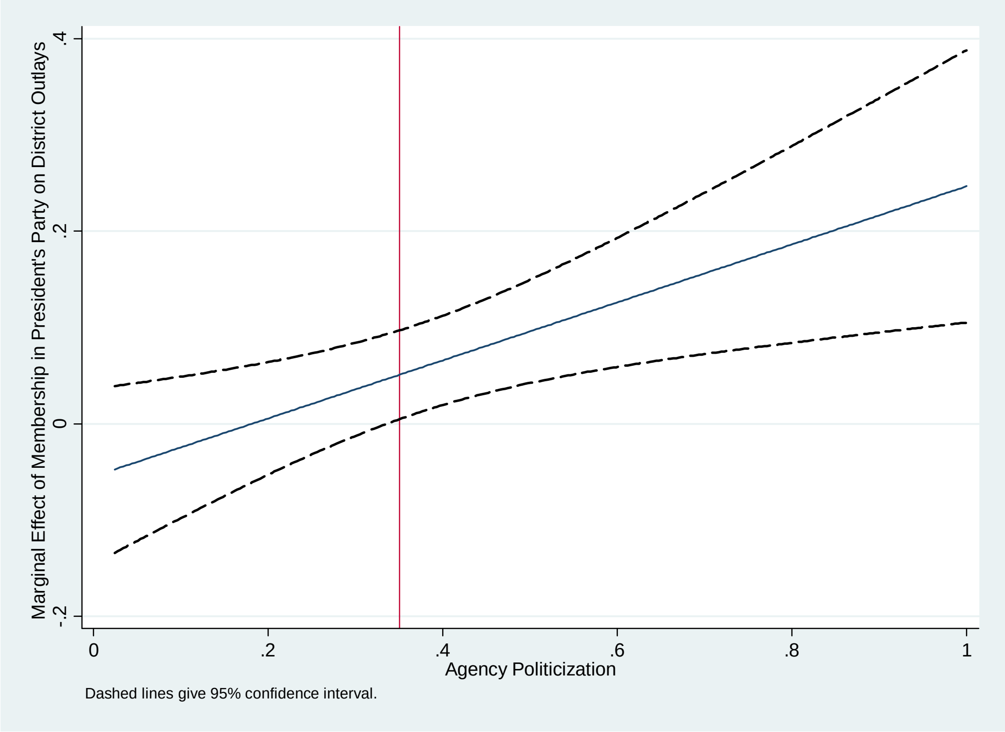

Figure3: Marginal Effect of Membership in the President’s Party by Agency Politicization

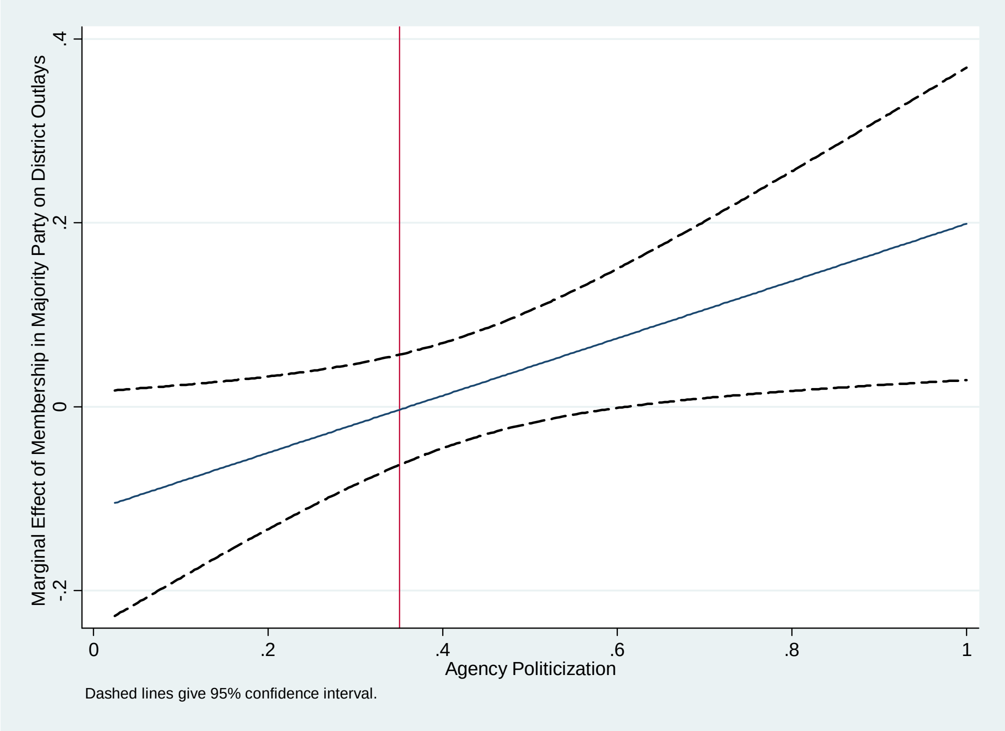

Figure 4: Marginal Effect of Membership in the Majority Party by Agency Politicization

Note: Vertical lines denote the average value of agency politicization.

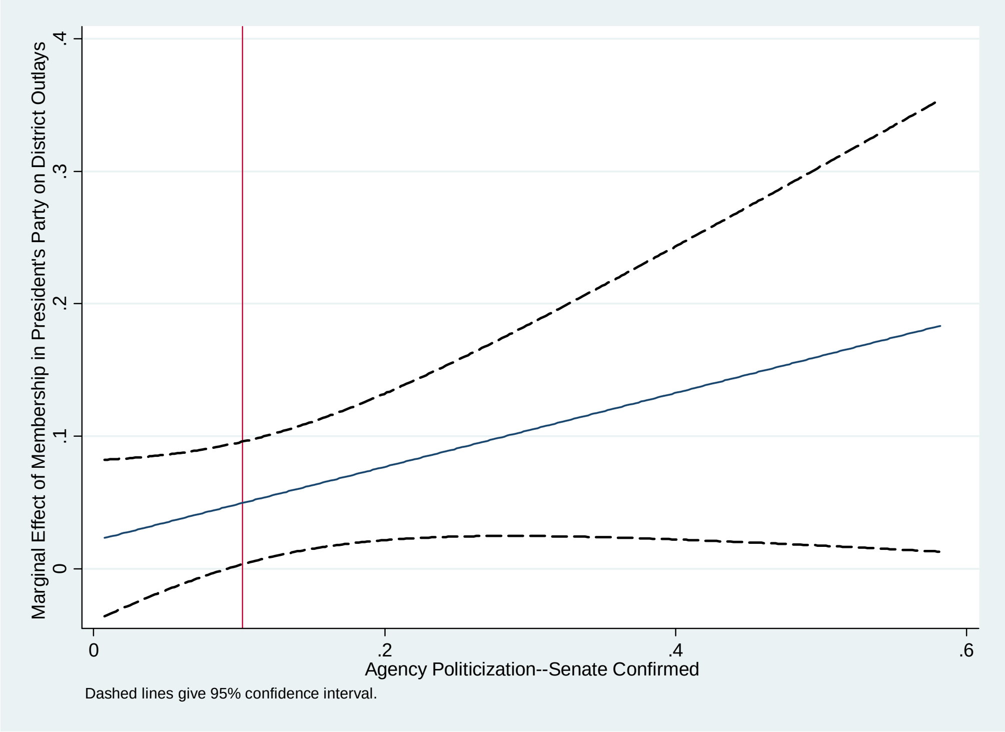

Figure 5a: Marginal effect of membership in the president's party, Senate-confirmed appointees only.

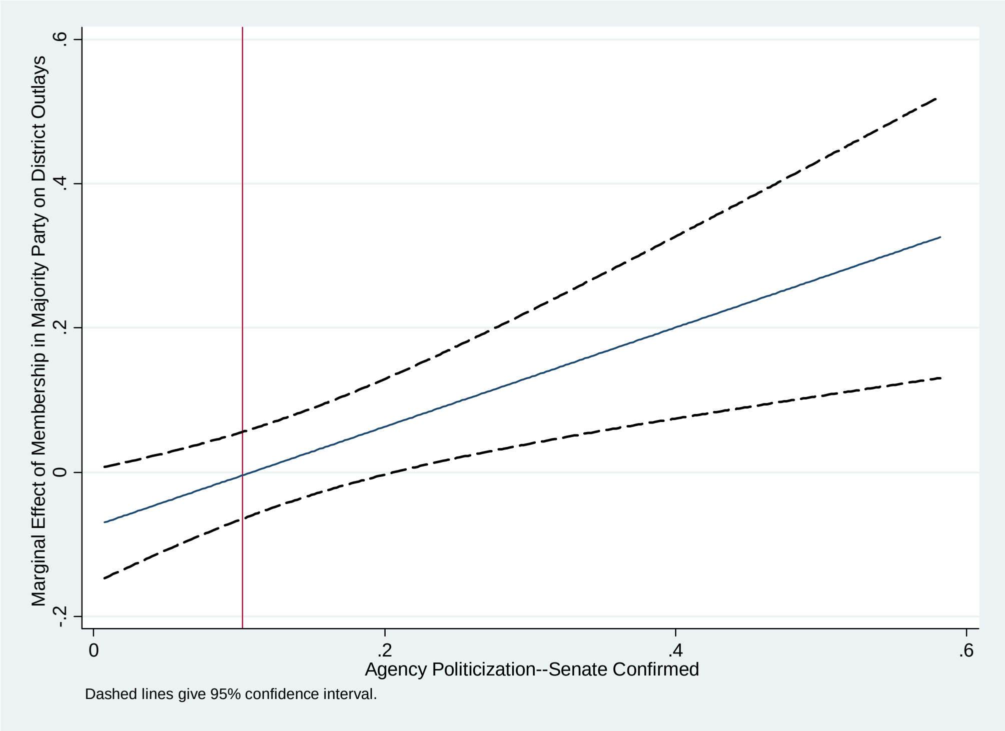

Figure 5b: Marginal effect of membership in the majority party, Senate-confirmed appointees only.

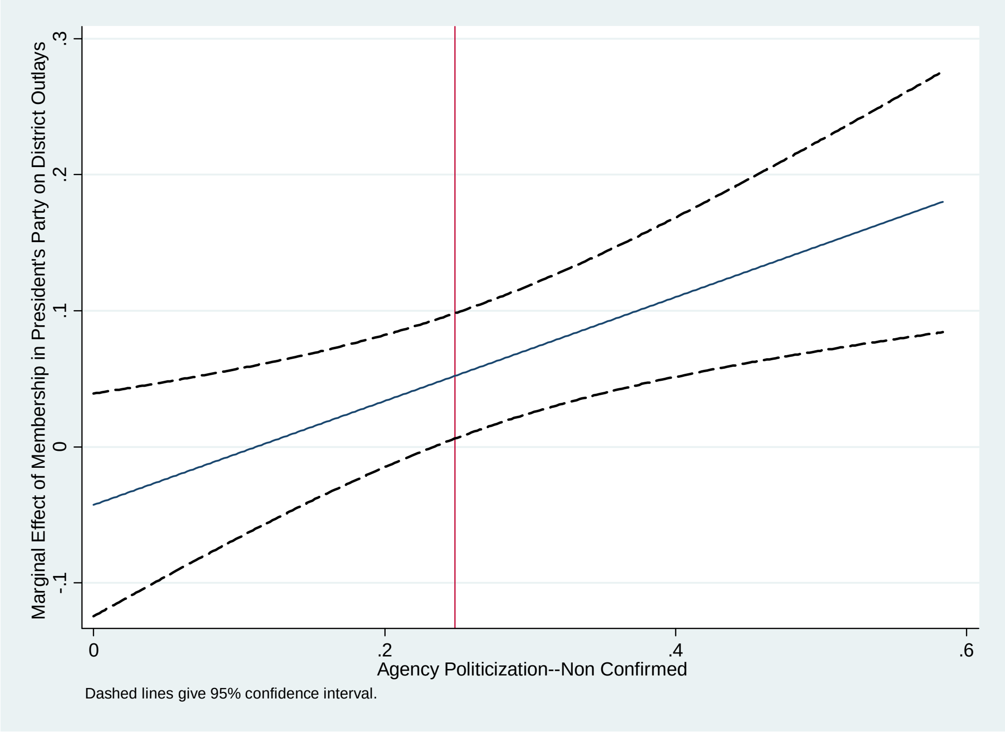

Figure 5c: Marginal effect of membership in the president's party, non-confirmed appointees only.

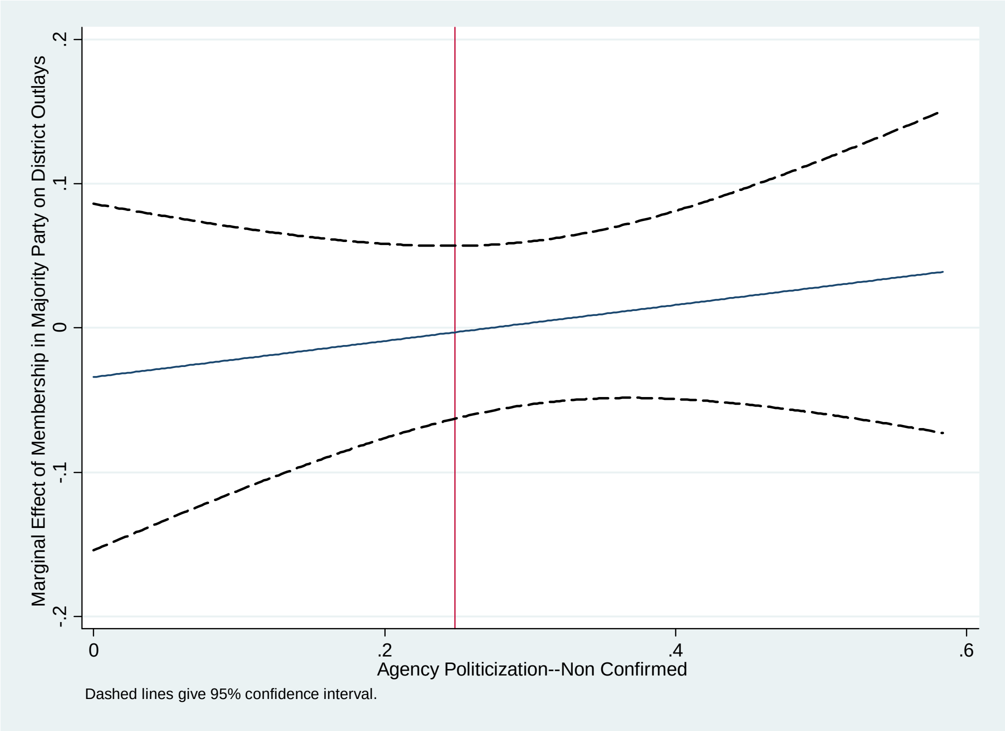

Figure 5d: Marginal effect of membership in the president's party, non-confirmed appointees only.

**Table 1: Agency Politicization over Time**

| | 1984 | 1988 | 1992 | 1996 | 2000 | 2004 | 2008 |
|---|---|---|---|---|---|---|---|
| Corporation for National and Community Service | | | | 77.3% | 50.0% | 75.0% | 100.0% |
| Department of Agriculture | 46.9% | 47.1% | 43.5% | 45.1% | 46.5% | 40.7% | 39.7% |
| Department of Commerce | 31.6% | 32.1% | 31.5% | 33.7% | 24.9% | 32.8% | 30.1% |
| Department of Defense | 39.8% | 33.9% | 32.1% | 34.0% | 31.4% | 34.1% | 35.5% |
| Department of Education | 64.4% | 70.6% | 65.0% | 65.0% | 65.5% | 62.0% | 61.5% |
| Department of Energy | 17.7% | 19.0% | 19.7% | 21.8% | 22.2% | 20.3% | 19.5% |
| Department of Health and Human Services | 24.3% | 21.7% | 20.6% | 20.1% | 19.9% | 25.6% | 24.0% |
| Department of Housing and Urban Developm | 59.6% | 54.4% | 48.9% | 50.2% | 52.7% | 48.4% | 43.4% |
| Department of Justice | 54.7% | 50.4% | 38.0% | 37.2% | 31.9% | 36.7% | 31.7% |
| Department of Labor | 39.2% | 39.4% | 41.5% | 42.4% | 36.0% | 45.9% | 48.4% |
| Department of Transportation | 29.9% | 27.2% | 18.4% | 26.0% | 31.2% | 28.8% | 30.3% |
| Department of Veterans Affairs | 11.6% | 10.6% | 8.8% | 9.3% | 11.8% | 13.4% | 11.6% |
| Department of the Interior | 30.1% | 29.1% | 28.7% | 27.4% | 25.6% | 24.1% | 24.1% |
| Environmental Protection Agency | 20.6% | 14.9% | 17.8% | 16.4% | 12.9% | 18.3% | 19.1% |
| Equal Employment Opportunity Commission | 34.0% | 36.5% | 28.8% | 24.1% | 19.2% | 17.5% | 21.6% |
| Federal Emergency Management Agency | 35.4% | 36.9% | 40.2% | 31.0% | 36.0% | | |
| National Aeronautics and Space Administr | 3.3% | 2.0% | 1.6% | 2.6% | 4.6% | 3.7% | 3.8% |
| National Foundation on the Arts and the | 68.0% | 57.1% | 50.0% | 54.8% | 50.0% | 54.3% | 41.2% |
| National Science Foundation | 4.9% | 2.0% | 1.9% | 2.0% | 2.5% | 2.3% | 2.3% |
| Railroad Retirement Board | 33.3% | 26.7% | 23.5% | 23.5% | 28.6% | 30.8% | 30.8% |
| Small Business Administration | 54.8% | 55.2% | 44.8% | 44.0% | 45.2% | 53.3% | 50.5% |
| Social Security Administration | | | | 12.5% | 11.2% | 12.7% | 8.5% |

Source: Plumbook data, courtesy of David Lewis. *Politicization* is defined as the number of political appointees divided by the sum of politcal appointees plus Senior Executive Service personnel.

**Table 2: Agency Agency Politicization and District Spending**

| | Baseline (1) | Agency Politicization (2) | Senate Confirmed (3) | Non-Confirmed (4) |
|---|---|---|---|---|
| President's party | 0.051** | 0.051** | 0.050** | 0.052** |
| | (0.023) | (0.024) | (0.024) | (0.024) |
| x Agency Politicization | | 0.301*** | 0.279 | 0.382*** |
| | | (0.108) | (0.178) | (0.133) |
| Majority Party | -0.001 | -0.004 | -0.004 | -0.003 |
| | (0.030) | (0.031) | (0.031) | (0.031) |
| x Agency Politicization | | 0.311** | 0.689*** | 0.125 |
| | | (0.141) | (0.209) | (0.177) |
| Republican | -0.125*** | -0.125*** | -0.127*** | -0.125*** |
| | (0.037) | (0.038) | (0.038) | (0.038) |
| x Agency Politicization | | -0.053 | -0.056 | -0.083 |
| | | (0.161) | (0.261) | (0.205) |
| Leader | -0.145 | -0.161 | -0.162 | -0.160 |
| | (0.147) | (0.151) | (0.151) | (0.151) |
| x Agency Politicization | | 0.349 | -0.566 | 1.032 |
| | | (0.640) | (0.981) | (0.820) |
| Committee Chair | 0.096* | 0.098* | 0.098* | 0.097* |
| | (0.057) | (0.058) | (0.058) | (0.058) |
| x Agency Politicization | | -0.066 | -0.209 | 0.017 |
| | | (0.241) | (0.320) | (0.329) |
| Ranking Member | 0.132** | 0.123** | 0.123** | 0.123** |
| | (0.053) | (0.054) | (0.054) | (0.054) |
| x Agency Politicization | | -0.012 | 0.242 | -0.186 |
| | | (0.231) | (0.370) | (0.286) |
| Appropriations | 0.045 | 0.039 | 0.039 | 0.039 |
| | (0.045) | (0.046) | (0.046) | (0.046) |
| x Agency Politicization | | 0.197 | 0.216 | 0.229 |
| | | (0.181) | (0.284) | (0.256) |
| Ways and Means | -0.153*** | -0.159*** | -0.158*** | -0.159*** |
| | (0.058) | (0.059) | (0.059) | (0.059) |
| x Agency Politicization | | 0.186 | 0.340 | 0.125 |
| | | (0.259) | (0.406) | (0.324) |
| First Term | -0.084*** | -0.084*** | -0.083*** | -0.084*** |
| | (0.023) | (0.023) | (0.023) | (0.023) |
| x Agency Politicization | | 0.234** | 0.294** | 0.245* |
| | | (0.101) | (0.149) | (0.132) |
| Close Election | 0.066** | 0.066* | 0.066* | 0.066* |
| | (0.033) | (0.034) | (0.034) | (0.034) |
| x Agency Politicization | | -0.151 | 0.033 | -0.305* |
| | | (0.138) | (0.225) | (0.179) |
| Number of observations | 203,837 | 194,735 | 194,735 | 194,735 |
| R2 (within) | 0.068 | 0.070 | 0.070 | 0.070 |

Notes: The dependent variable is the natural log of the dollar value of federal awards by agency, district, and year. All models include agency-by-district fixed effects and year fixed effects. Standard errors clustered by agency-district are reported in parentheses. *Agency politicization* is defined as the average number of political appointees divided by the sum of the average number of political appointees plus the average number of SES personnel. *** p<0.01, ** p<0.05, * p<0.1

### Table 3: Time-Varying Agency Politicization

| | Politicization (1) | Senate Confirmed (2) | Non-Confirmed (3) |
|---|---|---|---|
| Agency Politicization | -2.400*** | 0.443 | -2.015*** |
| | (0.388) | (0.345) | (0.281) |
| President's party | 0.051** | 0.046* | 0.051** |
| | (0.024) | (0.024) | (0.024) |
| x Agency Politicization | 0.394*** | 0.264 | 0.460*** |
| | (0.113) | (0.179) | (0.128) |
| Majority Party | -0.005 | -0.005 | -0.006 |
| | (0.031) | (0.031) | (0.031) |
| x Agency Politicization | 0.283** | 0.595*** | 0.063 |
| | (0.143) | (0.189) | (0.172) |
| Republican | -0.122*** | -0.124*** | -0.122*** |
| | (0.039) | (0.039) | (0.039) |
| x Agency Politicization | -0.016 | -0.078 | 0.024 |
| | (0.161) | (0.242) | (0.189) |
| Leader | -0.190 | -0.190 | -0.188 |
| | (0.154) | (0.154) | (0.153) |
| x Agency Politicization | 0.314 | -0.301 | 0.705 |
| | (0.645) | (0.840) | (0.785) |
| Committee Chair | 0.097* | 0.098* | 0.097* |
| | (0.058) | (0.058) | (0.059) |
| x Agency Politicization | -0.096 | -0.169 | -0.043 |
| | (0.240) | (0.284) | (0.311) |
| Ranking Member | 0.120** | 0.121** | 0.121** |
| | (0.054) | (0.054) | (0.055) |
| x Agency Politicization | -0.011 | 0.179 | -0.165 |
| | (0.229) | (0.339) | (0.273) |
| Appropriations | 0.045 | 0.044 | 0.044 |
| | (0.047) | (0.047) | (0.047) |
| x Agency Politicization | 0.305* | 0.200 | 0.392* |
| | (0.182) | (0.276) | (0.238) |
| Ways and Means | -0.165*** | -0.164*** | -0.166*** |
| | (0.060) | (0.060) | (0.060) |
| x Agency Politicization | 0.146 | 0.190 | 0.112 |
| | (0.254) | (0.351) | (0.293) |
| First Term | -0.078*** | -0.077*** | -0.078*** |
| | (0.024) | (0.024) | (0.024) |
| x Agency Politicization | 0.299*** | 0.388*** | 0.243* |
| | (0.100) | (0.137) | (0.127) |
| Close Election | 0.066* | 0.066* | 0.066* |
| | (0.034) | (0.034) | (0.035) |
| x Agency Politicization | -0.165 | -0.021 | -0.267 |
| | (0.138) | (0.219) | (0.170) |
| Number of observations | 191,388 | 191,388 | 191,388 |
| R2 (within) | 0.072 | 0.071 | 0.072 |

Notes: The dependent variable is the natural log of the dollar value of federal awards by agency, district, and year. All models include agency-by-district fixed effects and year fixed effects. Standard errors clustered by agency-district are reported in parentheses. *Agency politicization* is defined as the number of political appointees divided by the sum of the number of political appointees plus the number of SES personnel in each year. *** p<0.01, ** p<0.05, * p<0.1

| Table 4: Robustness | High-Variation Programs (1) | Low-Variation Programs (2) | Jackknife (3) | Dropping State Capitals (4) | Tobit (5) |
|---|---|---|---|---|---|
| President's party | 0.049** | -0.002 | 0.051* | 0.023 | 0.082*** |
| | (0.024) | (0.001) | (0.027) | (0.029) | (0.024) |
| x Agency Politicization | 0.300*** | 0.011** | 0.301* | 0.357*** | 0.295** |
| | (0.109) | (0.005) | (0.169) | (0.129) | (0.116) |
| Majority Party | -0.004 | 0.001 | -0.004 | 0.001 | -0.026 |
| | (0.031) | (0.002) | (0.038) | (0.037) | (0.024) |
| x Agency Politicization | 0.313** | 0.002 | 0.311** | 0.322* | 0.431*** |
| | (0.141) | (0.007) | (0.127) | (0.165) | (0.121) |
| Republican | -0.129*** | 0.001 | -0.125** | -0.148*** | -0.174*** |
| | (0.038) | (0.002) | (0.050) | (0.051) | (0.032) |
| x Agency Politicization | -0.111 | -0.006 | -0.053 | -0.110 | 0.095 |
| | (0.161) | (0.008) | (0.270) | (0.204) | (0.156) |
| Leader | -0.185 | 0.004 | -0.161 | -0.039 | -0.193 |
| | (0.152) | (0.010) | (0.150) | (0.182) | (0.125) |
| x Agency Politicization | 0.563 | 0.009 | 0.349 | 0.225 | -0.031 |
| | (0.645) | (0.032) | (0.836) | (0.641) | (0.638) |
| Committee Chair | 0.096* | 0.003 | 0.098 | 0.101 | 0.077 |
| | (0.058) | (0.004) | (0.062) | (0.069) | (0.052) |
| x Agency Politicization | -0.060 | -0.011 | -0.066 | 0.088 | -0.025 |
| | (0.242) | (0.015) | (0.240) | (0.284) | (0.265) |
| Ranking Member | 0.122** | -0.001 | 0.123** | 0.145** | 0.187*** |
| | (0.054) | (0.003) | (0.060) | (0.062) | (0.051) |
| x Agency Politicization | -0.017 | 0.015 | -0.012 | -0.184 | 0.174 |
| | (0.231) | (0.012) | (0.207) | (0.260) | (0.260) |
| Appropriations | 0.040 | 0.001 | 0.039 | 0.039 | 0.130*** |
| | (0.046) | (0.003) | (0.050) | (0.057) | (0.043) |
| x Agency Politicization | 0.190 | -0.007 | 0.197 | 0.270 | 0.334 |
| | (0.181) | (0.009) | (0.165) | (0.219) | (0.213) |
| Ways and Means | -0.156*** | -0.002 | -0.159*** | -0.147** | -0.034 |
| | (0.059) | (0.004) | (0.043) | (0.071) | (0.049) |
| x Agency Politicization | 0.209 | 0.009 | 0.186 | 0.059 | 0.043 |
| | (0.258) | (0.012) | (0.126) | (0.314) | (0.246) |
| First Term | -0.083*** | 0.000 | -0.084*** | -0.068** | -0.068*** |
| | (0.023) | (0.002) | (0.025) | (0.029) | (0.024) |
| x Agency Politicization | 0.233** | 0.006 | 0.234 | 0.343*** | 0.190 |
| | (0.101) | (0.006) | (0.161) | (0.121) | (0.119) |
| Close Election | 0.070** | -0.001 | 0.066* | 0.029 | 0.058* |
| | (0.034) | (0.002) | (0.038) | (0.042) | (0.034) |
| x Agency Politicization | -0.169 | 0.003 | -0.151 | -0.192 | -0.144 |
| | (0.138) | (0.006) | (0.157) | (0.164) | (0.170) |
| Number of observations | 194,735 | 194,735 | 194,735 | 155,721 | 194,735 |
| R2 (within) | 0.077 | 0.033 | 0.070 | 0.067 | |

Notes: The dependent variable is the natural log of the dollar value of federal awards by agency, district, and year. All models include agency-by-district fixed effects and year fixed effects. Standard errors clustered by agency-district are reported in parentheses, except for model (3), which reports jackknifed standard errors computed by dropping one agency at a time. *Agency politicization* is defined as the average number of political appointees divided by the sum of the average number of political appointees plus the average number of SES personnel. *** p<0.01, ** p<0.05, * p<0.1