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Journal

Journal of Public Administration Research and Theory, 26(3)

ISSN

1053-1858

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Publication Date

2016-07-01

DOI

10.1093/jopart/muw002

Peer reviewed

Agency Structure and the Distribution of Federal Spending

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Abstract

Agency structure can shape agency independence in two ways. First, it can insulate agencies from policy demands from political overseers in Congress and the executive branch. Second, agency structure can shape the range of available options from which agencies can select policy. In this paper, we present a novel empirical approach that evaluates both types of effects by modeling the mean and variance of agencies' policy decisions. Analyses of United States distributive program spending across ten congresses and 68 federal agencies shows that agencies structured for independence enjoy a broader range of options from which to implement policy but are no less responsive to spending demands from members of Congress and the president.

Agency structure is the institutional rules and authority under which government agencies administer the policy responsibilities delegated to them from their political authorities. Agency structure helps govern the relationship among elected officials, agencies, and the public that is key to electoral and democratic accountability. Like statutory limits on discretion (Huber and Shipan 2002), congressional oversight (Aberbach 1990), limitation riders (MacDonald 2010), and administrative procedures (McCubbins, Noll, and Weingast 1987), agency structure can be a powerful tool that provides presidents and Congress with the opportunity to steer agency implementation to serve their electoral purposes (Howell and Lewis 2002; Moe 1989; Wood and Bohte 2004) and shape the range of options from which agencies can select policy to implement (Bawn 1995, 1997; Epstein and O'Halloran 1994, 1999; Hammond and Knott 1996; McCubbins, Noll, and Weingast 1989; Bendor, Glazer and Hammond, 2001).

Consider an example of how agency structure might play out in an agency administering federal grants. Enabling legislation that creates a national public health agency to administer grants for disease research might design the agency to be quite responsive to elected politicians. As prior research has shown (e.g., Bickers and Stein 1996), such an agency might display a bias by directing more funding to districts represented by powerful or electorally demanding politicians, perhaps because politicians directly influence spending or because strategic agency officials anticipate what their overseers would want. But suppose the agency officials are more likely than the politicians to know which grant proposals have stronger scientific merit and which diseases are more promising targets for research. Politicians could then structure the agency for more independence, giving it a broader range of options for administering policy in an attempt to exploit the public health officials' expertise about how best to improve human health through disease research. Under the cloak of independence, however, the agency administrators

could channel grants towards their favored research labs or their own pet disease causes, drifting implementation from what politicians would want if they were as well informed as the agency officials. Without knowing the agencies' preferences and their evaluation of the technical merits of funding options, it is difficult to specify the location where funding is more likely to occur within the broader range of options available to them. What can instead be specified, however, is that independent agencies can use the broader range of options to implement policy with what appears from the outside to be a higher degree of variability. Agency structure can thus have two consequences for how funding programs are administered. Agencies structured for political control will be more likely to make awards in the districts of politically powerful and demanding politicians, while also having a smaller range of options from which to select policies to implement.

In this paper, we present an empirical strategy for identifying both of these effects of agency structure on the implementation of federal distributive policy. The data are a panel of US distributive program awards made by federal agencies from 1983 to 2002, measures of agency structure (Lewis 2003; 2008), and other controls. We first examine whether distributive program spending in agencies structured for political influence is more sensitive to elected politicians' political circumstances than spending in agencies structured for more independence, such as whether politically pliable agencies channel more distributive program awards to the districts represented by politicians facing close elections. We then examine whether more independent agencies show wider variance in their distributive spending, conditional on the modeled mean from the first analysis. Independent agencies may probabilistically choose policies across the broader range of options available to them, whether these choices are motivated by the agency's own policy preferences or by its technical policy assessments. The emphasis on variability in distributive spending means that we need not empirically distinguish between these motivations.

Across several model specifications, agency structure consistently has imperceptible influence on agencies' responsiveness to elected politicians, but it significantly increases the range of options from which agencies implement distributive spending policy. The correlations between measures of politicians' political circumstances and agencies' distributive policy spending in their congressional districts are no stronger for agencies structured for political influence than for agencies structured for independence. However, the variance of distributive policy spending is greater for agencies structured for independence than for those structured for control. Together, these results suggest that agency structure is a way of adjusting agency independence by structuring the range of options from which agencies can choose to administer policy rather than by making agencies responsive to individual elected politicians.

Our paper offers important contributions to public administration research. First, the paper shows that agency independence can have two implications for how agencies implement policy: agencies' ability to resist demands from political overseers and their ability to select policies to implement from a broad range of politically acceptable options. Second, the paper offers an analytic strategy for identifying both of these discretionary effects in a broad range of research settings. An advantage of this approach is that it identifies the consequences of discretion without needing to sort out whether decisions were based on administering agencies' technical assessments or policy preferences, which is a vexing challenge in just about any empirical setting. Third, the paper's findings suggest that, aside from responsiveness to politicians' demands, agencies use discretion to pursue policies of their own choice, whether based on their own policy preferences or technical expertise. The next section offers a more detailed theoretical rationale in the context of the literature on agency structure and distributive spending. The paper then presents the data and analytic techniques, results, and conclusion.

1 Theoretical Rationale: The Consequences of Agency Structure

Agency structure is constrained by a tradeoff between the benefits of agency independence and those of political responsiveness (e.g., Bawn 1995; Bendor and Meirowtiz 2004; Gailmard 2002; Gailmard and Patty 2007; Hammond and Knott 1996; Huber 2007; Morgan and Campbell 2011; Whitford 2005). Because agency administrators may have policy relevant expertise, independent agencies may implement policy in more technically sound ways, leading to better policies than the less informed politicians could have achieved on their own. But, administrators' views on what constitutes technically sound policy may be different from politicians' views, and administrators may have their own personal policy preferences that differ from politicians' preferences. Agencies' expertise and information advantage over their elected political overseers may allow agencies to pursue objectives that are at odds with what elected politicians would want (Banks and Weingast 1992). Because they lack administrators' information and expertise, politicians have a hard time discerning whether a particular administrative action is in line with what they would have wanted or is some form of administrative drift (Calvert, McCubbins, and Weingast 1989; Macey 1992; Shepsle 1992).¹

Theoretical and empirical research has shown that politicians design agencies through a political process where Congress and the president are often at odds (e.g., Lewis 2003). Politicians delegate increased discretion when agencies' expertise is more valuable, such as when a policy problem is more complex (Ringquist, Wrosham, and Eisner 2003) and reduce discretion

¹ Beyond agency structure, other factors influence the level of agency autonomy, including reputation (Carpenter 2001), policy issue salience and the political environment (Lavertu 2012; Carpenter and Krause 2015), and conflict among political overseers (Epstein and O'Halloran, 1999). We limit our discussion to agency structure since we do not address these other sources empirically; our analyses control for these effects using agency fixed effects and other empirical approaches.

when their political costs of agency drift are greater, such when a policy is more politically salient or conflictual (Lavertu 2012; Whitford 2005).

The consequences of agency structure for how agencies implement policy has received less empirical scrutiny (but see e.g., Wood and Waterman 1991, 1993; Whitford 2014, Woods 2015), most likely because of the challenges of measuring the degree of independence delegated across different agencies and, perhaps more importantly, of deploying an empirical strategy for identifying the effects of agency structure on how agencies implement policy.² This paper takes up these challenges. First, we develop a theoretical rationale for how agency structure shapes the degree of independence with which agencies implement policies. Second, we offer an empirical analysis that identifies the effect of agency structure on political responsiveness directly and on the range of policy options available to the agency.

1.1 Agency Structure and Policy Outcomes

There is a rich literature on the conditions under which politicians design agencies for more or less political responsiveness (e.g., Howell and Lewis 2002; Lewis 2003; Wood and Bohte 2004). Here we do not consider the causes of administrative design but instead emphasize the implications of agency design.³ Agency structure can have two important consequences for how agencies implement policy. First, agencies structured for political responsiveness may implement policy more in accordance with the demands of elected politicians. Both the president and members of Congress have been shown to exercise influence over agencies (e.g., Clinton, Lewis,

² See Carpenter and Krause (2015) for a contrasting perspective. Krause and Douglas 2005 find that the reputational incentives of agencies outweigh differences in structure.

³ Considerable research shows that politicians use agency structure to influence future agency behavior and to manage the tradeoff between agency expertise and responsiveness (e.g., Moe 1989, Bawn 1995, Bendor, Glazer, and Hammond, 2001; Gailmard and Patty 2012).

and Selin 2014; Berry, Burden, and Howell 2010). Politicians may exert more influence when agencies' decisions are more valuable to them, such as when facing a challenging election (Bickers and Stein 1996, 2000). Politicians may likewise exert more influence over agencies when they have more political authority. For example, a legislative committee chair may have more influence over agencies under her jurisdiction.

Second, agencies structured for independence may have a broader range of options from which to choose policies. Of course, an agency might use its discretion to choose policies from a narrow band of the broader range available to it, resulting in a more homogeneous set of policies. However, across a large number of agencies making many policy choices, the broader range of policy options available to more independent agencies should on average show more heterogeneous policies. Agency structure can affect an agency's range of policy options by heading it with a board or commission or by placing limitations on the type of person who can serve as its leader.

Theories of agency structure suggest two dimensions of agency independence: the degree to which agencies respond to external political influence and the range of options from which they can select policy to implement (see Bawn 1995; Gailmard and Patty 2012). From this we derive two propositions that inform our empirical analyses. The first is that agencies' policy output varies based on the signals it receives from politicians, conditional on the degree to which the agency has been structured for political responsiveness. The second empirical proposition addresses the fact that agency structure can affect the range of policy options from which the agency can select a policy to implement. From politicians' perspectives, agency drift occurs when agencies' policy outputs differ from what is targeted by the combined effects of the legislative mandate and political demands, with larger differences indicating that the agency had a larger

discretionary range from which to choose policy. The size of the range is a function of agency structure for political responsiveness.

1.2 Agency Structure and Distributive Policy

Federal distributive program spending in the United States is an ideal setting for studying the effects of agency structure on policy implementation. There are thousands of grant programs across the US federal government, covering diverse policy areas such as health research, transportation infrastructure, education, and the environment. The demands of public office leave politicians without the time and expertise to identify which levees need repair, which businesses need loans, and so on. Instead, elected politicians establish via statute the broad aims for distributive programs and then delegate authority for making specific awards to agencies with expertise to better identify the most suitable recipients. At the same time, elected politicians can sometimes have stronger incentives to influence how specific agencies spend distributive funds (Stein 1981, Levitt and Snyder 1997), as demonstrated by empirical research on how elected politicians influence distributive spending in the United States.⁴ Members of Congress demand more spending in their districts when facing harder reelection battles (Bickers and Stein 1996; Sellers 1997). Members of Congress also channel more distributive program spending to their district when they hold favorable committee assignments (Adler 2002; Arnold 1979; Carsey and Rundquist 1999; Hird 1991; Rich 1989) and when their party controls Congress (Levitt and Snyder 1995; Bickers and Stein 2000; Balla et al. 2002). Members of Congress can use federal spending to reward strong political supporters from the previous election (Anderson and Tollison

⁴ There is also considerable research on agency budget requests, suggesting that the political overseers seek ways to overcome the informational disadvantage that they face (e.g., Bendor and Moe 1985, Ryu, et al. 2007). If anything, this informational disadvantage is likely greater with distributive awards, given their geographic and topical specificity.

1991; Chen 2010; Couch and Shugart 1998; Larcinese, Rizzo, and Testa 2006) but also to target swing voters in upcoming elections (Garrett and Sobel 2003).⁵ The US president may also influence spending (Hudak 2014) to target swing voters (Dixit and Londregan 1996), reward their supporters from the previous election (Cox and McCubbins 1986), and reward copartisans (Berry, Burden, and Howell 2010, Dynes and Huber 2015).

Comparing how independent and politically controlled agencies respond to legislators' political circumstances provides insights into how agency structure conditions responsiveness. Distributive spending by agencies structured for such influence should be more strongly correlated with politicians' political circumstances than spending by independent agencies.⁶ For example, if a formerly safe incumbent faces a daunting election, her district would receive more funding from agencies structured for political influence, while politically insulated agencies would not change their spending in response to the legislator's electoral circumstances. Likewise, a politician gaining a new position of authority such as a legislative committee chair would have more ability to shift to his district the spending of agencies structured for political influence, while the spending of politically insulated agencies would remain unchanged.

Figure 1 offers a conceptual illustration of the two ways that agency structure can shape distributive program spending, using politicians' electoral circumstances as an example of the types of varying political circumstances agencies can face. The x-axis aligns agencies from low to high by their level of independence. The y-axis is the number of awards received by districts, with the solid lines distinguishing between competitive districts where incumbents have strong

5 Higher distributive program spending is also correlated with citizens' needs and demands, as reflected by district demographics (Arnold 1979; Bickers and Stein 1996, 2000; Carsey and Rundquist 1999; Hird 1991; Lee and Oppenheimer 1999; Levitt and Snyder 1995; Potoski and Talbert 2000; Rich 1989) and strength of organized interests (Lowry and Potoski 2004).

6 Here we do not consider the ideology of the member of Congress or agency, but congruence between these has also been shown to increase grants (Bertelli and Grose 2009).

demand for more distributive spending and safe districts where the incumbents' demand for distributive spending is lower. First, Figure 1 shows how agency structure influences agencies' responsiveness to political demands. Insulated agencies do not change their level of spending according to politicians' electoral circumstances; when agencies are the most insulated, competitive districts receive the same amount of spending as safe districts. Less insulated agencies are responsive to politicians' electoral circumstances, increasing spending in competitive districts relative to safe districts. Second, Figure 1 shows that agency structure shapes the range of options available to an agency. The grey shaded area represents the range of policies from which agencies can choose. More insulated agencies enjoy a broader range of options from which to select policy to implement.

Figure 1 about here

Evaluating in practice whether agency structure shapes the range of policy choices available to an agency has proven to be quite challenging, largely because of the difficulty of measuring concepts like agency preferences and the technical merits of policy options. Below we describe an analytic approach to evaluating distributive program spending that evaluates the effects of agency structure on the range of policy options available for agencies to implement without resorting to measuring agency preferences or the technical merits of policy options. We argue that the variance in distributive program awards by US agencies, conditional on the mean predicted by politically relevant observable factors, provides a measure of the range of policy options available to the agency. A broader range of options means that agencies enjoying discretion are more likely to choose policies that are larger deviations from what the observed factors would have predicted.

2 Methods and Data

Our analyses first model the mean of agencies' distributive program implementation across congressional districts as a function of agency structure, politicians' political circumstances, and other controls. We next examine interaction terms between politicians' political circumstances and agency structure to see if distributive program spending is less responsive to politicians' demands when procedures grant agency independence. Our analyses then model the variance of agencies' spending choices, conditional on the estimated mean, as a function of agency structure. The key tests of the effect of agency structure on the range of policy available to agencies are coefficients measuring whether the variance of distributive policy spending across districts increases with agencies' discretion. For this test, the analyses use panel techniques with multiplicative heteroskedasticity (Harvey 1976). Note that this empirical approach implies a definition of agency discretion as the range of policy options that are practically feasible for the agency to implement. By practically feasible we mean permissible by statute and judicial oversight and beyond the direct influence of political demand from Congress and the President. We also report several specification checks, including fixed and random effects and different measures of agency independence. All in all, our analytic approach offers several important advantages over previous agency design and distributive policy research: a large sample of panel data, variation in agency structure and political circumstances, and an analytic approach that uses interaction terms and conditional variance coefficients to assess two outcomes of agency independence.

2.1 Estimation Methods

The analyses are based on linear regression with multiplicative conditional heteroskedasticity estimated via full information maximum likelihood (Harvey 1976). This procedure estimates both the mean and variance of a dependent variable conditional on independent variables. Such techniques are useful for uncovering circumstances where the variance of a dependent variable depends on exogenous factors. For example, the variability of citizens' attitudes on contentious issues may depend on how well they are informed (Alvarez and Brehm 2002). Our empirical model regresses the number of distributive program awards from an agency to a district on the independent variables and interaction terms in order to assess whether the effect of political variables is conditional on the agency structure, shown as equation 1.

$$awards_{ijt} = \alpha + B_1 * X_{it} + B_2 * P_j + B_3 (X_{it} * P_j) + B_4 * W_{it} + \tau_{ijt} \quad (1)$$

where subscript i indexes congressional districts, subscript j indexes agencies, and subscript t indexes congresses. X_{it} represents a matrix of political characteristics measuring conditions where the district's representative would have more ability or effective demand to steer distributive program awards to her district, such as her seniority, committee assignment, or political vulnerability. P_j is a measure of agency independence. While we do not see any obvious theoretical reason to believe that the number of awards is a direct function of agency structure, we include it in the empirical model as a main effect in order to estimate the interaction terms, which are of interest. W_{it} is a vector of controls composed of district characteristics. The coefficients α and B_1, B_2, B_3, B_4 represent respectively the constant and direct effects of political characteristics, agency independence, and controls on distributive program awards. The control variables include measures of districts' demand and ability to procure distributive program awards, including wealth, education and other demographics. τ_{ijt} , the vector of coefficients on the interaction terms,

indicate whether the structure chosen affects the degree to which the agency is responsive to political factors. The intuition behind this modeling approach is that the coefficients α and β , γ , and δ together capture how politicians direct agencies to implement policy, whether through legislative mandate or through the amount they respond to political signals net of the insulating effects of agency structure, which are captured via τ_{ijt} . ϵ_{ijt} is the error term which takes the form of equation 2.

$$\text{Var}(\tau_{ijt}) = e^{\vartheta + \gamma * P_j + \epsilon_{ijt}} \quad (2)$$

with notations the same as equation 1. τ_{ijt} is once again a measure of agency independence. The coefficients ϑ and γ represent the constant and the coefficient for agency independence. The intuition behind this modeling approach is that a larger variance means that agencies are choosing policies with more independence from the political influences captured in equation 1. This specification allows us to assess whether the variance in agency policies is greater when the agency is more insulated, with a positive coefficient indicating greater variance among more independent agencies (e.g., Huber and Shipan 2002). After performing the Wooldridge test for autocorrelation in panel data (Wooldridge 2002), we can reject the null hypothesis of no first-order autocorrelation, which is not surprising given the nature of distributive spending data. The results include models with and without a lagged dependent variable. Equations 1 and 2 were estimated in Stata using the *regh* command.

We also conducted alternative analyses to see if the results are sensitive to modeling assumptions. Since the control variables may not account for all observable factors influencing distributive program spending, such as actors' capacity to work collaboratively to procure grants, we estimated models using fixed and random effects to account for unmeasured characteristics of the agency-district pair within a redistricting period that might otherwise lead to omitted variable

bias.⁷ This identification strategy accounts for factors such as interest group strength and the presence of major research universities that might influence distributive program grants as well as unobservable factors in the relationship between an agency and a district. This means, of course, that we cannot estimate a coefficient for independence in the first stage because it does not vary within the district-decade-agency groupings and is captured via the fixed effects, but we can still estimate the interaction term coefficients to see if the effects of political circumstances vary with agency structure, which is our primary interest. We also estimated random effects analyses, which can include both the interaction terms and their components. A disadvantage of both fixed and random effects approaches is that software procedures have not been developed for jointly estimating equations 1 and 2 with fixed and random effects. For both these models, we adopt the less efficient but asymptotically equivalent approach of first estimating equation 1 and then using its squared residuals to estimate equation 3.

$$\tau_{ijt}^2 = \vartheta + \gamma * P_j + \rho * G_t + \epsilon_{ijt} \quad (3)$$

Since the Wooldridge (2002) test for serial autocorrelation again suggests that there is serial autocorrelation, we use fixed and random effects GLS models with AR(1) disturbances. We note the important findings and where the results differ substantially from the estimates in the multiplicative heteroskedasticity estimation. The overall pattern of results persists across different estimation approaches.

⁷ We include decade in the panel variable of district-decade-agency to account for redistricting that occurs each decade. As a result, a district may not be comparable from decade to decade.

2.2 Data

Our policy data are a panel of distributive awards in U.S. congressional districts from 68 agencies over 10 Congresses (1983-2002), as reported in the Federal Assistance Awards Data System (FAADS), maintained by the Bureau of the Census and the Department of Commerce. The dependent variable is the number of new distributive program awards within each congressional district by each distributive program in each Congress from the 98th to the 107th.⁸ Following Bickers and Stein (1996, 2000) and others, we choose the number of new awards rather than dollar value of the awards as a better indicator of political salience than dollars (Grimmer, Messing, and Westwood 2012).⁹ This is largely because the marginal credit claiming value of additional dollars declines, holding number of awards constant. As a check of this assumption, we also test an alternative specification using the dollar value of awards from agencies to districts, excluding contingent liability programs. The results are similar to our main results and reported in the Appendix.

The distributive programs were matched to David Lewis' data on agency structure and political appointments in US federal agencies created between 1946 and 1997 (Lewis 2003,

⁸ The dependent variable is quite skewed, with many zeros and some very large values. Normally, we would use a log transform under these circumstances. However, a log transform can create a spurious relationship between variance and independence if more independent agencies give more awards (which they do). Therefore, we present results with a logged dependent variable only as a robustness check in the appendix. Results are substantially the same when the dependent variable is logged and are discussed below.

⁹ Counting the number of awards also allows us to include contingent liability programs such as loan guarantees and insurance, which are favored by Republicans (Bickers and Stein 2000). These awards have monetary value to recipients, but their dollar value recorded in the FAADS system is not directly comparable to cash awards. For a more complete discussion, see Bickers and Stein (1996), Lowry and Potoski (2004). Also, following Stein and Bickers (1996) and others, we exclude programs distributed by formula and those whose eligible recipients are restricted only to governments or individuals, as reported in the Catalog of Federal Domestic Assistance.

2008). Sixty-eight agencies administering over 600 distributive programs appeared in both the FAADS data and Lewis agency data. Among districts that receive awards, the average number of new awards from an agency is 36. However, many districts receive no awards from a program. Out of approximately 274,000 district-agency-congress groups, about 47,000 receive at least one award and the mean number of awards is six.

Lewis's (2003, 2008) data is designed to measure independence from the president; it inevitably also captures independence of agencies from the legislative branch as well. For example, an agency headed by a board or commission is more likely to be insulated from Congress, as well as the president.¹⁰ Lewis offers two approaches to measuring agency independence. The first assesses each agency on six major aspects of independence: whether the agency is headed by a board or commission, whether the new agency is independent (created outside of existing bureaucratic structure), whether the administrator serves for a fixed term, how long that term is, whether there are limitations on the type of persons who can be appointed to head the agency, and the agency's proximity to the president. Further details on the coding scheme can be found in Lewis's codebook, posted at <https://my.vanderbilt.edu/davidlewis/>. Second, Lewis (2008) offers data on the percentage of political appointees in an agency, which may affect responsiveness (Krause, Lewis, and Douglas 2006). This is measured by the number of presidential appointees over the number of career-level SES managers within an agency (Lewis 2008). To keep the analyses more tractable, we use principal factor analysis to collapse these variables into a summary measure of agencies' degree of independence. This summary variable captures 89% of the variance in the underlying descriptions of agency independence.¹¹

One factor captures 90% of the variance in the structural variables, when the political appointees

¹⁰ Selin (2015) expands on these measures of independence, but we believe these capture enough variation to allow testing of the relationship between agency structure and policy outcomes.

variable is kept separate. Since including both ordinal and continuous data in factor analysis can be problematic, we also estimate the latent insulation using Bayesian factor analysis for mixed ordinal and continuous data following Quinn (2004). The resulting factor is correlated at 0.91 with the factor estimated via principal components, so we maintain the simpler principal components version and offer robustness checks that separate out the structural variables (the ordinal variables) from the political appointees (the continuous variable) and also include each component of the factor separately. The results are largely similar. Agencies such as the Agricultural Marketing Service and the Centers for Disease Control are the least insulated from political control, while agencies such as the National Science Foundation and the Corporation for National and Community Service are the most insulated. Appendix Table 1 shows some of the agencies and their independence scores.

The remaining important independent variables fall into two categories: variables that describe the political conditions of the district and variables that describe the characteristics of the districts' representatives in Congress. The key variables describing district political conditions are the legislator and presidential vote margins in the district. We include the winning congressional candidate's vote share in the prior election as a measure of the safety of the congressional district and the safety of the seat for the incumbent president using the absolute value of the difference between 0.5 and the share of the vote going to the Democratic candidate in the prior election. To measure the political power of the member of Congress representing the district, we include seniority in Congress, majority party membership, whether she is a Democrat, whether she is a freshman, whether she serves on the Appropriations or Ways and Means Committees, whether she is a committee chair or ranking member, and whether she is a party

¹¹ The first factor has an eigenvalue of 4.57, after which all subsequent eigenvalues are below one. This suggests that one factor is sufficient.

leader. To assess the effects of agency structure, the analyses include interaction terms between the agency independence measures and the district and representative characteristics.¹² If agency structure conditions legislators' influence over agencies' distributive program spending, the correlation between spending and legislator characteristics will be lower in agencies with procedures granting independence than in agencies designed for political control.

The remaining variables serve as controls. First is a suite of standard district demographic variables drawn from US census data. Following Bickers and Stein (2004) and others, we include controls for district demand characteristics. These include the proportion of the population with no diploma, under 18 years of age, over 65 years of age, of Hispanic origin, black, living in urban areas, and employed in blue collar occupations. These are only available every 10 years from the Census Bureau so we include the district's unemployment rate and per capita income, which are available on a yearly basis from the Bureau of Labor Statistics. The analyses include House delegation size (the number of districts in the state) because theoretical literature suggests that larger delegations get more distributive benefits because of spillover from the other districts (Levitt and Snyder 1995).

Divisions among agencies' political overseers can influence the variability with which they administer policy (e.g., Huber and Shipan 2002). We measure the size of the gridlock interval per Krehbiel (1998) as the difference between the Common Space Nominate scores (Carroll et al. 2009) of the leftmost and rightmost members of Congress whose votes are necessary to pass legislation following Chiou and Rothenberg (2003) with no role for party. Appendix Table 2 provides descriptive statistics of the variables in the model.

¹² We do not include an interaction between party and independence, since we have no reason to expect that agencies would be more responsive to one party than the other. We do include the main effect of party, since Democrats may be more likely to receive more awards.

3 Results

Table 1 presents the results of multiplicative conditional heteroskedasticity full information maximum likelihood analyses of the effects of agency structure on agency discretion in administering distributive program awards (the demographic controls from these analyses are reported in Table 2 to conserve space). The analysis reported in Column 1 does not include a lagged dependent variable, while the analysis in Column 3 does.

Tables 1 & 2 about here

In Table 1, the effects of the political variables on the mean level of distributive program awards in districts are generally in line with theoretical expectations and previous research. In both specifications, districts that are safer for the president receive fewer awards, while the specifications differ as to whether safer congressional seats receive fewer awards (perhaps because the measures of independence better capture independence from the president). And in both, Democrats receive more awards and districts with larger state delegations receive fewer awards. Results for the rest of the political variables are generally in the expected direction, even when they do not reach statistical significance at the 95% level. More independent agencies give, on average, more awards. These results suggest that our empirical model is a plausible representation of the distribution of awards, as they are consistent with prior findings.

To test the theoretical expectations about how agency structure affects responsiveness to political principals, we first examine the interaction terms, which estimate whether independent agencies are less responsive to political signals. Significant interaction terms with the opposite sign of the main effects would indicate that agencies with more independent structures are less responsive to political signals. ‡ indicates that the null hypothesis that the linear combination of the interaction and main effect is equal to zero can be rejected with a p-value of less than 0.05.

The coefficients on the interaction terms generally do not reach conventional levels of significance. None of the interaction term coefficients are statistically significant in the hypothesized direction consistently across the models. The linear combination is significant in both specifications for safety of the president, suggesting that independent agencies are even less likely to give awards to districts that are safe for the president. In contrast to some prior research (e.g., Hudak 2014), the fact that few of the interaction terms are significant in the expected direction suggests that being structured for independence does not make agencies less responsive to political demands for allocating distributive program awards to congressional districts. We hesitate to make a strong claim that insulated agencies do not respond at all differently to politicians, particularly presidents (e.g., in election years per Kriner and Reeves 2015), but we emphasize that the variability remaining after this estimation captures the available range of choices left to the agency.

The second way that agency structure can affect policy implementation is by constraining the range of policy options available to the agency, which in our analyses would be associated with lower variance in distributive program spending across districts. The variance results at the bottom of Table 1 show that independent agencies have a wider range of options from which to choose in administering policy. Across both specifications, agency independence is positively associated with the variance in distributive spending awards. A one standard deviation increase in agency independence increases the standard deviation around the predicted mean number of awards given to a district from 69 to 103, holding the effects of other variables in the model constant at their means. Figure 2 plots these relationships. The dark lines represent the predicted number of awards and the lines for safe (equivalent to the mean district where the winning candidates receive approximately 68% of the vote) and competitive districts (where the winning candidate receives only 50% of the vote). These lines are nearly parallel, with competitive

districts getting slightly more awards on average. The dotted lines represent the predicted range of policies from which an agency can choose (illustrated here for the safe district). As agency independence increases, the number of awards does not change much, but the variability in the number of awards increases.

Figure 2 about here

Table 2 shows that the control variables measuring district demographics generally conform to expectations. Districts with lower per capita income, more education, more minorities, more rural populations, and more white collar jobs receive more awards.¹³

3.1 Alternate Specifications

We conducted three groups of alternative specifications. The first uses fixed and random effects because the main models may be misspecified by failing to account for heterogeneity across congressional districts and agencies. Table 3 replicates Equation 1 while replacing the district and agency variables with random (Column 1) and fixed (Column 3) effects for district-agency-decade. Both models have AR(1) error terms. We then took the squared residuals from these models and used them with Equation 3 to estimate the effect of agency structure on the variance of distributive program awards. These variance results are presented in Table 4. The results from the random and fixed effects analyses are similar to the main model results. The interaction terms do not display a consistent pattern of results that would indicate that more insulated agencies are more immune to political demands; their coefficients are generally not statistically significant and the significant coefficients are often counter to the hypothesized sign. In the random effects

¹³ When these demographics are included in the variance portion of the estimation, the results are substantially the same. The significant positive relationship between independence and the variability in awards remains. Three of the nine demographics (proportion black, proportion rural, and proportion white collar) are significantly related to variability.

model, two of the 11 interaction terms have p-values less than 0.05, but only one of these has a p-value of less than 0.05 in the fixed effects model (and then the sign is opposite). None of the linear combinations are significantly different from zero across both specifications. Agency structure does not appear to change agencies' responsiveness to political demands. Once again agency independence is significantly associated with increased variance in the awards in Table 4. Instead of making agencies less responsive to their political principals, independence appears to give them more latitude in distributing awards across districts once political considerations are taken into account.

Tables 3 & 4 about here

The second group of specification checks investigates whether the main model results are sensitive to different approaches to measuring agency structure. We repeated the analyses in Tables 1 and 2 using different measures of independence. The different multiplicative heteroskedasticity specifications are 1) independence without the inclusion of appointments from Lewis (2003), 2) the average percentage of political appointees in the agency (a measure of lack of independence) alone from Lewis (2008), 3) these two measures together in one specification, and 4) each component of the factor separately.¹⁴ The structural factor and the percentage of political appointees are significantly associated with variability (or reduced variability in the case of the percentage of political appointees, which measures lack of independence), both when they are entered together and when they are entered separately. To briefly summarize the results from the components of the factor separately, in four of the seven specifications, the individual measure of agency structure had a statistically significant effect in the expected direction in the variance equation. The coefficients are reported in Table 5. Being created independent of existing

¹⁴ We do not include party balancing because it does not have enough variability to be entered separately.

bureaucratic structure, having limitations on the type of administrator, being further from the president, and having fewer political appointees are all associated with greater variability in the distribution of awards. Commissions, agencies with fixed terms, and with longer term lengths are associated with lower variability, perhaps because there is more continuity among agency heads in these cases. In the mean equations, the individual agency structure variables had only a few interaction term coefficients that were both statistically significant and in the expected direction. Across all of these models (full results in Appendix Tables A3, A4, and A5), the overall pattern of results persists; agency structure does not consistently condition agencies' responsiveness to external political signals. Instead, agencies designed to be more independent generally exhibit more variance in distributive spending and agencies with fewer political appointees exhibit more variance. In the model with political appointees only, there is more evidence less independent agencies are more responsive to their political principals, as the interaction terms are more often significant and in the hypothesized direction.

Table 5 about here

The third group of specification checks investigates whether the main model results change when using the logged number of awards or distributive program district expenditures as the dependent variable in place of the number of awards (Appendix Tables 4 and 5).¹⁵ Again, the results, particularly the variance results, are substantially the same as the main models. Independence results in more policy variability, both in terms of the number of awards that they give to each district and the amount of those awards. These robustness checks give confidence that the results are not a function of the measure of independence that we use or something peculiar about the number of awards as the dependent variable.

¹⁵ Recall that the dependent variable is quite skewed.

4 Conclusion

Agency structure can influence how agencies implement distributive spending programs. In this paper, we examine the effects of agency structure on distributive program implementation through analyses of 68 government agencies implementing distributive programs. Our analyses show that agencies designed to be insulated, such as those with fewer political appointees and more independence from elected politicians, have more variability in their distributive program spending across congressional districts, suggesting that these agencies enjoy a broader range of options from which to select policy to implement. At the same time, our analyses uncover little evidence that agencies' structure influences their responsiveness to demands for distributive spending expressed from individual politicians. Agencies designed for independence allocate distributive program spending in the same way as agencies designed for political control. To be clear, we do find that, consistent with previous research, politicians influence agencies' distributive program spending, such as by increasing awards to competitive districts. Yet we do not find that this influence varies across agencies based on their structure. Independent agencies, in other words, are just as responsive to external political demands, such as politicians' electoral circumstances and committee assignments, perhaps because strategic actors within the agency find it useful to keep political overseers satisfied and to exert their independence via the wider range of policy options available to them.

Our paper contributes to the study of relations between government agencies and their elected political overseers. Agency structure can be an effective tool for shaping agency independence and managing the tradeoffs between agency and political control. Although there is evidence that agency structure affects responsiveness to elected politicians, very little research has investigated whether agency structure shapes the range of policy options available to the agency. This paper

presents an analytic approach for examining both effects within the same research setting, allowing a better understanding of the extent of electoral accountability that is governed by the relationship between agencies and elected officials.

The findings in this paper raise directions for future research. The analytic approach outlined in this paper is sufficiently flexible to be applied in different political and policy contexts and does not require measuring difficult concepts like information asymmetry between politicians and agencies, the complexity of the policy problem, or agencies' political preferences. The approach can be applied in a variety of empirical settings, such as in state governments and cross nationally, and in different policy areas including regulatory policy. Future research might also use this approach to look at different dimensions of agency discretion beyond the number of distributive program awards, such as shifting the type of award recipients or changing the activities and causes the awards support.

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Figure 1: Agency independence is predicted to decrease political responsiveness and increase the range of options available to agencies

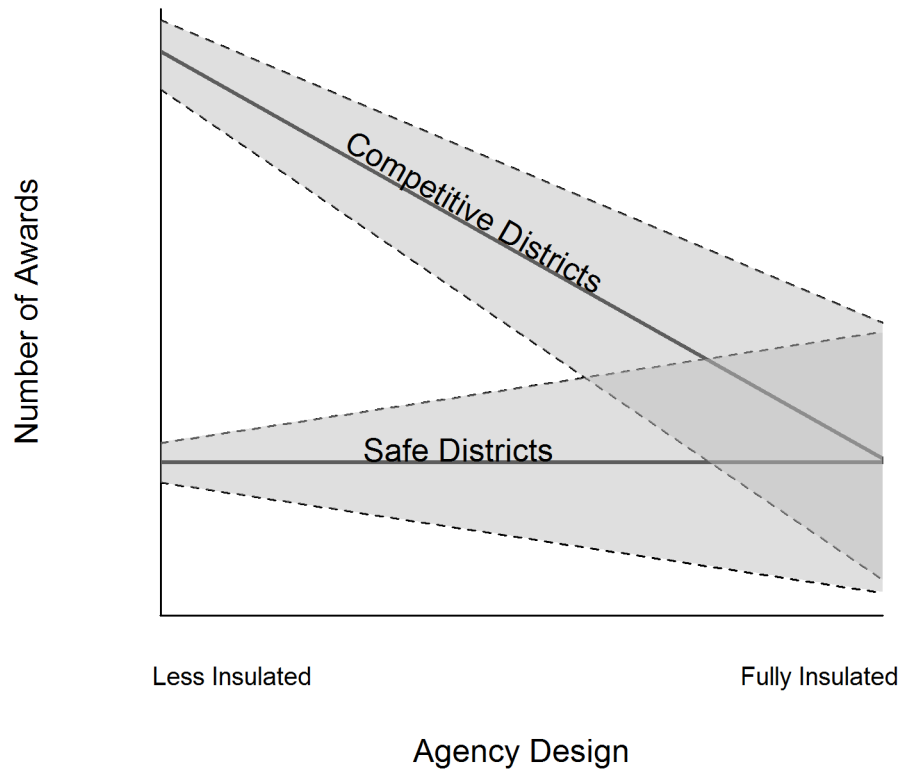


Figure 2: Independence does not change responsiveness to competitiveness of district but increases variability in awards. (Variability for safe districts is illustrated here.)

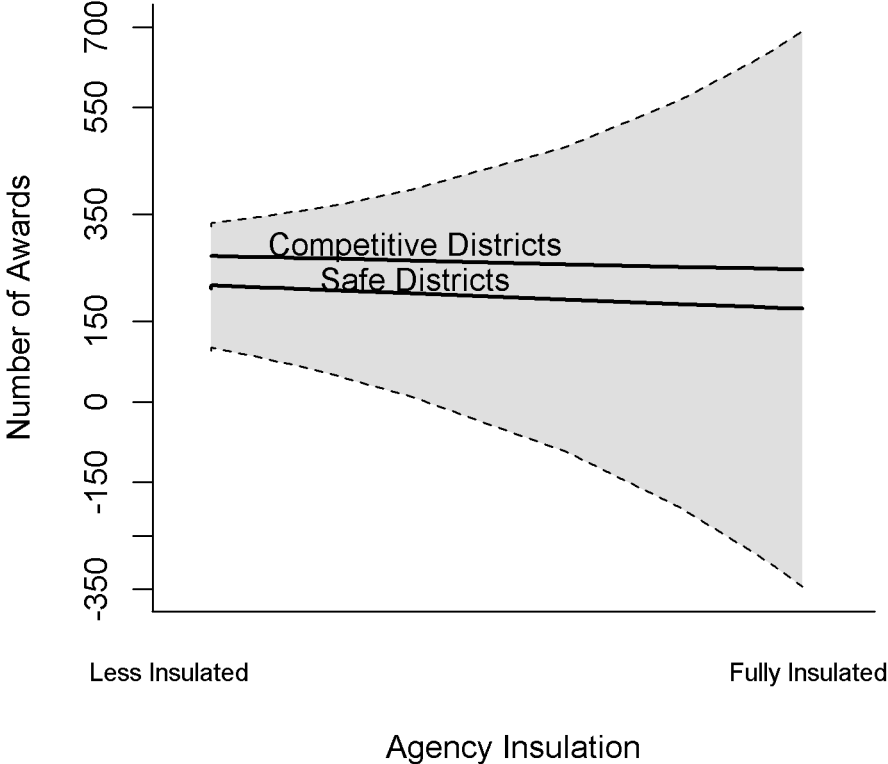


Table 1: Independence as a Predictor of the Number of and Variance in Awards

	Multiplicative Heteroskedasticity		Multiplicative Heteroskedasticity with LDV	
	Coefficient	Std. Error	Coefficient	Std. Error
MEAN COEFFICIENTS				
Independence Factor	18.95*	4.062	9.542	6.147
Winning Candidate's Vote Share	-6.223*	2.725	0.67	2.914
Safety of District for President	-9.098*	3.564	-15.40*	4.676
Member of the President's Party	0.853	0.76	1.193	0.963
Seniority	-0.147	0.103	-0.135	0.109
Member of the Majority Party	1.138	0.808	1.067	1.082
Democrat	1.631*	0.432	0.673*	0.197
Freshman	1.086	0.816	2.153	1.188
Appropriations Cmtee Member	0.0925	0.928	0.475	0.984
Ways and Means Cmtee Member	0.801	1.614	-2.205	1.232
Cmtee Chair	2.801	1.512	-3.037	4.071
Ranking Member of a Cmtee	3.656	2.606	7.028	4.084
Member of the Leadership	-0.553	2.377	-1.054	1.857
House Delegation Size	-0.0795*	0.0154	-0.0492*	0.00844
Vote Share X Independence	-8.723‡	4.772	2.145	5.59
Safety for President X Independence	-12.17*‡	5.942	-26.02*‡	8.744
President's Party X Independence	0.449	1.276	1.412	1.865
Seniority X Independence	-0.297	0.179	-0.23	0.213
Majority Party X Independence	0.171	1.401	0.746	2.089
Freshman X Independence	1.03	1.411	4.034	2.307
Appropriations X Independence	0.408	1.607	1.156	1.903
Ways and Means X Independence	-0.275	2.797	-4.813*	2.446
Cmtee Chair X Independence	4.945	2.644	-5.837	7.738
Ranking X Independence	6.991	4.503	13.57	7.79
Leader X Independence	0.188	4.321	-3.288	4.773
Lagged Log of # of Awards			0.572*	0.0712
Constant	51.63*	5.147	20.68*	5.841
VARIANCE COEFFICIENTS				
Independence Factor	0.996*	0.0904	1.972*	0.129
Distance Between Veto Pivots	-3.993	2.285	-4.017*	1.754
Constant	10.33*	1.165	10.13*	1.004
Observations	274,429		245,333	
VWLS R-squared	0.0069		0.411	

Dependent Variable: Number of Awards. Specification includes demographics reported in Table 2. Robust standard errors. * $p < 0.05$. ‡ indicates that a test of whether linear combination of the interaction and main effect is equal to zero has a p-value of less than 0.05.

Table 2: Demographics from Multiplicative Heteroskedasticity Models in Table 1

	Multiplicative Heteroskedasticity		Multiplicative Heteroskedasticity with LDV	
	Coefficient	Std. Error	Coefficient	Std. Error
Unemployment Rate	0.083	0.101	0.240*	0.056
Per Capita Income	-5.40e-4*	6.74e-5	2.25e-4*	4.21e-5
Prop. No Diploma	-15.85*	3.297	-9.388*	1.576
Prop. Younger than 18	-18.020	9.455	-7.310	4.073
Prop. Older than 65	-11.580	7.353	0.532	3.230
Prop. Hispanic	9.652*	1.656	5.513*	0.909
Prop. Black	2.500*	1.195	1.601*	0.553
Prop. Urban	-13.36*	1.225	-6.321*	0.830
Prop. Blue Collar	-38.76*	4.983	-12.52*	3.210

Table 3: Random and Fixed Effects Robustness Checks: Effect of Independence on Distribution of Awards

	Random Effects		Fixed Effects	
	Coefficient	Std. Error	Coefficient	Std. Error
Independence Factor	2.124*	0.999		
Winning Candidate's Vote Share	-1.281	1.043	0.102	0.885
Safety of District for President	5.682*	1.893	1.696	2.225
Member of the President's Party	0.0704	0.286	0.204	0.267
Seniority	0.0287	0.0493	0.0215	0.053
Member of the Majority Party	0.794*	0.308	-0.346	0.457
Democrat	0.996*	0.369	-0.117	0.465
Freshman	0.634	0.329	0.0695	0.290
Appropriations Cmtee Member	0.38	0.504	-0.523	0.581
Ways and Means Cmtee Member	0.679	0.603	-1.110	0.740
Cmtee Chair	-1.271	0.668	-0.665	0.645
Ranking Member of a Cmtee	2.515*	0.674	1.100	0.664
Member of the Leadership	1.339	1.946	7.328*	2.314
Vote Share X Independence	-1.161	1.296	-0.714	1.115
Safety for President X Independence	5.143*‡	2.193	-7.626*	2.801
President's Party X Independence	-0.200	0.357	-0.0439	0.335
Seniority X Independence	0.0563	0.061	0.0247	0.0665
Majority Party X Independence	0.555‡	0.384	0.563	0.569
Freshman X Independence	0.903*‡	0.413	0.282	0.365
Appropriations X Independence	0.412	0.632	-0.00604	0.732
Ways and Means X Independence	-0.37	0.756	-0.196	0.929
Cmtee Chair X Independence	-0.227	0.840	-0.436	0.812
Ranking X Independence	1.602‡	0.846	0.21	0.836
Leader X Independence	-1.956	2.448	-5.682	2.915
House Delegation Size	-0.0846*	0.0185		
Unemployment Rate	0.554*	0.0814		
Per Capita Income	-0.000496*	8.15e-05		
Proportion No Diploma	-19.46*	4.73		
Proportion Younger than 18	-15.41	11.03		
Proportion Older than 65	-11.94	9.41		
Proportion Hispanic	11.18*	2.739		
Proportion Black	1.972	1.912		
Proportion Urban	-13.50*	1.428		
Proportion Blue Collar	-41.68*	5.594		
Constant	41.85*	4.954	5.307*	0.505
Observations		274,429		217,943
R-squared		0.0032		0.0005
District-Decade-Agency Groups		56,486		56,420

Dependent Variable: Number of Awards. Robust standard errors. * $p < 0.05$. ‡ indicates that a test of whether linear combination of the interaction and main effect is equal to zero has a p-value of less than 0.05.

Table 4: Variance of Awards for Robustness Checks

	Random Effects		Fixed Effects	
	Coefficient	Std. Error	Coefficient	Std. Error
Independence Factor	1,221*	602.1	1,223*	603
Distance Between Veto Pivots	-24,217	16,290	-24,259	16,299
Constant	16,160	8,842	16,199	8,846
Observations	274,429		245,433	
R-squared	0.0001		0.0001	

Dependent Variable: Squared residuals from specifications in Table 3. * $p < 0.05$.

Table 5: Coefficients for Each Component of Independence Separately

Components of Insulation	Coefficien t	Standard Error	Predicted Sign
Commission Structure	-1.802*	0.237	+
Independent of Existing Bureaucractic Structures	1.948*	0.324	+
Fixed Term for Administrator	-1.716*	0.275	+
Term Length	-0.246*	0.058	+
Limitations on Type of Adminstrator	2.240*	0.326	+
Distance of Agency from the President	1.654*	0.185	+

* $p < 0.05$. Dependent Variable: Number of Awards. Coefficients from linear regression with multiplicative heteroskedasticity following specification in Table 1, standard errors clustered by district-decade-agency. Full results in Appendix Tables A4 and A5, except % Political Appointees in Appendix Table A3.

Appendix Tables

Table A1: For 107th Congress, Agencies Ordered by Their Insulation Values

Insulation	Agency	Insulation	Agency	Insulation	Agency
-0.537	Ag Marketing Svc	-0.537	Indian Health Svc	-0.524	Intl Trade Admin
-0.537	APHIS	-0.537	Agency for Healthcare	-0.514	Economic Dev
-0.537	Natl Resources Cons	-0.537	Research and Quality	-0.506	Admin
-0.537	Agency	-0.537	NIH	-0.294	Office of Justice
-0.537	Farm Service Agency	-0.537	Family Support Admin	-0.292	Programs
-0.537	Rural Business-	-0.537	Admin on Aging	-0.195	DOE
-0.537	Cooperative Extention	-0.537	Natl Geospatial	-0.168	HUD
-0.537	Food and Consumer	-0.537	Intelligence Agency	-0.168	Dept of Education
-0.537	Svc	-0.537	Defense Logistics Agency	-0.168	Fed Mediation
-0.537	Food Safety and	-0.537	Air Force	-0.167	and Conciliation
-0.537	Inspection Svc	-0.537	Fed Highway Admin	-0.166	Svc
-0.537	Ag Research Svc	-0.536	NHTSA	-0.166	NASA
-0.537	Coop State research,	-0.536	Bur Land Management	-0.166	General Services
-0.537	Edu, and Extension	-0.535	Employment and Training	-0.118	Admin
-0.537	Agency	-0.535	Admin	0.121	EPA
-0.537	Econ Research Svc	-0.535	US Fish and Wildlife Svc	0.122	DHS
-0.537	Natl Ag Stats Svc	-0.535	OSHO	0.476	Vets Medicine and
-0.537	Minory Business	-0.535	Fed Railroad Admin	1.261	Surgery
-0.537	Devt Agency	-0.534	Natl Telecommunications	1.835	FAA
-0.537	US Travel Svc	-0.533	and Info Admin	2.219	Small Business
-0.537	Minerals Mgmt Svc	-0.533	Employment Standards	2.332	Admin
-0.537	Surfact Mining and	-0.533	Admin	2.341	NLRB
-0.537	Reclamation	-0.529	Urban Mass Transit Admin	2.466	Bur of
-0.537	National Bio Survey	-0.527	Rural Housing Service		Tranportation Stats
-0.537	Mine Safety and		Admin for Children and		Surface
-0.537	Health		Families		Transportation
-0.537	Maritime Admin		Ofc of Human Devt		Board
-0.537	DOT Research and		Services		Nuclear Reg
-0.537	Special Programs		USAID		Commission
-0.537	Alcohol, Drug Abuse,				EEOC
-0.537	and Mental Health				
-0.537	Admin				NSF
-0.537	CDC				Corp for Natl and
-0.537	Health Resources				Community
-0.537	Admin				Service

Note: This is not exhaustive of all the agencies in the data, only those used in the random effects regression for which there was data for the 107th Congress. It is included to illustrate the range of agencies and their insulation.

Table A2: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N	
Number of Awards	6.205	65.794	0	16277	274429	
Independence Factor	-0.211	0.765	-0.537	2.466	274429	
Winning Candidate's Vote Share	0.676	0.132	0	1.003	274429	
Safety of District for President	0.095	0.088	0	0.461	274429	
Member of the President's Party	0.455	0.498	0	1	274429	
Seniority	5.268	4.005	1	24	274429	
Member of the Majority Party	0.565	0.496	0	1	274429	
Freshman	0.15	0.357	0	1	274429	
Democrat	0.555	0.497	0	1	274429	
Appropriations Cmtee Member	0.133	0.34	0	1	274429	
Ways and Means Cmtee Member	0.085	0.279	0	1	274429	
Cmtee Chair	0.051	0.22	0	1	274429	
Ranking Member of a Cmtee	0.051	0.219	0	1	274429	
Member of the Leadership	0.007	0.081	0	1	274429	
House Delegation Size	18.511	14.038	1	52	274429	
Unemployment Rate	6.069	1.821	2.4	16.05	274429	
Per Capita Income	10843.6	1	4784.32	3567	41151	274429
Proportion No Diploma	0.292	0.104	0.078	0.664	274429	
Proportion Younger than 18	0.269	0.036	0.111	0.399	274429	
Proportion Older than 65	0.118	0.032	0.028	0.311	274429	
Proportion Hispanic	0.055	0.109	0	0.832	274429	
Proportion Black	0.114	0.152	0.001	0.921	274429	
Proportion Urban	0.745	0.222	0.129	1	274429	
Proportion Blue Collar	0.291	0.075	0.085	0.519	274429	

Table A3: Robustness Checks with Different Measures of Independence

	Independence Factor without Appointees		Political Appointees Only		Independence Factor & Political Appointees Sep'ly	
	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
MEAN COEFFICIENTS						
Independence Factor	1.748	0.917			16.02*	3.873
% Appointees			-1.221*	0.157	-2.527*	0.376
Winning Candidate's Vote Share	1.815	1.299	-3.346*	0.958	-6.435*	2.657
Safety of District for President	-8.733*	2.743	-13.07*	1.334	-10.68*	3.31
Member of the President's Party	1.449*	0.585	1.253*	0.27	0.997	0.759
Seniority	-0.0488	0.0745	-0.0618	0.0397	-0.175	0.102
Member of the Majority Party	1.527*	0.565	0.956*	0.27	0.761	0.792
Democrat	1.328*	0.348	0.302*	0.103	0.310*	0.0891
Freshman	1.913*	0.525	1.026*	0.267	1.25	0.783
Appropriations Cmtee Member	0.0653	0.685	0.493	0.422	0.42	0.896
Ways and Means Cmtee Member	0.717	1.208	0.627	0.603	1.086	1.645
Cmtee Chair	1.57	1.107	0.774	0.621	2.283	1.469
Ranking Member of a Cmtee	2.657	1.94	1.592*	0.765	4.064	2.669
Member of the Leadership	-0.553	1.792	-0.967	1.21	-0.0888	2.425
House Delegation Size	-0.0661*	0.0125	-0.0181*	0.00431	-0.0338*	0.00512
Vote Share X Independence	8.149*‡	1.943			-7.121	4.525
Safety for President X Independence	-12.45*‡	4.78			-8.198‡	5.612
President's Party X Independence	2.014‡	1.047			0.0532	1.296
Seniority X Independence	-0.102	0.134			-0.214	0.174
Majority Party X Independence	1.44	1.003			-0.251	1.377
Freshman X Independence	3.156*‡	0.925			1.651	1.333
Appropriations X Independence	0.287	1.238			-0.0854	1.529
Ways and Means X Independence	-0.145	2.194			0.512	2.773
Cmtee Chair X Independence	2.686	2.018			3.747	2.563
Ranking X Independence	5.338	3.512			6.589	4.575
Leader X Independence	-0.0851	3.371			1.011	3.825
Vote Share X Appointees			0.331‡	0.201	1.177*‡	0.447
Safety for President X Appointees			2.465*‡	0.284	1.708*‡	0.565
President's Party X Appointees			-0.237*‡	0.0556	-0.152	0.132
Seniority X Appointees			0.0155	0.00891	0.0361*	0.0176
Majority Party X Appointees			-0.119*‡	0.0552	-0.119	0.137
Freshman X Appointees			-0.154*‡	0.0574	-0.218	0.135
Appropriations X Appointees			-0.0641	0.0898	-0.179	0.153
Ways and Means X Appointees			-0.13	0.12	-0.219	0.281
Cmtee Chair X Appointees			-0.0461	0.154	-0.298	0.26
Ranking X Appointees			-0.340*‡	0.151	-0.705	0.429
Leader X Appointees			0.201	0.254	0.107	0.486
Unemployment Rate	0.0668	0.0796	0.00472	0.0255	0.122*	0.0299
Per Capita Income	-0.000448*	5.57E-05	-0.000226*	2.92E-05	-0.000148*	1.91E-05
Proportion No Diploma	-12.77*	2.673	-3.810*	1.059	-3.591*	0.932
Proportion Younger than 18	-17.86*	7.615	-21.89*	3.994	-3.856	2.29
Proportion Older than 65	-11.02	6.014	-14.30*	2.551	-4.029	2.324
Proportion Hispanic	8.016*	1.325	2.220*	0.494	2.690*	0.603
Proportion Black	2.370*	0.964	1.217*	0.451	0.272	0.349
Proportion Urban	-10.85*	0.988	-3.871*	0.361	-3.171*	0.36
Proportion Blue Collar	-31.45*	3.898	-8.571*	1.217	-10.49*	1.295
Constant	36.69*	3.911	24.92*	2.076	23.63*	2.455

VARIANCE COEFFICIENTS

Independence Factor	1.003*	0.109			1.144*	0.0994
% Appointees			-1.366*	0.0476	-1.566*	0.104
Distance Between Veto Pivots	-3.886	2.074	-2.145	1.801	-3.507	1.988
Constant	9.989*	1.058	9.542*	0.945	10.13*	1.03
Observations		333,538		443,308		274,429
VWLS R-squared		0.0056		0.0104		0.0127

Dependent Variable: Number of Awards. Robust standard errors. * $p < 0.05$.

Table A5: Robustness Checks with Components of Independence Factor, continued

	Commission Structure		Independent of Existing Bureaucracy		Fixed Administrator Term	
	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
MEAN COEFFICIENTS						
Independence Measure	-6.415*	1.453	16.59*	3.305	-4.711*	1.471
Winning Candidate's Vote Share	-4.162*	1.016	-1.085	0.807	-3.610*	1.183
Safety of District for President	-9.126*	1.582	-3.140*	1.4	-3.579*	1.747
Member of the President's Party	0.777*	0.288	0.507*	0.205	0.683*	0.305
Seniority	-0.0155	0.0412	0.0182	0.0381	-0.0495	0.046
Member of the Majority Party	1.019*	0.27	0.787*	0.201	0.912*	0.322
Democrat	0.997*	0.315	1.066*	0.304	1.218*	0.342
Freshman	1.122*	0.275	0.379	0.256	0.584	0.36
Appropriations Cmtee Member	0.235	0.454	-0.0317	0.349	-0.0607	0.425
Ways and Means Cmtee Member	0.768	0.648	0.741	0.613	0.611	0.73
Cmtee Chair	0.926	0.597	0.0153	0.408	1.203	0.628
Ranking Member of a Cmtee	1.145	0.803	-0.204	0.473	0.95	0.914
Member of the Leadership	-1.376	1.251	-0.39	1.709	-0.882	1.546
House Delegation Size	-0.0701*	0.0129	-0.0574*	0.0112	-0.0532*	0.0133
Cand. Vote Share X Independence	2.764	1.837	-7.770*	3.886	2.094	1.839
Pres. Safety X Independence	18.57*	3.376	-8.256	4.92	11.41*	3.076
Memb. Pres. Party X Independence	-1.604*	0.463	0.312	1.112	-1.274*	0.428
Seniority X Independence	0.124	0.0887	-0.224	0.151	0.142	0.0813
Memb. Maj. Party X Independence	0.203	0.511	0.427	1.159	0.418	0.521
Freshman X Independence	-0.13	0.517	1.342	1.143	0.377	0.532
Approps. X Independence	1.147	1.043	0.776	1.346	1.165	0.897
Ways and Means X Independence	-0.972	1.021	-0.168	2.41	-1.225	0.994
Committee Chair X Independence	-0.0133	1.686	4.099	2.216	-0.463	1.473
Ranking Member X Independence	-1.584	1.302	6.014	3.908	-1.469	1.27
Party Leader X Independence	4.017	4.822	0.868	3.974	2.268	4.048
Unemployment Rate	0.0576	0.0691	0.0384	0.0664	0.0744	0.0822
	-	7.40E-		5.16E-	-	8.50E-
Per Capita Income	0.000550*	05	-0.000402*	05	0.000722*	05
Proportion No Diploma	-13.07*	2.703	-10.19*	2.359	-13.58*	2.858
Proportion Younger than 18	-39.89*	11.33	-25.00*	6.672	-43.36*	12.41
Proportion Older than 65	-16.46*	7.166	-14.50*	5.418	-29.38*	7.357
Proportion Hispanic	9.560*	1.588	6.926*	1.131	6.219*	1.404
Proportion Black	3.730*	1.159	2.969*	0.847	0.336	1.096
Proportion Urban	-13.65*	0.97	-8.708*	0.863	-10.04*	1.001
Proportion Blue Collar	-27.44*	3.917	-25.76*	3.175	-34.44*	4.327
Constant	49.14*	5.09	32.15*	3.626	51.29*	5.804
VARIANCE COEFFICIENTS						
Independence Measure	-1.802*	0.237	1.948*	0.324	-1.716*	0.275
Distance Between Veto Pivots	-2.275	1.677	-3.444*	1.334	-4.563	2.585
Constant	9.428*	0.878	8.883*	0.649	10.35*	1.301
Observations	515,083		341,981		333,538	
VWLS R-squared	0.0037		0.0052		0.0042	

Dependent Variable: Number of Awards. Robust standard errors. * p<0.05.

Table A5: Robustness Checks with Components of Independence Factor, continued

	Length of Term		Limitations on Type of Administrator		Distance of Agency from President	
	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
MEAN COEFFICIENTS						
Independence Measure	-0.568	0.433	21.30*	4.266	18.74*	3.762
Winning Candidate's Vote Share	-3.392*	1.182	-1.177	0.784	16.34	8.964
Safety of District for President	-3.23	1.811	-3.245*	1.366	21.48	11.19
Member of the President's Party	0.675*	0.311	0.524*	0.200	-0.688	2.536
Seniority	-0.0453	0.0462	0.0202	0.0372	0.577	0.346
Member of the Majority Party	0.838*	0.319	0.818*	0.196	0.348	2.662
Democrat	1.383*	0.38	1.080*	0.299	1.097*	0.304
Freshman	0.457	0.359	0.419	0.249	-2.048	2.645
Appropriations Cmtee Member	-0.276	0.431	0.0311	0.342	-0.735	3.036
Ways and Means Cmtee Member	0.669	0.731	0.708	0.598	0.485	5.547
Cmtee Chair	1.128	0.634	0.0552	0.398	-9.035	4.959
Ranking Member of a Cmtee	0.854	0.914	-0.205	0.460	-14.01	8.927
Member of the Leadership	-1.100	1.605	-0.399	1.676	-0.728	8.491
House Delegation Size	-0.0608*	0.0143	-0.0596*	0.0111	-0.0585*	0.0112
Cand. Vote Share X Independence	0.321	0.541	-9.945*	4.998	-8.708*	4.402
Pres. Safety X Independence	2.779*	0.981	-11.02	6.324	-12.20*	5.454
Memb. Pres. Party X Independence	-0.317*	0.126	0.406	1.458	0.597	1.255
Seniority X Independence	0.0349	0.0251	-0.304	0.196	-0.280	0.169
Memb. Maj. Party X Independence	0.233	0.157	0.493	1.504	0.223	1.317
Freshman X Independence	0.244	0.154	1.556	1.469	1.218	1.297
Approps. X Independence	0.475	0.289	0.709	1.725	0.349	1.477
Ways and Means X Independence	-0.318	0.278	0.171	3.127	0.123	2.702
Committee Chair X Independence	-0.035	0.484	5.017	2.853	4.531	2.443
Ranking Member X Independence	-0.284	0.357	8.010	5.148	6.905	4.442
Party Leader X Independence	0.767	1.358	1.203	4.980	0.158	3.854
Unemployment Rate	0.0892	0.0923	0.0312	0.0648	0.0456	0.0667
-	-	-	-	-	-	-
Per Capita Income	0.000750*	8.44E-05	0.000420*	5.09E-05	0.000397*	5.10E-05
Proportion No Diploma	-15.12*	3.085	-10.20*	2.316	-10.45*	2.349
Proportion Younger than 18	-41.10*	12.47	-28.04*	6.564	-22.76*	6.634
Proportion Older than 65	-28.11*	7.64	-16.95*	5.339	-13.42*	5.378
Proportion Hispanic	7.178*	1.544	7.036*	1.109	7.021*	1.132
Proportion Black	0.483	1.174	2.975*	0.832	2.779*	0.843
Proportion Urban	-11.45*	1.104	-8.668*	0.846	-8.927*	0.861
Proportion Blue Collar	-38.12*	4.839	-25.99*	3.098	-26.27*	3.194
Constant	52.81*	5.770	33.71*	3.574	-5.72	8.423
VARIANCE COEFFICIENTS						
Independence Measure	-0.246*	0.0584	2.240*	0.326	1.654*	0.185
Distance Between Veto Pivots	-4.491	2.651	-3.332*	1.234	-3.541*	1.484
Constant	10.29*	1.337	8.802*	0.604	5.684*	0.696
Observations	333,538		333,538		341,981	
VWLS R-squared	0.004		0.0055		0.0059	

Dependent Variable: Numbers of Awards. Robust standard errors. * p<0.05.

Table A6: Logged Number of Awards as the Dependent Variable

	Multiplicative Heteroskedasticity		Multiplicative Heteroskedasticity with LDV	
	Coefficient	Std. Error	Coefficient	Std. Error
MEAN COEFFICIENTS				
Independence Factor	0.0799*	0.013	-0.00859*	0.00377
Winning Candidate's Vote Share	-0.0373*	0.0124	0.00675	0.00366
Safety of District for President	-0.131*	0.0199	-0.0552*	0.00638
Member of the President's Party	0.0102*	0.00292	0.000868	0.00114
Seniority	0.000339	0.000552	5.51E-06	0.000154
Member of the Majority Party	0.0304*	0.00325	0.00845*	0.00127
Democrat	0.00792*	0.00324	-0.00027	0.000994
Freshman	0.00831*	0.0032	0.00358*	0.0016
Appropriations Cmtee Member	0.0103	0.00592	0.00146	0.0014
Ways and Means Cmtee Member	-0.00776	0.00634	-0.00203	0.00163
Cmtee Chair	0.0136	0.00809	0.00249	0.00228
Ranking Member of a Cmtee	0.00811	0.00804	0.00173	0.00245
Member of the Leadership	-0.0334	0.0207	-0.00764	0.00471
House Delegation Size	-0.00210*	0.000133	-0.000455*	3.46E-05
Vote Share X Independence	0.00402	0.0178	0.0148* ‡	0.00476
Safety for President X Independence	-0.0541* ‡	0.0262	0.0111 ‡	0.00828
President's Party X Independence	0.00399‡	0.00411	-0.0013	0.00157
Seniority X Independence	0.000403	0.000792	0.000362	0.000215
Majority Party X Independence	0.00428 ‡	0.00452	0.00188 ‡	0.00169
Freshman X Independence	0.0129* ‡	0.00452	0.00281 ‡	0.00207
Appropriations X Independence	0.00571	0.00857	-0.00099	0.0019
Ways and Means X Independence	-0.013	0.00882	-0.00396	0.00233
Cmtee Chair X Independence	0.000316	0.0118	-0.00508	0.00313
Ranking X Independence	0.00466	0.0115	-0.0023	0.00344
Leader X Independence	0.000896	0.0298	-0.00447	0.00605
Lagged Log of # of Awards			0.381*	0.00107
Constant	0.904*	0.0379	0.156*	0.00977
VARIANCE COEFFICIENTS				
Independence Factor	0.488*	0.0123	0.0873*	0.0134
Distance Between Veto Pivots	0.119	0.121	1.026*	0.129
Constant	-1.733*	0.0605	-3.633*	0.0613
Observations		274,429		245,333
VWLS R-squared		0.0321		0.764

Dependent Variable: Logged Number of Awards + 1. *: $p < 0.05$. Specification includes demographics reported in Table 2, but omitted here for space. Robust standard errors. ‡ indicates that a test of whether linear combination fo the interaction and main effect is equal to zero has p-value of less than 0.05.

Table A7: Expenditures (\$) as the Dependent Variable

	Multiplicative Heteroskedasticity	
	Coefficient	Standard Error
MEAN COEFFICIENTS		
Independence Factor	-616,043	2,992,000
Winning Candidate's Vote Share	-1,834,000	1,242,000
Safety of District for President	943,537	1,565,000
Member of the President's Party	139,145	284,060
Seniority	11,421	45,785
Member of the Majority Party	560,782	319,375
Democrat	1,588,000*	552,040
Freshman	-315,962	345,152
Appropriations Cmtee Member	42,870	359,576
Ways and Means Cmtee Member	-961,170	811,120
Cmtee Chair	1,474,000*	690,889
Ranking Member of a Cmtee	86,305	646,529
Member of the Leadership	-1,115,000	719,767
House Delegation Size	-32,049	20,776
Vote Share X Independence	-4,894,000	4,381,000
Safety for President X Independence	15,250,000*‡	5,666,000
President's Party X Independence	-897,680	1,061,000
Seniority X Independence	-130,995	194,049
Majority Party X Independence	473,327	1,049,000
Freshman X Independence	-2,457,000	1,346,000
Appropriations X Independence	496,164	1,589,000
Ways and Means X Independence	-5,942,000	3,974,000
Cmtee Chair X Independence	3,933,000	2,138,000
Ranking X Independence	1,022,000	2,672,000
Leader X Independence	1,525,000	3,299,000
Unemployment Rate	172,405	102,747
Per Capita Income	-483.5*	92.19
Proportion No Diploma	-3,314,000	3,571,000
Proportion Younger than 18	-43,680,000*	10,070,000
Proportion Older than 65	-35,830,000*	9,020,000
Proportion Hispanic	2,306,000	1,821,000
Proportion Black	1,581,000	1,291,000
Proportion Urban	-6,489,000*	1,427,000
Proportion Blue Collar	-33,910,000*	5,765,000
Constant	36,700,000*	6,382,000
VARIANCE COEFFICIENTS		
Independence Factor	3.916*	0.0961
Distance Between Veto Pivots	-4.119*	1.390
Constant	39.57*	0.692
Observations		274,429
VWLS R-squared		0.0021

Dependent Variable: \$ value of awards. Robust standard errors. ‡ indicates that a test of whether linear combination of the interaction and main effect is equal to zero has p-value of less than 0.05. * p<0.05.