Accumulated Powers:
Duration and the Decision to Delegate

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Introduction

In 2011, despite vocal Republican opposition in Congress, the National Highway Traffic Safety Administration (NHTSA)—together with the President and major automobile manufacturers—moved forward in raising corporate average fuel economy (CAFE) standards. In the context of legislative gridlock, the Obama administration and associated agencies were able to significantly alter a major feature of public policy in the area of transportation. The statutory genesis of the discretion to set CAFE standards originates in the Energy Policy and Conservation Act of 1975 (P.L. 94-163), the bill that delegated such authority to the NHTSA. Whether Congress left that authority indefinitely in the hands of the NHTSA was the subject of considerable controversy in the years leading up to the final 2011 agreement. A basic puzzle arises from this case and the many others like it. What accounts for the increase in bureaucratically-based policy making in the last decade? What are the origins of nascent authority now springing up as "unilateral action" (Moe & Howell 1999)? Put simply, if legislators derive value from having say over policy, why would they delegate such authority? Moreover, why would they delegate that authority *indefinitely*?

In a "make-or-buy" conception of delegation, where Congress chooses between the lesser evils of the committee system and the bureaucracy, few have considered what influences the duration of delegated authority. While the conditions necessary for delegation have received considerable attention, we know little about what influences the time horizon bureaucratic agencies are given to exercise discretion. This temporal component is critical, in that it must be addressed in order to accurately evaluate whether Congress has "abdicated" most of its policy-making functions (Lowi, 1979; Kiewiet & McCubbins, 1991) and because the "boundaries of the administrative state" (Epstein & O'Halloran, 1999) vary over time based upon the duration of discretion.

Extant scholarship characterizes delegation as a balancing act between the benefits of bureaucratic expertise and the risks associated with deviation from the preferred outcomes of political principals. The question of "how much discretion?" according to Epstein & O'Halloran depends both upon the desire to prevent deviation with a battery of constraints (Weingast & Moran, 1983; McCubbins & Schwartz, 1984; McCubbins, Noll, & Weingast 1987; Epstein & O'Halloran, 1995) and the demand for better policy outcomes which result from superior expertise. They show that preference divergence in executive-legislative relations results in less discretion delegated in important legislation. Huber & McCarty (2004) provide an important modification to this notion, arguing that when legislative capacity is low, Congress may actually delegate without regard to differences in preferences. When bureaucratic capacity is low, regular Congressional instruments of political control are likely to fail. Additionally, Volden (2002) formalizes a logic of agent selection, showing that under the divided government, Congress is more likely to delegate to agencies

more insulated from presidential control.

When the decision to delegate has been made, Congress faces the question of duration in addition to the standard questions of procedural, oversight-based, and structural control—which were the focus of much of the scholarship previously mentioned. But the duration question represents an additional—and important— dimension of the logic of delegation in that it represents the time horizon within which discretion is exercised and the means of control must operate. It figures into the calculations of agents, influencing how long they can expect to exercise authority over policymaking (and in some cases, accrue policy rents). Existing work has not explicitly considered duration, under the sometimes implicit assumption that legislators delegate authority indefinitely. This is true for those who decry the "runaway bureaucracy" and congressional abdication, as well as those who conceive of delegation as part of a more deliberate process based on the economics of organization (Moe, 1984). Indefinite duration is an implicit assumption of the runaway bureaucracy thesis, since it is presumed that bureaucratic discretion has increased monotonically as the administrative state acquired new areas (via delegation) of regulation and influence (Niskanen, 1971; Lowi, 1979; Dodd & Schott, 1979). The reactionary focus on instruments of Congressional control challenges this monotonicity by highlighting the procedural constraints which come with that discretion. And, while theories based on economic organization recast legislators as rational actors interested in management and expertise, they do not consider durational variance in delegated powers.

More recent work by Gailmard & Patty (2007, 2012) provide one possible explanation as to what influences the length of contracts between legislators and bureaucrats. By relaxing another assumption of principal-agent models—the superior information and expertise of the agent—they were able to show that, among other factors, the quantity and the durability of discretion influences an agency's incentives to gather and share information with legislators. Using their work as a benchmark model, I incorporate duration into the logic of delegation and show that an extended time horizon is a prerequisite for informed policymaking in the bureaucracy. I argue that legislators will be most likely to delegate longer time horizons of discretion in issue areas where the costs of gathering information are greatest. To test this expectation, I recreate and extend Epstein & O'Halloran's data set of delegation landmark laws. I find that the cost of acquiring expertise conditions the duration of delegate authority.

Theory

My expectations regarding discretion and duration are informed by existing work rooted in principal-agent theory—namely, theories involving both the incentives of legislators to delegate and the incentives of bureaucrats to obtain and share information. I consider the foundational assumptions of these models prior

to presenting a model of duration and endogenous information, which is derivative of Gailmard & Patty (2007).

The decision to delegate and the question of "how much discretion?" are conditioned by conflict between the executive branch and Congress. Here, I define discretion in terms of delegated powers and constraints placed upon those powers. This is a default to Epstein & O'Halloran's functional definition of discretion, which is quite distinct from Gailmard's (2009) more recent consideration of discretion as "action restrictions" within which, the bureaucracy is free to set policy. Instead, discretion is a combination of delegated policy-making functions and the myriad administrative procedures Congress uses to constrain the bureaucracy. These include: time limits[1] on authority, public hearings, special appeals procedures, reporting requirements, the legislative veto, spending limits, etc. It is worth noting that this operational definition of discretion makes no distinction between statutory constraints—which explicitly limit the policies selected by agencies—and oversight-based constraints—which attempt to alter the incentives of agencies by putting in place institutional mechanisms to monitor deviation from Congress's preferred outcomes.

Contrary to the abdication thesis, I begin with qualified assumption that legislators care about policy. That is, whether originating from the fear of backlash via the electoral connection (Mayhew, 1974) or an internally motivated policy "rents", political principals care about the policy outcomes that result from the contracts they enact. Next, I assume that the agencies themselves have preferences of their own, which are imperfectly set by the sitting president. In recent years, scholarship has attempted to phase out this assumption—in light of innovative measures of agency ideal points (Clinton & Lewis, 2008; Clinton et al., 2011; Chen & Johnson, 2013). Rather than highlight the issues with the various proxies these authors develop, I argue that the president-agency assumption might actually be more appropriate given the research question and data I consider. The modal venue of delegated authority in landmark laws are cabinet departments—and often, explicitly to cabinet heads appointed by the president. The likelihood of this assumption breaking down, then, increases as the venue of delegated authority moves away from the president (i.e. to independent commissions or government corporations). As I discuss later, my data keeps track of these venues. Put simply, I am comfortable making this assumption because it plausibly operates through the appointment process in many observations and the data give a clear impression of when it does not.

Building on those assumptions, the decision to delegate authority and to provide discretion to bureaucratic agencies is a function of the trade-off between the costs of making policy "in-house" (via committees)

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[1]Note, this is distinct from *time horizon*, the dependent variable I consider later. Time limits, in this sense, mean that there is a fixed amount of time for an agent's discretionary power. For example, a president may be allowed to declare a state of emergency that is statutorily limited to be two months, but the power to declare states of emergency, more generally, has an indefinite time horizon.

and the cost of ceding policy-making to agencies. All else equal, when Congress and the agency's preferences align, Congress would rather delegate—given the reduced cost of making policy. This leads Epstein & O'Halloran's basic expectation, that Congress will delegate less discretion when conflict with the executive branch is higher—a theme now known as the ally principle. But adding in expectations regarding the agents themselves and their incentives to gather information helps answer an additional question. Once Congress chooses to delegate, what determines the length of the contract they enact? A few modifications to Gailmard & Patty's influential work provides a possible answer.

As I recounted above, a key component of the delegation decision is the assumption that bureaucrats have sufficient information to implement policy. Relaxing that assumption, Gailmard & Patty (2012) argue,

> Congress can induce expertise acquisition within an agency by [...] instituting relatively common civil service practices—notably, protection of job tenure and lower material rewards than an available outside option—and, second, granting bureaucrats some measure of control over policy issues they care about"(42).

In general, legislators will have the strongest incentives to do so when the cost of gathering policy-relevant information is highest. The key conceptual step of this study is to explicitly connect Gailmard & Patty's emphasis on tenure considerations with duration. The two components of agent-incentives—job security and discretion—are both intimately related to the duration of delegated authority. Duration is, in some ways, more fundamental to job security even than civil service protections. For instance, when Congress failed to enact a new "contract" with the bureaucracy in October of 2013, workers were forced to stay home despite civil service protections. Here, the government shutdown illustrates that funding (and authorization, more broadly) are a prerequisite to civil service rules that protect public servants after their bureau has been delegated some function to perform. Additionally, if one believes that agents can be "paid" in the currency of discretion, the time horizon in which they are able to exercise that authority may be equally important in their decision to gather information. This much is implied by their analysis, but it is important to verify this implication is logically consistent with their theoretical assumptions. To do that, I present a straightforward extension of their model which explicitly incorporates duration into the decision calculus of the legislature.

Duration in a Model of Endogenous Information

The following model takes the work of Gailmard & Patty (2007) as a baseline model of endogenous information. There are two explicit departures: [1] the legislature chooses the number of periods, and [2] the legislature's first period choice of discretion is fixed for both periods. The former is designed to model the duration component of delegation. The latter serves as both a technical simplification and a reflection

of the authorization process. That is, I assume that legislatures are restrained in their ability to modify the statutory discretion of executive agencies once they are delegated some function. Given that there are considerable barriers to amendments, and other—more tractable—avenues of oversight, this is plausibly the case.[2]

As in Gailmard & Patty (2007), there are two players, a legislator (L) and bureaucrat (B). Bureaucrats come in two types, slackers and zealots ($\theta \in \{0,1\}$)—wherein the later type has strong policy preferences. L selects a level of discretion (D) and the number of periods ($\tau \in \{1,2\}$). B chooses whether or not to gather expertise ($s \in \{0,1\}$), whether to remain in government ($g \in \{0,1\}$) and a policy (x). Additionally, there is a state of the world ($\omega_t \in \{0,1\}$) that can be observed by B if she chooses to gather expertise. The total utility of the legislator is for periods 1 and 2 given by

$$
u_L = \begin{cases} -|x_1 + \omega_1| - |q + \omega_2| & \text{if } \tau = 1 \\ -|x_1 + \omega_1| - |x_2 + \omega_2| & \text{if } \tau = 2 \end{cases} \tag{1}
$$

so that the legislator seeks to minimize the disutility induced by the policy selected and the state of the world. The total utility of the bureaucrat for periods 1 and 2 is given by:

$$
u_B = \begin{cases} -\theta(|p_B - x_1 - \omega_1| + |p_B - q - w_2|) - cs + r + \kappa & \text{if } \tau = 1, g = 0 \\ -\theta(|p_B - x_1 - \omega_1| + |p_B - q - w_2|) - cs + 2r & \text{if } \tau = 1, g = 1 \\ -\theta(|p_B - x_1 - \omega_1| + |p_B - x_2 - \omega_2|) - cs + r + \kappa & \text{if } \tau = 2, g = 0 \\ -\theta(|p_B - x_1 - \omega_1| + |p_B - x_2 - \omega_2|) - cs + 2r & \text{if } \tau = 2, g = 1 \end{cases} \tag{2}
$$

Where p_B is the policy preference of the bureaucrat, c is the cost of obtaining expertise, r is the wage received in civil service, and κ is the wage received in analogous private employment. There is some existing status quo, q, to which, policy reverts if L chooses one period. I start by making no restrictive assumptions about this value, but eventually, some assumptions are necessary to make the model tractable. Operationally, q can be thought of as something as benign as the discontinuation of a discretionary program. The players' spatial preferences regarding this value can lead to different equilibrium outcomes, but the most important assumption initially is that this reversionary point essentially removes the policy choice from the bureaucrat. The above functions inform the comparative utility of remaining in government for each type and each in each scenario (given the choices of the legislator). Below, I present the modified game sequence that guides the remainder of the analysis.

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[2]The notation that follows is purposely drawn from Gailmard & Patty (2007) in order to make the models comparable and the departures clear.

Sequence of Play

1. *L* selects a level of discretion (*D*) and the number of periods (τ).

2. Nature determines *B*'s type (which is known to *B*, but not to *L*).

3. *B* chooses whether or not to gather expertise (*s*).

4. Nature determines the state of the world, ω_t.

5. (a) If $s = 1$, *B* learns ω_t.

   (b) If $s = 0$, *B* retains prior beliefs about ω_t.

6. *B* chooses $x_1 \in [-D, D]$.

7. (a) If $\tau = 1$, then *B* decides whether or not to stay in government (*g*).

      i. If $g = 0$, then nature determines the state of the world, ω_t, policy reverts to the status quo (*q*) and *B* receives outside wage (κ).

      ii. If $g = 1$, then nature determines the state of the world, ω_t, policy reverts to the status quo (*q*) and *B* receives civil service wage (*r*).

   (b) If $\tau = 2$, then *B* decides whether or not to stay in government (*g*).

      i. If $g = 0$, then *B* is replaced (with steps 2 - 6 repeating) and players receive utility.

      ii. If $g = 1$, then steps 4 - 6 are repeated and players receive utility.

I adopt assumptions which are identical to Gailmard & Patty, with one addition. To recap,those assumptions state that [1] private sector employment is more lucrative, [2] the cost of obtaining expertise is neither too high nor too low, [3] uninformed bureaucrats choose the same policy, regardless of type, and [4] newly hired zealots acquire expertise in the second period if a zealot would in the first.[3] I include one additional assumption, for reasons which will become apparent.

> **Assumption 5**: If $\tau = 2$, then ρ, the ex ante probability that a bureaucrat will remain in office after deciding to remain in government ($g = 1$), is equal to one. In other words, if *L* chooses two periods of bureaucratic policy selection, then *B* has perfect tenure security.

For Gailmard & Patty, ρ captures the effect of civil service protections on *B*'s decision to acquire expertise. Here, I redeploy this probability, explicitly tying it to the duration decision. In this model, then, bureaucrats can expect to remain in office (given that they desire to) as long as the legislature delegates policymaking authority.

Solutions

The solution concept employed here is a Perfect Bayesian Equilibrium (PBE), but prior to exploring the solutions, I will introduce additional notation (as Gailmard & Patty do) for presentational convenience. Let

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[3]For the reader's convenience, I include these assumptions in *Appendix A*.

ζ be the probability a randomly drawn bureaucrat is a zealot. Let y_t denote the policy outcome in period t, such that $y_t = x_t + \omega_t$. Let the absolute difference between the policy outcome and B's ideal outcome be $\pi_B(y_t)$, such that $\pi_B(y_t) = |p_B - y_t|$.

Working backwards from period two, I begin by analyzing B's choice of whether or not to remain in government (g)—taking D as fixed. Let $\Phi_{s,\tau}(D)$ denote the expected policy utility for B, given a level of discretion, whether or not she has gathered expertise, and how many periods L selected, such that

$$\Phi_{s,\tau}(D) = \begin{cases} \pi(q + \omega_2) & \text{if } \tau = 1, s = 0 \\ \max_{x \in [-D,D]} \int_\Omega \pi(x + \omega_2)F(d\omega) & \text{if } \tau = 2, s = 0 \\ \pi(q + \omega_2) & \text{if } \tau = 1, s = 1 \\ \max_{z \in D^\Omega} \int_\Omega \pi(z(\omega) + \omega_2)F(d\omega) & \text{if } \tau = 2, s = 1 \end{cases} \tag{3}$$

Where ω is drawn from Ω via the cumulative distribution F. Thus, B's decision to remain in government is based on a comparison of expected utility. More specifically, B weighs her expected policy utility and material payoff of remaining in government against the outside wage and decision which is likely to be made by the bureaucrat who replaces her. In any given scenario, this comparison will take the form

$$\Phi_{s,\tau}(D) + r > \zeta(\Phi_{s,\tau}(D)) + (1 - \zeta)(\Phi_{s,\tau}(D)) + \kappa \tag{4}$$

The matrix below maps the scenarios which contextualize B's choice of g (in other words, given certain values of L's choice of τ and B's choice of s in the first period). Using this, I specify the conditions under which a type-zealot bureaucrat ($\theta = 1$) will remain in office ($g = 1$).

	$\tau = 1$	$\tau = 2$
$s = 0$	A	B
$s = 1$	C	D

In *Appendix A*, I discuss each scenario in turn. The implication that emerges from that analysis is that zealots will only choose to remain in office when they have acquired expertise and have been given discretion for two periods (Scenario D). Next, we can ask: when will zealots acquire expertise? I consider whether or not zealots will acquire expertise given L's choice of τ and a fixed level of D. The answer follows in a fairly straightforward fashion from B's choice of g in the second period. *If $\tau = 1$, then zealots will not acquire expertise in the first period.* Assumption 2 implies that the cost of acquiring expertise cannot be so low that a

B would be willing to bare such costs for use in 1 period. Formally,

$$c > \int_{\Omega} \pi(\omega) F(d\omega)$$

Thus, since the reversionary status quo in period 2 when $\tau = 1$ precludes the use of expertise (which allows the bureaucrat to condition policy selection on the state of the world), *B* will only gather expertise when *L* delegates for two periods. When *L* delegates for two periods, *B* will gather expertise if

$$\Phi_{1,2}(D) - \Phi_{0,2}(D) + \rho(\Phi_{1,2}(D)) + (1-\rho)\left[\zeta(\Phi_{1,2}(D)) + (1-\zeta)(\Phi_{0,2}(D))\right] - \Phi_{0,2}(D) + r - \kappa > c$$

Given assumption 5 (if $\tau = 2$, then $\rho = 1$), the equation reduces to

$$\Phi_{1,2}(D) - \Phi_{0,2}(D) + \Phi_{1,2}(D) - \Phi_{0,2}(D) > c + \kappa - r \tag{5}$$

In words, bureaucrats gather expertise if the policy rents they receive in both periods outweigh the opportunity cost of remaining in the civil service and the cost of acquiring expertise.

Next, the optimal policy choice for *B* is a function of *B*'s decision to acquire expertise (*s*)—so that there are two possiblities: *uninformed* (x_t^*) and *informed* (($x_t^*(\omega)$)) policymaking. These two possibilities follow directly from Epstein & O'Halloran (1999, 248) and Gailmard & Patty (2007, 879):

$$x_t^* \in \underset{x \in [-D,D]}{\arg\max} \left[-\int |p_B - (x+\omega) dF(\omega) \right] \tag{6}$$

$$x_t^*(\omega) = \begin{cases} -D & \text{if } p_B - \omega < D \\ p_B - \omega & \text{if } p_B - \omega \in [-D, D] \\ D & \text{if } p_B - \omega > D \end{cases} \tag{7}$$

Since I have already specified the scenarios in which *B* acquires expertise, the optimal choice of *x* can be illustrated by the following matrix, where informed policymaking only takes place when zealots have been given two periods of delegated authority.

	$\tau = 1$	$\tau = 2$
$\theta = 0$	x_t^*	x_t^*
$\theta = 1$	x_t^*	$x_t^*, x_t^*(\omega)$

Turning to the strategies of the legislator, I consider the optimal choice of discretion (D) and duration (τ). Following Gailmard & Patty, let

$$z_D = \underset{x \in [-D,D]}{\arg\max} \int_\Omega \pi(x + \omega)F(d\omega)$$

and

$$z_D(\omega) = \underset{z \in D^\Omega}{\arg\max} \int_\Omega \pi(z(\omega) + \omega)F(d\omega)$$

denote the optimal choice of x for uninformed (z_D) and informed ($z_D(\omega)$), respectively. The expected policy utility of a legislator ($\gamma_s(D)$) in any given period is either based upon informed, uninformed, or reversionary (in the case of $\tau = 1$) policy making:

$$\gamma_q = -\int_\Omega |q + \omega|F(d\omega) \tag{8}$$

$$\gamma_0(D) = -\int_\Omega |z_D + \omega|F(d\omega) \tag{9}$$

$$\gamma_1(D) = -\int_\Omega |z_D(\omega) + \omega|F(d\omega) \tag{10}$$

Since we know that (conditional on D) either no bureaucrats acquire expertise or only zealots do, the legislator's optimal choice of D can be expressed in one of the following ways.

$$\Delta_q^* = \underset{D \in \mathbb{R}_+}{\arg\max}\, \gamma_0(D) + \gamma_q \tag{11}$$

$$\Delta_0^* = \underset{D \in \mathbb{R}_+}{\arg\max}\, 2\gamma_0(D) \tag{12}$$

$$\Delta_1^* = \underset{D \in \mathbb{R}_+}{\arg\max}\, \zeta(\gamma_1(D)) + (1-\zeta)(\gamma_0(D)) + \zeta(\gamma_1(D)) + (1-\zeta)\left[\zeta(\gamma_1(D)) + (1-\zeta)(\gamma_0(D)\right] \tag{13}$$

That is, the legislators optimal choice is Δ_q^* if $\tau = 1$, and either Δ_0^* or Δ_1^* if $\tau = 2$. In the first two cases, the L's optimal choice is to provide no discretion ($\Delta_q^* = \Delta_0^* = 0$). In words, because neither slackers nor zealots gather expertise in these scenarios, the legislator can derive no utility from informed policy. She minimizes disutility by only incurring the cost associated with the random state of the world (ω). When she expects no bureaucrats to gather expertise, her best response is to provide no discretion. Thus, the legislator is only induced to provide discretion over policy making when she correctly believes the bureaucrat will both acquire expertise and remain in office. Prior considering the next component of the solution, it is important to note that the even given an optimal choice of discretion, there are still scenarios wherein expertise acquisition is impossible to incentivize. As in Gailmard & Patty's model, this is related to the cost

of acquiring expertise. Substituting Δ_1^* into Equation 7, we get:

$$\Phi_{1,2}(\Delta_1^*) - \Phi_{0,2}(\Delta_1^*) + \Phi_{1,2}(\Delta_1^*) - \Phi_{0,2}(\Delta_1^*) > c + \kappa - r \tag{14}$$

The legislator's choice of duration (τ) depends jointly on her preferences for informed, uninformed, and reversionary policy. If L prefers uninformed policy to the reversionary status quo (q), then either Δ_0^* or Δ_1^* obtains. Formally, if the following inequality is true, then the optimal choice of duration is two periods ($\tau^* = 2$):

$$\zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)(\gamma_0(\Delta_1^*)) + \zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)\left[\zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)(\gamma_0(\Delta_1^*)\right] > 2\gamma_0(\Delta_0^*) \tag{15}$$

$$> \gamma_0(\Delta_q^*) + \gamma_q$$

Likewise, if L derives utility from *any* policy that is not the status quo, then $\tau^* = 2$. Selection of one period is only optimal when one of the following inequalities hold:

$$\gamma_0(\Delta_q^*) + \gamma_q > \zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)(\gamma_0(\Delta_1^*)) + \zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)\left[\zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)(\gamma_0(\Delta_1^*)\right] \tag{16}$$

$$> 2\gamma_0(\Delta_0^*)$$

$$\gamma_0(\Delta_q^*) + \gamma_q > 2\gamma_0(\Delta_0^*) > \zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)(\gamma_0(\Delta_1^*)) \tag{17}$$

$$+\zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)\left[\zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)(\gamma_0(\Delta_1^*)\right]$$

$$\gamma_0(\Delta_q^*) + \gamma_q > \zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)(\gamma_0(\Delta_1^*)) + \zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)\left[\zeta(\gamma_1(\Delta_1^*)) + (1 - \zeta)(\gamma_0(\Delta_1^*)\right] \tag{18}$$

$$= 2\gamma_0(\Delta_0^*)$$

I denote legislator's equilibrium choice of duration and discretion by $\mathbb{T}^* = (\tau^*, D^*)$. As in Gailmard & Patty (2007), there are types of equilibrium outcomes. For this extension, there are three (rather than two), which are represented below.

1. $\mathbb{T}^* = (1, \Delta_q^*)$ if any of inequalities 16-18 hold.

2. $\mathbb{T}^* = (2, \Delta_0^*)$ if either of inequalities 14 or 15 do not hold and inequalities 16-18 do not hold.

3. $\mathbb{T}^* = (2, \Delta_1^*)$ when inequalities 14 and 15 hold.

Comparative Statics

The key comparative statics of this extension follow from the additional equilibrium type specified above. When we take into account variation in the time horizon bureaucrats are given to exercise authority, there are three possible equilibrium outcomes. The first $(1.\mathbb{T}^*)$ could be called the short-term clerkship regime. It describes a scenario in which the legislature's optimal choice of duration is one period, and the optimal choice of discretion is zero. Here, bureaucrats do not gather expertise, nor do they remain in government during the second period. In the second $(2.\mathbb{T}^*)$, the same is true, but legislators provide a longer time horizon for delegated authority because they prefer uninformed policymaking to the default status quo (q). In the third $(3.\mathbb{T}^*)$, legislators provide a two period horizon and discretion commensurate with the cost of acquiring expertise. This long-term discretion regime and its companion equilibria provide a few important insights.

First and foremost, there is no short-term discretion regime. That is, *legislators cannot impose a restricted time horizon and expect informed policymaking*. This implies that as the legislator's choice of duration increases, so should the interval of discretion from which they are able to choose policy. Second, all else equal, *when the legislator derives greater utility from informed policymaking, they must provide two periods of discretion and a level of discretion commensurate with the cost of acquiring expertise*. If they fail to do so, the policy rents zealots would receive will not outweigh acquisition and wage-opportunity costs, and bureaucratic turnover will result.

The model provides a rather stark depiction of the trade-offs of the legislator. That is, L can be induced by its desire for informed policymaking to provide a two-period time horizon and discretion over policy-making. The two variables work hand-in-hand. Duration is a pre-requisite to discretion—in that, without an extended duration, the model implies that no amount of discretion can induce civil service retention and expertise acquisition. These basic points inform the following hypothesis, which is the subject of the proceeding empirical analysis:

> **Duration Hypothesis:** *Congress will delegate for longer periods of time when the cost of acquiring expertise is higher.*

By granting agents a longer period of time to exercise delegated powers, legislators incentivize bureaucrats to gather the information necessary to produce more desirable policy outcomes. Notably, this expectation is quite distinct from the previous hypothesis, in that it *only indirectly depends on inter-branch conflict*. That is, regardless of the level of discretion they receive (which is conditioned by inter-branch conflict), the time horizon over which they choose policy is paramount in the decision to acquire expertise.

In this way, it is useful to think of executive delegation as having three components. In the first, Congress chooses whether to delegate—in the second, they choose how much discretion to provide the agent. In the third, they determine contract length based upon the cost of acquiring information. Importantly, the second is not necessarily "politicized." The instruments of political control will remain the same, operating when legislators determine how much power is delegated and what constraints are placed upon agency action. But duration will be chiefly determined by information concerns, in part, because incentivizing information gathering is a prerequisite to the inter-branch concerns inherent in delegation. The intuition behind this notion is revealed by $1.\mathbb{T}^*$, the short-term clerkship regime. In equilibrium, the legislator's chooses to provide the bureaucrat with no discretion, because all bureaucrats (both slackers and zealots) will leave office in the second period. Indeed, discretion as a parameter only takes on a non-zero value in $3.\mathbb{T}^*$, in which, two-periods of delegation is a requirement. Only when a long duration has been provided does the ideological distance between L and B affect L's decision-making. And even then, it only affects the question of "how much discretion?" In this way, the model preserves the "ally principle" intuition that follows from Epstein & O'Halloran. But the tools of legislative control are only added to counter the risk of deviation. Without initial delegation and the basic durational starting point, such controls would not be necessary.

Data & Measurement

In order to understand broader trends in delegation, the analysis should encompass the universe of legislation passed by Congress. However, since this scope condition is prohibitively time consuming, I restrict my analysis to "important" legislation. My empirical analysis considers "landmark" legislation from 1947-2012 (Mayhew, 1991, 2005). To test the duration hypothesis and retest the conflict hypothesis, I draw on the analytical strategies of Epstein & O'Halloran's work. Unfortunately, due to complications with availability, I was unable to obtain their original data set of delegation in landmark laws. I replicated (and extended) their data "from whole cloth" using their coding rules, the limited summary data they report, and their original data source: each year's *Congressional Quarterly Almanac*. A full comparison of their summary data, as well as replication of their major findings appears in *Appendix B*. Overall, my data adheres fairly closely to what they report; correlations between yearly averages of each principal variable (delegation ratio, constraint ratio, and discretion index) were all slightly above 0.98. Naturally, the additional observations included by expanding the data set to 2012 have no basis for comparison, so I recap the basic process for inclusion of new bills here.

The original data set contained 257 important laws passed from 1947–1992. My twenty year extension

of that time series used identical standards for inclusion. The sample begins with Mayhew's updated list of landmark laws. That list contains 401 observations. Like Epstein & O'Halloran, I exclude treaties and constitutional amendments, combine landmark laws that appear in the same bill, divide others that appear in separate ones, and exclude bills which did not have an adequate CQ summary. This brings the final number of observations to 347.[4]

To address the dependent variable—the duration of delegated provisions—the major provisions of each law are coded by the year they expire. In some cases, this is an explicit statutory time limit on delegated authority. In others, the expiration occurs when funding for the discretionary program expires. Provisions that do not have an expiration date are coded as "indefinite." Typical examples of provisions coded this way include the creation of a new agency or the expansion of agency's regulatory jurisdiction. A full description of the coding rules and the variables used to to track these provisions over time appears in *Appendix C*. Typically, the statutory limit fell between 1 and 15 years—or had no limit at all (i.e. "indefinite").

Finally, testing the duration hypothesis requires some measure of my principle independent variable: "informational intensity." Again, I take the informational intensity of an issue area to be the costs associated with gathering expertise necessary to make the policy required by law. This presents a considerable measurement challenge, since many potential proxy variables may be endogenous to the delegation process. For instance, Epstein & O'Halloran use a count of congressional hearings per year to indicate informational intensity. Unfortunately, their conception of delegation suggests that variation in congressional hearings will be a function of responsibilities already delegated to the bureaucracy. That is, there will be fewer congressional hearings designed to gather information on clean air policies after the EPA is given substantial authority by the Clean Air Act. Another possible proxy is the composition of the agencies themselves (Lewis 2008). But here, again, the professional makeup of the agencies will be endogenous to the complexity of the issue area and the duration of delegated authority.

To measure this attribute independent of the other variables I have specified, I rely on an existing measure of issue complexity (Gormely 1986, Nicholson-Crotty 2009). Overall, Gormely's description of "issue complexity" conforms reasonably well to my understanding of the cost of acquiring expertise:

> a highly complex issue is one that raises factual questions that cannot be answered by generalists or laypersons. High complexity does not necessarily mean that technical considerations are paramount or that political considerations are unimportant. It does mean that specialized knowledge and training are needed if certain factual questions are to be satisfactorily addressed. (598)

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[4]Note that compared to the 1947-1992 years, 1993-2012 had a higher attrition rate as a result of inadequate summaries (17 were excluded by this means, compared with 8 in their original data). A list of those laws appears in *Appendix A*. Many of these laws were considered "landmark" because they altered existing laws relating to social issues, but a few may have contained non-trivial opportunities to delegate authority. Though it is left to the reader to determine whether these potential observations would have altered this study's conclusions, it is important to stress that in estimating robust OLS, E&O omit 13 outlier observations. The methods I go on to outline have the virtue of avoiding further omissions of that kind.

To minimize the problems associated with other metrics, an issue area is coded as either complex or not complex [0,1]. Dichotomous measures limit inference, in that they render unanswerable questions of degree in the effect of x on y. However, they also limit the opportunity for researcher error, reducing the incidence of "borderline" cases. Incorporating the existing measure was fairly straightforward. Gormely and Nicholson-Crotty coded 42 and 58 issue areas respectively. I mapped those existing areas onto the subtopic coding scheme of the Policy Agendas Project. There were 126 subtopic categories covered by the 347 bills in the dataset. Twenty-three of the pre-coded issue areas were not used, mainly because they dealt with policies usually within the realm of state and local governments (i.e. "video arcades", "nude dancing", and school choice). The remaining either followed logically from Nicholson-Crotty's coding rules[5] or were logical extensions of existing codes. For instance, educational policy is coded as non-complex, so I coded the "Arts & Humanities" subtopic likewise. In sum, each bill was coded by issue topic, and those issue topics were carefully coded as either "complex" or "not complex." A sample of sub-topic codings appears in *Appendix C.*


Accumulated Discretion, 1947-2012

Prior to reviewing the methods I employ in my analyses, a few descriptive findings are worth presenting. Using their data set of delegated powers, E&O cast doubt on "the fear of a runaway bureaucracy," which they say, "appears [...] to be somewhat overblown"(1999, 117). They observe an overall decline in the discretion delegated to the executive branch. That trend—as well as *any* trend—is noticeably absent when one includes landmark laws from 1993-2012. *Figure 1* plots the average yearly discretion index over the extended time series. The discretion index is the ratio of major provisions of a law that contain delegated powers weighted downward by the number of procedural and oversight-based constraints placed on those powers. Notably, no linear trend line is statistically distinguishable from zero. Over the additional twenty years, the basic expectations of the ally principle appear to be substantiated. For instance, following the "Republican Revolution" of 1994, discretion plummets—potentially with the rise of more polarized partisan politics and increased tension between legislators and the Clinton Administration. In 2001 and 2002, total delegated discretion reaches its highest levels since the 60s and 70s, in the aftermath of September 11th and under unified government. And, not surprisingly, in 2011 and 2012, the index dips to the lowest in any two consecutive years in the time series—after Republican gains in Congress during the Obama Administration.

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[5]"Generally speaking, policies coded as complex in this sample include those that deal with energy, environmental pollution, healthcare (provision, finance, and licensing), taxation, trade, and fiscal regulation. Alternatively, criminal justice, education, morality, civil rights, consumer protection, and electoral policies are typically coded as noncomplex."(Nicholson-Crotty 2009, 198).

Figure 1: *Average Yearly Discretion, 1947-2012; The dashed-line indicates the end of E&O's time series. The red line is a locally weighted trend-line.*
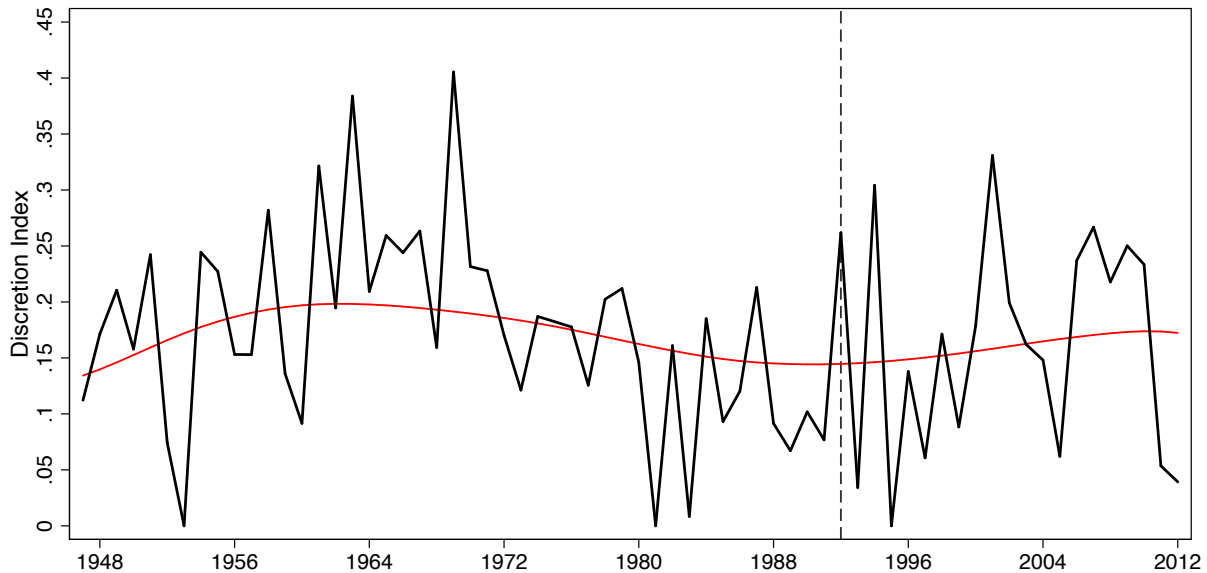

While it may be true that there is no discernible trend in the discretion index over time, this does not necessarily mean that either the "runaway bureaucracy" or abdication theses have been disproven. The discretion index is analogous to a speedometer, in that it tells us at what rate Congress is delegating power in landmark laws at any given moment (that is, year). However, it cannot tell us the number of miles traveled—that is, it cannot track accumulation. Congress may be delegating at higher or lower rates, but if each year, the majority of that authority remains operative, then we may be less willing to dismiss the prospect of a runaway bureaucracy outright. *Figure 2* provides some support for that basic point. It tracks the total unexpired delegated provisions in each year of the time series. The gray line indicates the proportion of that year's provisions which were categorized as "indefinite" authority. When we consider the observed trend, it is easy to understand the impetus for decrying Congressional abdication and an "out-of-control" bureaucracy.

There is one important caveat to regarding this figure. Since my data are only a sample of the most important laws, I necessarily miss amendments to existing provisions of law. *Figure 2* should be treated as a kind of counterfactual: "what if duration of delegated authority Congress issued over time was fixed by the original statute?" Still, we have reason to expect that this is not wildly unrealistic. Volden (2002) notes that—because of the executive veto—there may be an asymmetry between delegation and Congressional attempts to lower the status quo level of discretion. Moreover, historically, Congressional reassertion efforts have not faired well because of the collective action problems Congress must confront and the advantages

of a presidency with increasing unilateral powers (Lewis & Moe, 2010; Howell, 2003; Mayer, 2001). Overall, it should be noted that a substantial proportion of delegated provisions have no expiration date. Often, they imply a permanent expansion of the executive branch bureaucracy into a new issue area where expertise must be acquired. Put simply, it is clear that "contracts" between Congress and the bureaucracy pile up rather quickly.

Figure 2: *Unexpired Delegated Provisions, 1947-2012; The black line indicates total active provisions. The red line is a locally weighted trend-line.*
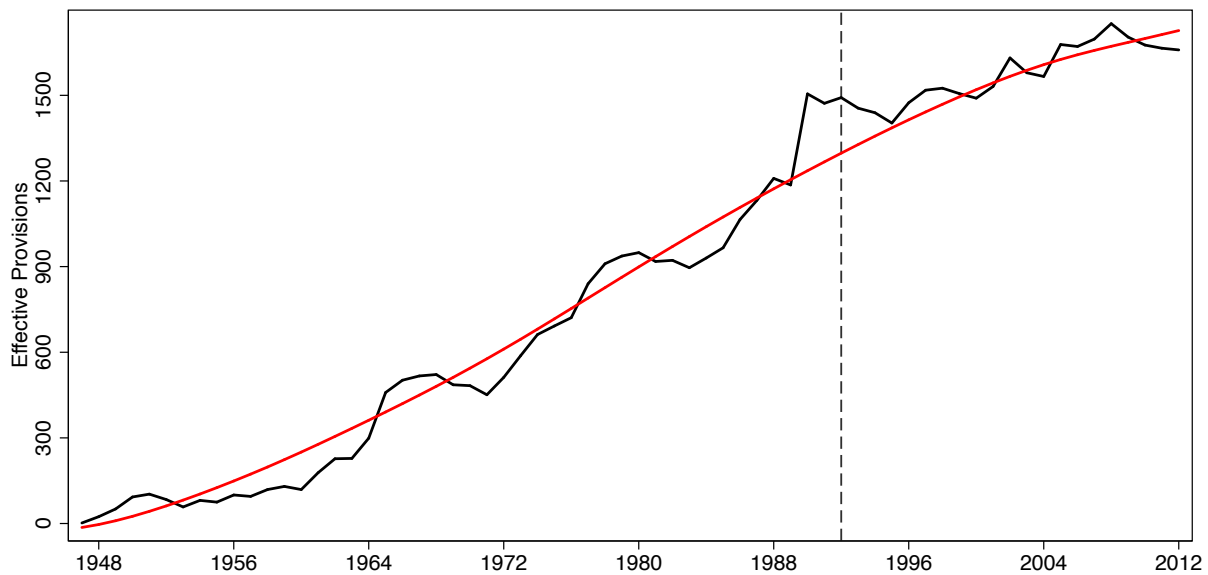
Overall, *Figures 1& 2* provide the clearest picture of the empirical puzzle I described at the outset. Studies of this point can explain the first figure, but they have less to say about the second. That is, studies have accounted for year to year variation in the level of discretion delegated to the bureaucracy. What influences the accumulation of those delegated powers is largely unknown. A first step in understanding that accumulation is investigating the initial time horizon provided to bureaucrats. This first decision is the benchmark by which future reauthorizations and delegations are considered. It is vital for understanding the boundaries of the administrative state, and more broadly, the size and scope of American government across time.

Methods & Estimation

In order to test the empirical expectations of the model previously discussed, I estimate a Cox-Proportional Hazards model, which does not differ markedly from standard examples. Since the dependent variable of the second hypothesis is duration, survival analysis may best approximate my empirical expectations. It

models determinants of the duration of delegated provisions. Here, the partial log-likelihood maximized does not differ from typical Cox models, so I have omitted it from this discussion. Landmark bills have, in most cases, collections of provisions which expire at different times, located in different agencies. Thus, the unit of analysis is a *group of provisions*.[6] For example, a group of provisions could contain five delegated provisions, which expire in three years, and are located within the USDA. Here the dependent variable would take on a value of 3. Indefinite provisions are coded arbitrarily to 100 (and accordingly, subject to right-censoring).

Since my hypothesis is predicated on showing durational differences in issue areas and the complexity of those areas, I provide an indicator variable for each issue area, as well as a variable indicating the location of an agency to control for the possibility that Congress limits duration based upon an agency's structural distance from the president. I also include control variables for inter-branch tension as well as a control for budget surplus. We might expect that the duration of delegated authority is really a function of what programs and agencies Congress can afford to fund, given the fiscal climate. First I estimate a model which includes the issue areas themselves to substantiate variation in time horizon (Equation 19). I then estimate models which include issue complexity and multiple indicators of inter-branch tension (Equations 20 & 21).

$$y_i^* = \alpha + \beta_1 Location + \beta_2 PolicyArea + \beta_3 Divided + \beta_4 Budget \tag{19}$$

$$y_i^* = \alpha + \beta_1 Complexity + \beta_2 Location + \beta_3 Divided + \beta_4 Budget \tag{20}$$

$$y_i^* = \alpha + \beta_1 Complexity + \beta_2 Location + \beta_3 SeatShare + \beta_4 Budget \tag{21}$$

To recap, my basic expectation is that longer time horizons will be associated with more complex issues, and that inter-branch conflict will have no statistically discernible affect.

Results

The empirical findings largely support my theoretical argument. As expected, the time horizon that bureaucrats are given to exercise that authority is positively associated with the cost of acquiring expertise. As hypothesized, variables indicating inter-branch preference divergence have no appreciable affect upon the duration of delegated authority.[7] Before incorporating my metric of issue complexity, it must be demonstrated that there is appreciable variation in authority duration amongst issue areas, and that this variation passes a basic face validity test. I report the full results of this Cox model in *Table 1*. To provide an

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[6]I describe this in greater detail and provide a visual representation of what it looks like in the data set in *Appendix C*.
[7]Though seat share is included in the results I present, gridlock interval and divided government had similar effects.

additional robustness check of this finding, I estimated an interaction model to address the possibility that the location of extended durations would be strategically chosen when inter-branch conflict was higher. That is, when preference divergence between branches is high, Congress may vest longer time horizons in bureaucrats less directly responsible to the president. That model returned similar null results.

Contrary to the results of the tension-indicator variables, the various issue areas predict the expiration of authority quite well. Inspection of the results yields an appreciable order. The base issue, macroeconomics, most often contains revisions to tax policy which contain very little delegated authority to begin with, and moderate timespans in which to exercise that authority. At any given time, delegated provisions relating to consumer policy—a field which requires considerable information and technical expertise—are half as likely to expire. I find similar effects for the issues of labor, defense, crime, and government operations. On the other end of the spectrum, housing, foreign affairs, and agricultural provisions are each 43, 42, and 34 percent more likely to expire compared to macroeconomic delegated provisions. This suggests, at the very least, that there is an ordering—*Congress delegates longer in certain issue areas*. Agricultural bills generally delegate authority to the head of the USDA to make minor adjustments in price controls over a five-year period. Most agricultural policy entails distributive programs that support farmers and ranchers. These are precisely the kind of low-information responsibilities in which, I expect legislators have less incentive to provide a longer duration.

These explanations remain rather post-hoc, however, unless coupled with a more direct hypothesis test. Additionally, the major topic categorizations presented above may be too general to pick up variation in complexity within areas. I report the results of sub-topic models which include issue complexity in *Table 2*. The key finding is the following: across both models and despite controlling for other factors which might plausibility affect time horizon, *complex topics were systematically associated with longer periods of delegated authority*. On average, complex areas of policy were 17 percent less likely to expire than non complex issues at any given time. Interestingly enough, inter-branch conflict indicators have no statistically appreciable effect. This basic story is strengthened by the null effect of budget surplus. If, for instance, duration were simply a matter of fiscal climate, then we would expect it to have some positive effect on duration—instead the relationship is indistinguishable from zero.

Table 1: *Survival Analysis of Delegated Provisions by Issue Area*

Variable	DV: Duration (Years until Expiration)	Hazard Ratio
Location	EOP (Base)	–
	Cabinet	1.35**
		(0.18)
	Independent Agency	1.05
		(0.17)
	Government Corportation	1.30
		(0.29)
Issue Area	Macroeconomics (Base)	–
	Health	0.74
		(0.17)
	Agriculture	1.34*
		(0.23)
	Labor and Immigration	0.46***
		(0.12)
	Education	1.28
		(0.26)
	Environment	1.05
		(0.16)
	Energy	0.92
		(0.15)
	Consumer Policy	0.49***
		(0.13)
	Transportation	0.95
		(0.16)
	Law, Crime, and Judiciary	0.72*
		(0.12)
	Social Welfare	1.09
		(0.26)
	Housing and Community Development	1.43**
		(0.24)
	Defense	0.67**
		(0.13)
	Space, Science, and Technology	0.55
		(0.24)
	Foreign Affairs and Aid	1.42**
		(0.25)
	Government Operations	0.55**
		(0.17)
	Public Lands and Water	0.43
		(0.25)
Seat Share		0.83
		(0.19)
Budget Surplus		0.80
		(0.30)
N=1,237		

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2: *Survival Analysis of Delegated Provisions by Issue Complexity (hazard ratio reported)*

Variable	DV: Duration	1	2
Issue Complexity		0.833**	0.833**
		(0.064)	(0.064)
Location	EOP (Base)	—	—
	Cabinet Department	1.263*	1.261*
		(0.158)	(0.157)
	Independent Agency	0.969	0.968
		(0.147)	(0.147)
	Government Corporation	1.407	1.419
		(0.302)	(0.305)
Divided Government		0.905	—
		(0.068)	
Opposition Seat Share		—	0.777
			(0.161)
Budget Surplus		1.256	1.191
		(0.444)	(0..420)
N=1,237			

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Testing an Alternative Hypothesis

To this point, I have shown that issue complexity, as opposed to inter-branch conflict, is associated with longer time horizons in the authority delegated to bureaucrats. In order to show that this finding is robust to alternative theoretical explanations, it is necessary to provide an additional empirical test. It could be reasonably suggested that longer durations are associated with complex issue areas, not because Congress wants to incentivize expertise acquisition, but instead, because congressional leaders face difficulties when building legislative coalitions for technical areas of policy. That is, lawmakers may be reacting to *intra*-branch, as opposed to *inter*-branch, conflict. This argument is tangentially related to a central theme that Huber & Shipan (2006) identify: political uncertainty. Fearing a political changing of the guard, under this notion, principals seek to insulate policies from future review. This could mean delegating for an indefinite duration to attempt to limit the opportunities for amendment.[8] This basic logic comprises the following hypothesis:

> **Coalition Hypothesis:** *Congress will delegate for longer periods of time when forming a legislative coalition is more difficult.*

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[8]This is not to say that a long time horizon is permanent. But short time horizons insure that the reversionary point is essentially zero, so that inaction is all that is required to defeat such a policy.

By delegating for a longer time horizon in these technical issue areas, legislators save themselves from having to reconsider these topics and bear the costs associated with building a political coalition. The most direct way to test this alternative is to look at the coalition sizes of the enacting legislation. At first glance, the hypothesis lacks validity, partially because of the sample of legislation I have analyzed. As Mayhew (2005) notes, a remarkable proportion of "landmark laws" pass with overwhelming majorities. A non-trivial number of the laws in this sample where passed by voice-vote (20 in the House, 53 in the Senate). Put simply, if we take the size of the enacting coalition as an indication of the costs associated with lawmaking, then there seems to be no initial evidence for the above hypothesis.

Naturally, a more systematic test of this hypothesis is appropriate. *Table 3* presents the results of another set of Cox models, this time using the size of an enacting coalition (the number of "for" votes in the House and Senate) as a determinant of duration. The Coalition Hypothesis suggests that issue complexity should wash out as a determinant, while the enacting coalition variables should provide a more precise estimate with a large substantive effect. Laws which were passed via voice-vote had to be omitted from analysis, so we are limited in what we may draw from the model results. However, in both models, the Coalition Hypothesis is unsupported. Issue complexity remains the primary determinant of duration, whereas coalition size has no statistically discernible effect.

Table 3: *Survival Analysis of Delegated Provisions by Enacting Coalition (hazard ratio reported)*

Variable	DV: Duration	1	2
Issue Complexity		0.838**	0.849*
		(0.073)	(0.075)
Location	EOP (Base)	—	—
	Cabinet Department	1.2196	1.201
		(0.165)	(0.166)
	Independent Agency	0.969	0.969
		(0.162)	(0.162)
	Government Corporation	1.365	1.359
		(0.343)	(0.341)
House-Coalition		0.999	—
		(0.001)	
Seante-Coalition		—	0.997
			(0.003)
Budget Surplus		1.130	1.130
		(0.449)	(0.445)
N=1,044			

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Discussion

Two significant findings emerge from this study. First, I have found no discernible relationship between inter-branch preference divergence and the duration of delegated authority. This finding is also robust to political disagreements within Congress, in that larger majorities do not enact longer or shorter durations by virtue of their political strength. The time horizon legislators give bureaucratic agents to exercise discretionary powers seems to be determined by a set of considerations wholly different from the initial decision to delegate. Third, and on a related point, policy area matters for the timespan of delegated powers in a way that suggests the information costs incurred by bureaucrats are taken into consideration. In some cases, this initial demand for information may have indirectly led to a future change in the status quo unbounded by the pivotal legislators in Congress. This point cannot be overemphasized. To return to my initial consideration of Congressional abdication and the economics of organization—it may be one means of reconciling these two theories. The delegation of indefinite authority is not "abdication" per se, rather, it is based on principals' efforts to induce information gathering. However, longer time horizons come with greater uncertainty over distant policies—a necessary evil legislators must balance with the present demand for informed policy. So, events which seem to be evidence of "abdication" and a "runaway" bureaucracy are actually nascent side-effects of incentives structured by the economics of organization. Put simply, delegated powers often outlive the political principals who enacted them.

Naturally, there are a few caveats to these points, the most important of which, is that it is difficult to find a continuous measure of informational costs. My study has taken a step in that direction, but it is ultimately reliant on researcher interpretation and may be sensitive to alternative categorizations of various policy areas. It should also be noted that my data contain only "landmark" bills, so the results I have highlighted may not be generalizable to all legislation. Those bills that lack the salience of more important legislation may not exhibit the systemic patterns I have found. I have limited my study to this now-canonical set of laws because I am interested in explaining patterns with more historic and substantive significance. Despite these limitations, my results support the idea that legislators provide longer delegated time horizons in order to induce bureaucratic agents to gather the information necessary to develop and implement policy.

This study began with an empirical puzzle informed by recent unintended consequences of latent bureaucratic discretion. Seeking to explain that phenomenon, and taking into account endogenous information, I have provided an explanation for what determines the duration of delegated authority. I have shown that this finding is robust to multiple alternative hypotheses. The durational analysis here suggests that principals' consideration of the cost of gathering information may be one mechanism that determines

the shape of executive branch bureaucracy more broadly. Ultimately, the durability of vested powers varies with the complexity of responsibilities shouldered by bureaucratic agents. That variation has lasting and often unpredictable consequences for future policy. The continued salience of the "administrative presidency" and the academic focus on unilateral action in the executive branch invites scholars to rethink temporal stability of the ally principle—investigating the uneasy link between contemporary policy-making and statutory origin.

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Appendix A: Duration Model

Assumptions

1. $\kappa > r$

2. $2 \int_{\Omega} \pi(\omega) F(d\omega) > c > \int_{\Omega} \pi(\omega) F(d\omega)$

3. Slackers and zealots choose the same policy if they are uninformed.

4. Newly hired zealots acquire expertise if zealots acquire expertise in the first period.

Scenarios A & C

If the legislator chooses one period ($\tau = 1$), zealots will leave office in the second period. To illustrate this, consider B's comparative utility of remaining in office when he has acquired expertise:

$$\Phi_{1,1}(D) + r > \zeta(\Phi_{1,1}(D)) + (1 - \zeta)(\Phi_{0,1}(D)) + \kappa \tag{22}$$

$$\pi(q + \omega_2) + r > \zeta(\pi(q + \omega_2)) + (1 - \zeta)(\pi(q + \omega_2)) + \kappa \tag{23}$$

which reduces to:

$$r > \kappa \tag{24}$$

That is, for a zealot to remain in office, the civil service wage must be strictly greater than the private sector wage, which is contrary to Assumption 1. This result is identical for both A & C, because when $\tau = 1$, the expected policy utility is the same, whether expertise has been acquired or not. The reversionary policy, q, is an assumed outcome over which, the bureaucrat has no discretion.

Scenario B

If zealots don't acquire expertise in the first period, they will leave office in the second. Again, consider the comparative utility of remaining in office when B has not acquired expertise and is delegated authority for two periods:

$$\Phi_{0,2}(D) + r > \zeta(\Phi_{0,2}(D)) + (1 - \zeta)(\Phi_{0,2}(D)) + \kappa \tag{25}$$

which, again, reduces to

$$r > \kappa \tag{26}$$

Since $r < \kappa$, B will leave office. Like the previous scenarios, this directly follows from the assumptions. Since uninformed bureaucrats choose the same x, B is indifferent about whether to remain in office in terms of policy utility alone, so that all that matters is a comparison of wages.

Scenario D

Thus, *the only scenario in which zealots might choose to remain in office is when they have acquired expertise and been given authority for two periods.* This becomes apparent in B's utility calculation, where the decision does not simply reduce to a comparison of wages:

$$\Phi_{1,2}(D) + r > \zeta(\Phi_{1,2}(D)) + (1 - \zeta)(\Phi_{0,2}(D)) + \kappa \tag{27}$$

$$\left[\max_{z \in D^\Omega} \int_\Omega \pi(z(\omega) + \omega_2) F(d\omega) \right] > \tag{28}$$

$$\zeta \left[\max_{z \in D^\Omega} \int_\Omega \pi(z(\omega) + \omega_2) F(d\omega) \right] + (1 - \zeta) \left[\max_{x \in [-D,D]} \int_\Omega \pi(x + \omega_2) F(d\omega) \right] + \kappa - r$$

Here, B's decision will be based on the level of discretion (D) that L has granted in the first period, since with probability $1 - \zeta$, policy will be made by an uninformed slacker.

Appendix B: Replication and Data Comparison

The purpose of this appendix is to show the reader, to the extend possible, that I have accurately replicated and extended Epstein & O'Halloran's data set of delegation in landmark laws. It contains a full replication of Epstein & O'Halloran's delegation findings in Chapter 6 of *Delegating Powers* (1999), as well as a retest of their basic hypothesis. I recap the process by which the variables were constructed, provide a comparison of summary statistics, as well as re-run and update their empirical analyses.

For each observation (landmark law), I count the number of major provisions (p) contained in the CQ summary. I then count the number of provisions which contain delegated authority (a), keeping track of fourteen categories of constraints (c) Congress places on the bureaucracy. The delegation ratio (r) is given by

$$r = \frac{a}{p} \tag{29}$$

From here, the ratio of number of constraints over total constraints (t) is multiplied by the delegation ratio, then subtracted from the delegation ratio to obtain the level of discretion (d).

$$d = r - r(\frac{c}{t}) \tag{30}$$

Thus, the dependent variable used to evaluate the conflict hypothesis, discretion, is a continuous proportion [0,1] inclusive, with 0 indicating no delegation and 1 indicating complete delegation with no constraints.

This appendix contains a comparison of summary statistics, as well as a full comparison of the OLS and Tobit models run by E&O and my own. But first, it is worth enumerating what I believe explains the differences between their data and my own.

1. *Food and Agriculture Act of 1977*: The CQ summary for this bill had two parts. E&O did not include the second part, even though it contained delegation and constraint provisions. I have chosen to include it. This increased the overall number of provisions for the 95th Congress and increased the delegation and discretion index slightly.

2. *Coding rules*: The appendices of the book provide some guidance, but leave out, for instance, the fact that the summaries vary in format (making it more difficult to determine what counts as a provision). Additionally, their guidelines for what "counts" as delegation leave a lot to be desired in the way of detail.

3. *Human Error*: I have, to date, only been able to double-check 59 of 347 observations. In the course of those checks, I discovered 3 laws contained errors—though, these particular observations were coded early in the data set construction.

Figure 5, below, plots the two variables which make up the discretion index: the delegation and constraint ratios. The gray line indicates E&O's summary data, while the dashed line is my own. Overall, the data adhere to one another quite well, despite the difficulties I have already mentioned. The by-year correlations of delegation rate, constraint ratio, and discretion ratio were 0.981, 0.984, and 0.982, respectively.

Figure 3: *Comparative Summary Statistics, 1947-1992*

(a) *Delegation*

(b) *Constraints*
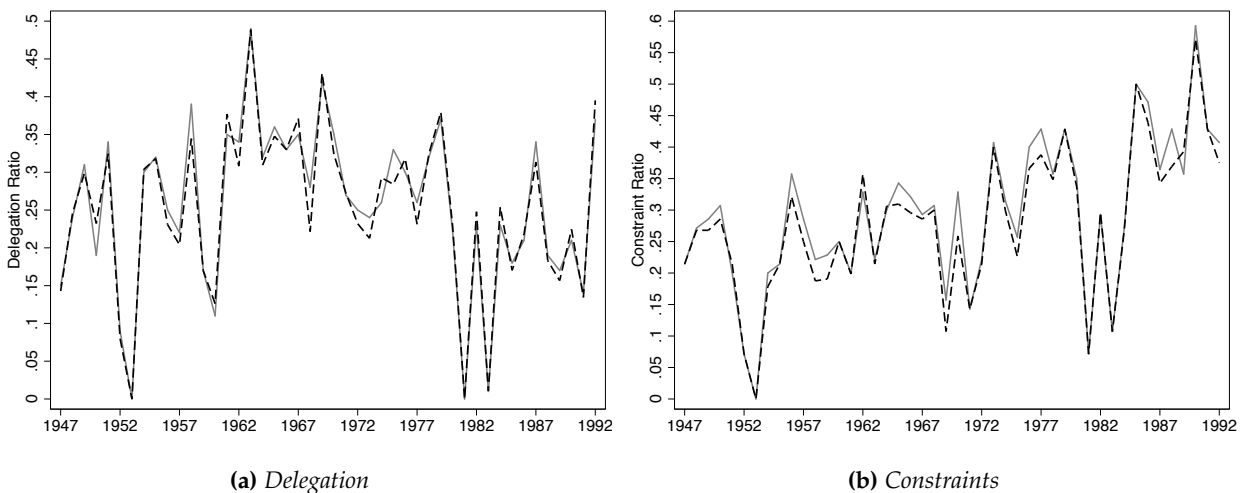
To retest Epstein & O'Halloran's hypothesis, I rerun their analysis using a more sophisticated generalized linear model: zero-one-inflated beta regression. The beta model departs considerably from Epstein & O'Halloran's original specification. They test the gridlock hypothesis with robust OLS and Tobit regression. However, these models may be inappropriate, given that the dependent variable is a proportion. In this case, the account of the data generating process suggests the decision to delegate is a continuous outcome. Legislators are not presented with a discrete decision. Delegation is a matter of degree—a proportion. But modeling this variable with OLS and the normality assumption can be problematic, given that most proportions are asymmetric (Ferrari & Cribari-Neto, 2004). As Ferrari & Cribari-Neto note, one can obtain fitted values outside the domain of a proportion when using the unbounded normal. Additionally, independent variables with large effects upon the proportion will often yield heteroscedastic results (Paolino, 2001). Epstein & O'Halloran try to account for this by estimating robust standard errors.

Their Tobit truncates the normal distribution to values greater than or equal to zero. Still, these steps are inadequate, given that the normal still has no upper bound and that it is a poor fit for the discretion ratio's particular skew.

To address these problems, I use a beta model which is more appropriate, considering the basic characteristics of the dependent variable. It forgoes the normality assumption, is correctly bounded, and allows the proportion to take on values at both 0 and 1. It is worth noting that I also could have modeled the outcome using fractional logit (Papke & Wooldrige, 1996). Because there was no clear theoretical reason for choosing one over the other, I re-ran all results I present later using this method. I found no substantive difference, though on average, the results produced by the logit appeared to be less efficient. A few political science researchers have employed the beta distribution (Paolino, 2001; Gillion, 2008), but, since I make a few non-trivial adjustments, I discuss it below.

Here, I use an alternative parameterization of the beta distribution, developed by Ferrari and Cribari-Neto, where μ and ϕ are related to the traditional shape parameters, p and q:

$$f(y_i \mid \mu, \phi) = \frac{\Gamma(\phi)}{\Gamma(\mu\phi)\Gamma((1-\mu)\phi)} y_i^{\mu\phi-1}(1-y_i)^{(1-\mu)\phi-1}, 0 < y < 1 \tag{31}$$

where $\mu = \frac{p}{p+q}$, and $\phi = p + q$, allowing $E(y) = \mu$. This particular form is more useful, since it allows me to model the mean, μ, of my dependent variable (in this case, discretion ratio). For further interpretability, I use a standard logit link function, so that

$$\mu = \frac{e^{y_i^*}}{1 + e^{y_i^*}} \tag{32}$$

where y^* is my linear model. This specification, however, is still inadequate since the data contain a number of 0 and 1 ratios. The beta distribution does not allow the probability of a 0 or 1 to be greater than 0. To accommodate those observations, I use a mixed distribution, where two degenerate distributions, π_0 and π_1, are used for situations when the dependent variable is 0 or 1 (Ospina and Ferrari, 2011; Swearingen et al., 2012), so that

$$f(y_i \mid \pi_0, \pi_1, \mu, \phi) = \begin{cases} \pi_0 & \text{if } y = 0 \\ (1 - \pi_0 - \pi_1)\frac{\Gamma(\phi)}{\Gamma(\mu\phi)\Gamma((1-\mu)\phi)} y_i^{\mu\phi-1}(1-y_i)^{(1-\mu)\phi-1} & \text{if } 0 < y < 1 \\ \pi_1 & \text{if } y = 1 \end{cases}$$

To rewrite the piecewise equation as a single GLM, I define two indicator variables: $I_0 = 1$ when $y = 0$ and $I_1 = 1$ when $y = 1$. Thus, the GLM for the zero-one inflated beta is:

$$f(y_i \mid \pi_0, \pi_1, \mu, \phi) = (\pi_0)^{I_0}(\pi_1)^{I_1}(f(y_i \mid \mu, \phi))^{1-I_0-I_1} \tag{33}$$

I estimate linear models implied by the conflict hypothesis (a variable-by-variable replication of Epstein & O'Halloran's model, presented in Equations 4-6). Here, the discretion ratio is a function of variables which indicate the degree of tension between Congress and the President, the beginning of the president's term, the budget surplus/deficit, and "activist mood" (a dummy variable coded one for the the late sixties and early seventies).[9] The tension variables are divided government (Equation 34), opposition seat share or the net percentage of seats controlled by the president's opposing party (Equation 35), and the gridlock interval (Equation 36; Brady & Volden, 1998; Krehbiel, 1998). The gridlock intervals are calculated by year using adjusted ADA scores in my replication analyses of E&O, but for the full time series, I use Common Space DW-NOMINATE scores calculated by Congress (Carroll et al., 2013).[10] Opposition seat share (OSS) is defined as the difference between the share of seats in Congress controlled by the opposition and those controlled by the President's party. Put another way, opposition seat share expresses the numeric advantage

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[9]In later analyses, the "activist mood" variable is removed from the equation because as a control, is has no theoretical justification. It was included in Epstein & O'Halloran's original analysis to control for Mayhew's (1991) concept of "public moods." Even inclusion of Stimson's (1991) variable for the public's latent preference for more or less government would be peculiar to include—since presumably, those underlying preferences will be mapped onto the preferences of politicians.

[10]The results between the ADA and DW-NOMINATE scores differ marginally, but the substantive interpretation of both these variables is the same.

the opposing party has in Congress. For example, the lowest OSS (-0.36) occurred during the 89th Congress, when Lyndon Johnson had huge Democratic majorities in both chambers. The highest (0.30) occurred in the 86th Congress, when Dwight Eisenhower faced Democratic majorities in both chambers.

$$y_i^* = \alpha + \beta_1 Divided + \beta_2 Begterm + \beta_3 Budget + \beta_4 Activist \tag{34}$$

$$y_i^* = \alpha + \beta_1 Seatshare + \beta_2 Begterm + \beta_3 Budget + \beta_4 Activist \tag{35}$$

$$y_i^* = \alpha + \beta_1 Gridlock + \beta_2 Gridlock * Divided + \beta_3 Begterm + \beta_5 Budget + \beta_5 Activist \tag{36}$$

E&O report the mean (0.18) and standard deviation (0.16) of the discretion ratio for the analysis that follows. It differs from the mean (0.19) and standard deviation (0.17) of my data only slightly. *Tables 3 & 4* compare our results our regression results. The differences in coefficients are the result of the replication issues I have mentioned previously. It is worth noting that five fewer observations were dropped in my data when I use their process for outlier omission. However, since E&O do not report which laws were omitted from their analysis, I have no way of explaining these differences.

Overall, my analysis upholds Epstein & O'Halloran's findings across different models, times series, and different measures of inter-branch tension. The ZOIB estimates that under divided government, laws are likely to have discretion indexes 0.07 lower than those under unified government. To use a few simple examples, this means that a bill with 100 major provisions under divided government will have 7 fewer provisions containing delegated powers. Or, to put it in terms of constraint, if that same 100 provision bill had 32 provisions which delegated authority, a 0.07 reduction in discretion would be the equivalent of adding 4 categories of constraints—such as reporting requirements, spending limits, or special appeals and hearings procedures.

Table 4: *E&O OLS and Tobit Estimates of the Effect of Inter-branch Conflict on Discretion, 1947-1992 (1999, 136).*

| VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) Tobit	(5) Tobit	(6) Tobit
Divided	-0.032**			-0.038**		
	(-2.01)			(-1.77)		
Seat Share		-0.134*			-0.22**	
		(-1.59)			(1.94)	
Gridlock			-0.0006			0.0006
			(-0.71)			(-0.71)
Gridlock*Divided			-0.001**			-0.0009*
			(-2.05)			(-1.60)
Start Term	-0.009	-0.01	-0.006	0.002	-0.003	0.003
	(-0.57)	(-0.81)	(-0.38)	(-0.11)	(-0.15)	(0.16)
Budget Surplus	0.228**	0.253**	0.241**	0.178	0.178	0.177
	(1.98)	(2.23)	(2.10)	(1.53)	(1.53)	(1.52)
Activist	0.012**	0.011**	0.012**	0.017**	0.016**	0.017**
	(2.17)	(2.01)	(2.22)	(2.41)	(2.27)	(2.24)
Constant	0.184***	0.167***	0.205***	0.184***	0.163***	0.166***
	(9.01)	(8.57)	(5.38)	(7.32)	(7.42)	(3.26)
Observations	244	244	244	257	257	257
R^2	0.069	0.066	0.067			

OLS estimated with robust standard errors; observations with Cook's distances greater than 4/n were omitted; t-stats in parentheses; **one-tailed test**. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5: *Estimates of the Effect of Inter-branch Conflict on Discretion, 1947-1992 (replication).*

VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) Tobit	(5) Tobit	(6) Tobit
Divided	-0.029*			-0.034*		
	(1.77)			(-1.53)		
Seat Share		-0.063*			-0.094*	
		(1.58)			(1.67)	
Gridlock			-0.00002			0.0005
			(0.02)			(0.43)
Gridlock*Divided			-0.0007*			-0.0008*
			(-1.59)			(-1.32)
Start Term	-0.007	-0.01	-0.005	0.011	0.006	0.012
	(0.42)	(0.60)	(0.31)	(0.50)	(0.27)	(0.53)
Budget Surplus	0.198***	0.204***	0.201***	0.186*	0.186*	0.185*
	(2.54)	(2.56)	(2.55)	(1.59)	(1.60)	(1.58)
Activist	0.012**	0.012**	0.012**	0.017***	0.016**	0.016**
	(2.21)	(2.12)	(2.12)	(2.31)	(2.19)	(2.12)
Constant	0.197***	0.183***	0.196***	0.191***	0.173***	0.173***
	(10.46)	(11.25)	(4.26)	(7.37)	(7.61)	(3.20)
Observations	249	249	249	257	257	257
R^2	0.069	0.066	0.067			

OLS estimated with robust standard errors; observations with Cook's distances greater than 4/n were omitted; t-stats in parentheses; **one-tailed test**. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

The most interesting findings relate to the extended time series. *Figure 4* plots the predicted discretion index based upon opposition seat share.[11] Higher values indicate larger opposition majorities. Interestingly, this variable better predicts discretion over the extended time series. Moreover, the slope of the prediction is steeper, indicating an increased importance of opposition seat share over time.[12]

**Figure 4:** *Predicted Discretion by Seat Share of Opposition (ZOIB regression)*

(a) *1947-2012*

(b) *1947-1992*

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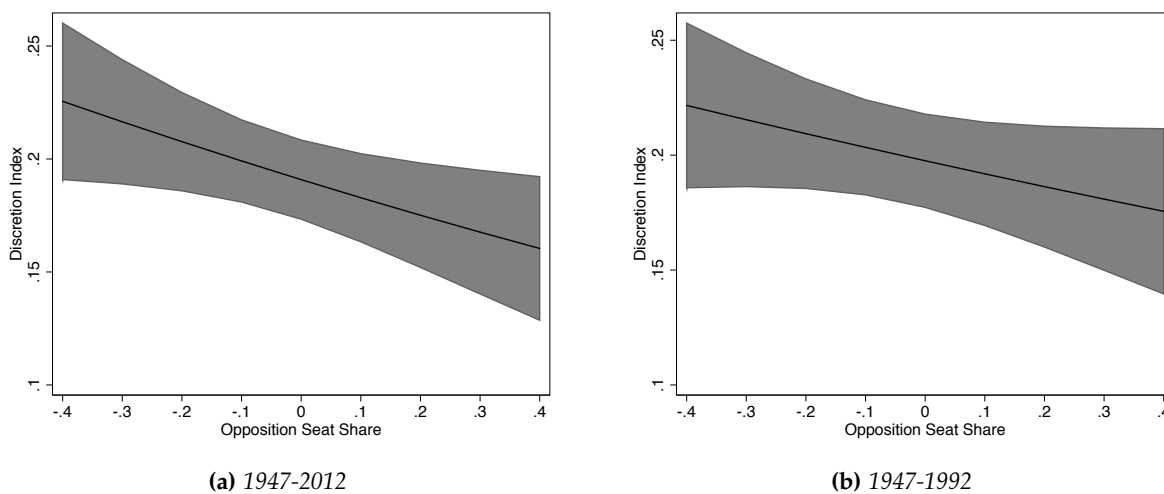
[11]Again, this represents the opposition party's relative numeric advantage in Congress. The opposition seat shares of each chamber are averaged.

[12]To put this variable in historical perspective, the seat share value enjoyed by Johnson during the Great Society was -.358, and from 2011-2012, the Obama Administration enjoyed far less a slight majority seat share of -.019.

Moreover, I find that the relationship remains for the final measure of inter-branch tension: gridlock interval under divided government. The size of the gridlock interval represents the set of status quo policies, from which the congressional floor cannot deviate as a result of supermajority institutions and the ideological composition of the chambers. Here, as with opposition seat share, larger gridlock regions during divided government are associated with reduced discretion. This measure combines indicators of both intra- and inter-branch conflict, since the gridlock interval is a measure of polarization within congress, and divided government is a measure of tension between congress and the president.

The data imply that the decision to delegate has, over the last twenty years, become more associated with inter-branch tension. This effect is most pronounced with the seat share of the opposition, indicating that delegation may have become more partisan since 1993. This finding coalesces with those of others who have observed growing polarization in Congress. More specifically, in the context of the legislative logjam following Republican gains in 2010, some of the most important policy changes have occurred in the administrative state rather than Congress. Portions of the DREAM Act were "enacted" by a memorandum issued by the Secretary of Homeland Security. The Justice Department exercised legal discretion when it refused to defend the Defense of Marriage Act (DOMA). The importance of political considerations in Congress's decision to delegate increases as the bureaucracy becomes a more prominent location of policy-making regarding salient issues.

Figure 5: *Predicted Discretion by Gridlock Interval During Divided Government, 1947-2012 (ZOIB regression)*
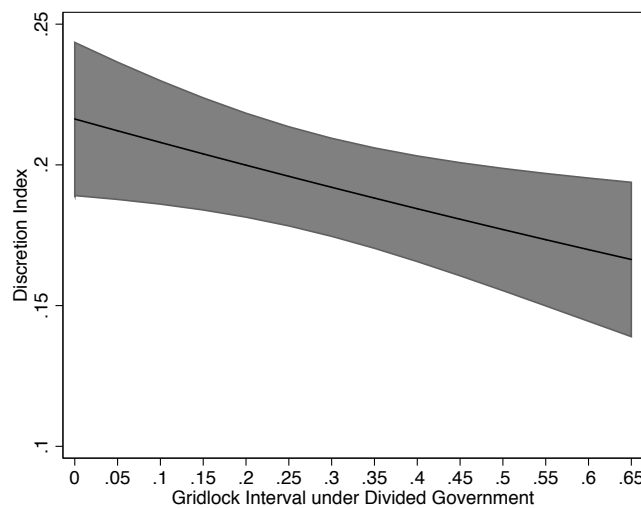
Table 6: *Zero-One-Inflated Beta Estimates of the Effect of Inter-branch Conflict on Discretion, 1947-2012.*

Variables	1	2	3
Divided Government	-0.19**	—	—
	(0.09)		
Opposition Seat Share	—	-0.56**	—
		(0.25)	
Gridlock Interval	—	—	0.72
			(0.60)
Gridlock Interval*Divided Government	—	—	-0.53**
			(0.23)
Beginning of Term	-0.02	-0.04	-0.03
	(0.09)	(0.09)	(0.09)
Budget Surplus	0.94**	0.91**	0.95**
	(0.42)	(0.43)	(0.42)
Constant	-1.09***	-5.02***	-1.37***
	(0.09)	(0.71)	(0.24)
N	347	347	347
Log-Likelihood	59.93	60.17	60.28

Standard errors in parentheses; note: inflated constants not reported.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, ‡ < 0.2

Appendix C: New Variables and Coding Rules

Since the initial goal of this project was to track the accumulation of provisions with delegation, I coded additional variables not contained in sample coding sheet E&O provide in their book. Whatever system adopted had to be capable of showing how many provisions had delegation, to whom they had been delegated, and when (if ever) they expired. I chose to create groups of provisions for this purpose. Each group contains four variables: the number of delegated provisions in the group, the year of expiration, the agency to whom the authority was delegated, and the agency type. In some cases, this requires that the same agency have two or more groups (since expiration date varies greatly by provision). For instance, in the *Securities Act Amendments of 1975*, the SEC occupies three groups—they had provisions expiring in 1975 and 1976, as well as a few provisions with "indefinite" authority. An example of this coding scheme appears in the cells below, where the Carter administration's 1980 synthetic fuels program (PL 96-294) delegates 5 provisions to a government corporation of the same name until 1985. Two other provisions are delegated to the President, expiring that same year.

del1	end1	del2	end2	ara1	ara1-type	ara2	ara2-type
5	1985	2	1980	Synthetic Fuels Corporation	Gov. Corp.	President	Executive Office

This brings one to the task of coding the expiration date of delegated provisions. The majority to the time, this process was straightforward. Most provisions began with who the authority was delegated to, and often ended with the year the authority expired. To deal with more complicated cases, I developed the following coding rules.

1. If the provision delegates additional authority that elaborates on some earlier provision, then the provision is coded to expire the year of the earlier provision.

2. Creation of new agencies, offices, or departments, unless otherwise specified, are coded as indefinite.

3. Grants and demonstration projects, unless otherwise specified, are coded to expire the year authorizing funds expire.

4. Provisions delegating additional authority related to grants and demonstration projects expire the year authorizing funds expire.

5. Provisions with new programs are coded to expire the year authorizing funds expired, unless the provision reads "authorizes [some amount] indefinitely."

There are ways in which this procedure could fail to provide an accurate count of delegated provisions—most of which, stem from limitations in the sample of laws. Grants could be defunded earlier, programs could be (and often are) extended indefinitely, and indefinite statutory authority can always be retracted. Since the "landmark" bills I have chosen often provide a longitudinal picture of major policy areas—I expect that many amendments to provisions, extensions of programs, and retractions of authority will be picked up by my data collection. However, it is difficult for me to determine how much will be left out. It is important to note, however, that the analyses contained in this paper remain unaffected by this limitation. The conflict hypothesis does not use any of these new variables. The duration hypothesis does not apply to future adjustments to the length of time authority is delegated. Rather, it applies to the initial decision to delegate and the duration of those delegated provisions as they appear in the original laws.

A sample of sub-topic codings for issue complexity appears below:

Non-complex	
	Ethnic Minority and Racial Group Discrimination
	Tobacco Abuse, Treatment, and Education
	Government Subsidies to Farmers and Ranchers Agricultural Disaster Insurance
	Labor, Employment, and Immigration
	Employee Benefits
	Elementary and Secondary Education
	Social Welfare
	Food Stamps, Food Assistance, and Nutrition Monitoring Programs
Complex	
	Air pollution, Global Warming, and Noise Pollution
	Species and Forest Protection
	Natural Gas and Oil (Including Offshore Oil and Gas)
	Prevention, communicable diseases and health promotion
	Energy
	Railroad Transportation and Safety
	Insurance Regulation
	Banking, Finance, and Domestic Commerce