

Working Towards Policy: A Theory of Organizational Implementation and Management

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Abstract

Much of policy-making involves *prioritization*—deciding not only what to do but also *when*—and *uncertainty*—not knowing exactly how the choices made will affect actual policy *outcomes*. I present a theory of dynamic prioritization within a hierarchical organization. The model illustrates how notions such as an agency's performance, mission, and critical tasks are linked with details such as institutional structure and the preferences of both front-line bureaucrats and their overseers. The theory highlights some reasons why even sincere, representative policy-making decisions might appear irrational, inconsistent, or “captured” to outside observers. This is in contrast to classical “spatial models” of policy that abstract from the more quotidian details of how policy is actually *made* as opposed to simply being “chosen.” The theory also generates traditional comparative static-style predictions about the features of the policy-making tasks, the preferences of bureaucrats and political overseers, and agency structure that affect the substance and quality of policy-making. Finally, the theory offers a general explanation for why real-world agencies employ widely varying processes to organize and implement policy-making: optimal policy-making is—in a precise sense—“sufficiently complicated” to render a succinct and robust summary of optimal management impossible.

In the traditional, textbook portrait of delegated policy-making, elected representatives choose public policy by passing laws, and bureaucrats then implement these laws.¹ This is a useful and accurate summary, but it is just a summary. As Pressman and Wildavsky (1984) and others have noted, implementation is almost always a complicated process in practice. This is because public policy is made in a piece-by-piece fashion: every day, various individuals and groups within the government make numerous decisions and take many actions, ranging from budgeting, appropriations, and procurement to rulemaking and policy development to enforcement and inspections in the field.

Even if one focuses on a specific bureaucratic agency, on any given day that agency will be collectively “doing” lots of things at once. Furthermore, this is true even if one considers only a given class of activity. For example, as of the writing of this article, the Department of Health and Human Services (HHS) is working on no fewer than 178 regulations

(or “rules”),² encompassing a wide array of topics, ranging from food safety to Head Start to privacy of medical records to Medicaid and Medicare. Making policy on each of these topics requires time and effort.³ Furthermore, a key point about the link between government action and policy outcomes is that it has an ineradicable granularity: regulations, purchases, buildings, trials, and orders represent malleable but inevitably discrete policy outputs.

The fact that government agencies can pursue their goals only through the completion of various “tasks” has been noted and explored for over a century by public administration and political science scholars.⁴ Constraints on time and resources then often imply that not all jobs can be carried out at once. In such situations, the different jobs must be *prioritized*. This prioritization decision—the order in which the jobs are tackled—will have real consequences for the agency, elected officials, and the citizens. Finally, in reality, this choice of how to prioritize the various possible tasks is frequently, if not almost always, left to the unelected bureaucrat.

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¹Two examples of textbooks offering this portrait are Gellhorn and Levin (2006) and Cass, Diver and Beermann (2002).

²Spring 2022 Unified Agenda.

³As an example of how much time these efforts can take, in 2017 the Occupational Safety and Health Administration (OSHA) finalized a regulation regarding slip prevention in the work place that was initially proposed 27 years earlier under President George H. W. Bush (“Walking Working Surfaces and Personal Fall Protection Systems (Slips, Trips, and Fall Prevention),” RIN: 1218-AB80).

⁴I am using the language of Wilson (2000) here (pp. 23–27). A few other classics in this tradition include Kaufman (2006), Simon (1947), Lipsky (1980), and Pressman and Wildavsky (1984).

Even if one sets aside complications such as worries such as whether bureaucrats will faithfully pursue the goals set forward by the elected principals⁵ and the fact that these goals are often ambiguous and contestable,⁶ the need to prioritize tasks can place an agency in the position of having to determine “who gets what, and when” even when the legislature and executive have directed the agency to “give everybody everything, and now.”

In this article, I develop the beginnings of a theory of how features such as the structure of an agency and the goals of the individuals staffing it affect how different policies are prioritized. My focus is prescriptive in some ways, but I need not take any position about the true goals of those who design the structure and processes (e.g., efficiency, representation, expertise, rent-seeking, *etc.*) of any given bureaucracy or, to be clear, even that the structure and processes were the product of explicit and purposive design. Rather, the focus is on both delineating what factors we should expect to determine “what gets done and when” within an agency and, as far as possible, characterizing the effects of these factors. The theory demonstrates both how institutional arrangements will affect policy-making, and provide insight into several observable phenomena that might appear pathological if one does not take into account the sequential and dynamic nature of policy processing. A few examples of these include:

- **Bureaucratic Red Tape and Delay.** Delay in policy-making can arise from both external and internal factors in the policy-making process ([Proposition 2](#)). This delay can be due to (1) searching for the optimal jobs to work on, (2) goal conflict within the agency, or (3) external “political” factors.
- **Complexity and Prioritization.** Faced with multiple tasks to prioritize, bureaucrats will tend to focus on jobs that balance complexity and expected rewards ([Proposition 3](#)).
- **Insurance and Internal Controls.** Properly designed internal controls within an agency (e.g., giving bureaucrats a final say over whether a developed policy will actually be implemented) can improve the efficiency of policy development & implementation ([Proposition 4](#) and [Corollary 1](#)).

More generally, in contrast to the canonical and useful spatial model of policy-making—in which “public policy” is represented simply by a “point”—governments actually make policy in a piecemeal fashion.⁷ That is, government agencies hire people, purchase things, and regulate activities in various ways and at various times. Each of these actions affect some people directly, and some of these decisions affect many people, while most of these decisions (individually) affect relatively few. The theory I develop in this article attempts to offer a path forward to understanding how these more granular, practical policy decisions are determined in an “agency”

with the incomplete information, hierarchical review, and scarcity of time that experience and scholarship suggest haunt administrative policy-making.

Before presenting the model, however, I briefly describe some related literatures in an attempt to emphasize both their commonalities and distinctions from the focus of my theory.

What the Existing Literature Says About Task Management

Even if one accepts that the goals of a given government agency are laid out for it in some fashion by elected officials, achieving these goals requires choosing from and completing various tasks. The tasks that are most proximate to fulfilling the agency’s goals can be described as *critical tasks*. While any agency’s “potentially critical” tasks of course depend on the agency’s goals, it is the case that most agencies—even those with clear, narrow, and limited goals—have practical, if alluvial, authority to define for themselves which tasks are critical.

Because there is insufficient time to perform all tasks at once, a sensible way to measure whether a given task is deemed critical by the agency is to consider whether, and how quickly, the task was tackled and completed. After all, analogous to the theory of revealed preference, casual intuition suggests that *a well-functioning agency is one in which more critical tasks are performed before less critical ones*.

Staffing and Appointments

The theory presented here is independent of context in many ways (e.g., the theory should be valid regardless of whether the bureaucracy is embedded within a separation of powers or parliamentary system). That said, much of the scholarly work on bureaucratic politics has focused on executive staffing of bureaucratic agencies. While much of this work is understandably and appropriately concerned foremost with questions of electoral accountability (e.g., do elected executives favor loyal *appointees* over *qualified* ones for administrative assignments).⁸ This work has generated a great deal of insight into the *political* “operation” of administrative machinery, but it also understandably takes the structure of government agencies and their technical/statutory responsibilities largely as given.⁹

Agency Design

Many scholars and practitioners have considered the pros and cons of various agency structures. In line with the parallel work on executive branch staffing, this literature has largely considered the question through the lens of electoral responsiveness, or accountability. For example, both Peri Arnold’s seminal contributions to the study of “reorganization” (i.e., presidentially directed “redesign” of existing agencies)¹⁰ and David Lewis’s excellent study of insulation “by design”¹¹ focus largely on the executive branch’s administrative and policy-making incentives within a separation of powers system.

⁸See, for example, [Lewis \(2011\)](#) and [Krause and O’Connell \(2019\)](#).

⁹An important exception to this, but beyond the scope of this article, is the distinction in the United States between Executive and independent regulatory agencies.

¹⁰[Arnold \(1976, 1998, 2009\)](#).

¹¹[Lewis \(2003\)](#).

⁵For example, [Aranson, Gellhorn and Robinson \(1982\)](#), [Holmström \(1984\)](#), [McCubbins, Noll and Weingast \(1994\)](#), [Epstein and O’Halloran \(1996\)](#), and [Gailmard \(2002\)](#).

⁶Among many others, [McCubbins, Noll and Weingast \(1987, 1989\)](#), [Huber and Shipan \(2002\)](#).

⁷From a theoretical perspective, the theory here illustrates the distinction between conceiving of public policy as simply a policy position, or goal (perhaps ideological, but not necessarily) and thinking of how policy is actually *made*. In my opinion, the two views are best seen as complementary, rather than competing.

That body of important work places arguably places more emphasis on the *public* aspect of public administration. My theory, on the other hand, is aimed more squarely at the second word: how does the structure of *administration* affect public policy? By no means are my goals separate from those of Arnold, Lewis, and others focusing on democratic accountability in administration, but the model presented in this article is closer in spirit to the work of scholars such as John Brehm, Scott Gates, Gary Miller, among others.¹² One of several reasons that I have taken this more “apolitical” tack in this article is that, most of the time, most administration is not politically salient (where “politically” can be read as “electorally”).

Centralization

The question of how, and how much, administrative policy-making should be overseen and coordinated by a single leader (i.e., how much it should be “centralized”) has attracted sustained attention for over a century. There are at least two reasons for the sustained attention. The first is the explosion of economic and social behaviors that the administrative state can, at least in principle, oversee since the turn of the 20th century. The second is reflected in the literatures briefly discussed above: worries about “politicization” of the administrative process, combined with the practical/constitutional reality that, particularly in a separation of powers system, the elected (and typically partisan) executive is the natural (and perhaps sole) rightful heir to the role of coordinating/directing/“centralizing” administrative policy-making. To the degree that other factors suggest that “insulation” of policy-making from political influences is wise, one must view centralization under the elected, political executive with some suspicion.

Executive Oversight Of Administration

In line with the question of centralization, and particularly from a administrative law perspective, perhaps the greatest sustained reform in Federal administrative policy-making over the past 40-50 years has been an inexorable move (across party lines) toward greater presidential oversight of administrative policy-making (particularly rulemaking). The highest profile example here is the emergence and increasing centrality of the Office of Information and Regulatory Analysis (OIRA) in the Office of Management and Budget (OMB) in what is often referred to as the executive preclearance process.

This is an important and active area of research. The current state of the field is decidedly mixed on whether/how preclearance “works.”¹³ This literature, as with most those discussed above, is largely focused on responsiveness (although the question of exactly what factors policy should be responsive to is often slightly different). As with centralization more generally, my theory has something to offer to this thread of the literature (e.g., see the discussions of the model’s implications for appointments on pages 9 and 9).

Prioritization

Many scholars have contributed to our understanding of how and why policy-making might be biased towards certain

tasks. For example, both ethnographic (Blau (1963), Feldman (1989)) and theoretical (Holmstrom and Milgrom (1991), Dewatripont, Jewitt and Tirole (1999)) research suggest that more easily observed and/or completed tasks will tend to be prioritized more highly than other tasks. More generally, much empirical research has considered how policy-makers balance competing goals (Biber (2009), Gilad (2015), and Carrigan (2017)). At the very least, the theory presented here helps us understand why the various findings in this literature are simultaneously robust and highly specific. Specifically, the theory illustrates that some commonalities emerge from a simple optimization framework while also precisely identifying that a general, succinct characterization of “optimal policy-making” may very well prove impossible to obtain. In this way, the theory analytically justifies the continued contextualized, domain-specific study of policy-making in the real world.

Bounded Rationality

Finally, there is an active literature focusing on the *complexity* of policy-making and considering how political actors can and/or should deal with the high dimensionality of both policy itself and, *a fortiori*, that of the feedback within the policy-making process. Bryan Jones and coauthors are most closely associated with this agenda.¹⁴ It is tackling an important enduring question, but it is not the focus of my model. Rather, my theory presumes that all actors are capable of processing all relevant information when making their choices.

How I Attempt To Augment Our Understanding Of Task Management

The theory presented here provides both a precise foundation for the claim that “one job a time” policy processing is optimal, but also provides an important qualification. In the canonical and simplest hierarchy—one leader and one agent with common policy goals—there is a clear and well-ordered notion of “criticality” that one can use to rank the various tasks (or jobs) required to implement policy and, furthermore, these jobs will be processed in accordance with this concept. The qualification to this salubrious conclusion is powerful, however. Specifically, both the notion of criticality itself and its utility in guiding agency/organizational decision-making is fragile, depending sensitively on both the assumption that there is a single leader and a single agent *and* on the presumption that these two individuals have identical policy goals. Thus, the theory offers general insights into how an agency’s structure affects the agency’s definition of its critical tasks.

Moving beyond critical tasks, the theory also provides an analytical framework for understanding some fundamental public administration notions such as “internal conflict” (West 1988), the “allocation of power within an agency” (McGarity 1991), and an agency’s “internal procedural and managerial environment” (Mashaw 1994). The theory touches on multiple topics that have drawn sustained scholarly interest through the years, including the effects of the internal structure of an agency,¹⁵ the number of

¹²For example, Knott and Miller (1987), Miller (1992), Ting (2002, 2003, 2011), and Brehm and Gates (1993, 1994, 1997).

¹³See, among others, West (2005) and Potter (2019).

¹⁴Beim, Clark and Patty (2017) present a related model of strategic delay in complex policy-making environments.

¹⁵For example, see Hammond and Miller (1985), Hammond (1986), McCubbins, Noll and Weingast (1987, 1989), Hammond and Thomas (1989), Moe (1989), Bawn (1995), Egeberg (1999), West (2004), Berry and Gersen (2010), and Gailmard and Patty (2012).

decision-makers,¹⁶ the preferences of these individuals,¹⁷ and the characteristics of the various policy tasks.¹⁸ The theory presented here allows a unified treatment of their individual and interactive effects on agency performance.

Earlier research has consistently demonstrated that various aspects of organizational structure have important effects on both individual and agency performance at both the individual and agency levels. Viewed most broadly, Hammond concludes that, “[s]ince the structure influences which options are to be compared, in what sequence, and by whom, a particular organizational structure is, in effect, the organization’s agenda.”¹⁹ Focusing on policy at the aggregate level, May, Workman and Jones (2008) illustrate the important and double-edged effects of organizational structure on priority setting within agencies.²⁰ At a more individual-level, Moynihan and Pandey (2007) find that hierarchical authority and “red tape” are important determinants of bureaucrats’ public service motivation.

In spite of the broad concern with the determinants of agency performance, there has been less discussion in the scholarly literature about how agencies prioritize policy-making. This is true regardless of whether one restricts attention to a specific category of activities, such as rulemaking or adjudication, or how they allocate time, resources, and attention across different categories activities. For example, with respect to rulemaking, Kerwin says that “the greatest challenge facing the management of regulation development is the persistence of its obscurity.”²¹ Relatedly, West bemoans our collective lack of knowledge about “the processes for planning and prioritizing the allocation of limited agency resources to the development of different regulations.”²² Finally, considering the broader question of how structural features of agencies affect how agencies make decisions, Terman states that the literature “is limited in what it can tell us about the role that institutional design plays in altering bureaucratic action.”²³

Task Management In Practice

One clear empirical regularity about prioritization of tasks (or “task management”) in the real world is that different agencies adopt very different approaches to it. As detailed by Kerwin,²⁴ even considering only agencies in the US Federal Government illustrates a panoply of management systems. For the purpose of motivating what follows, I briefly describe three categories of such systems.

¹⁶See Blau (1970), Klatzky (1970), and Miller and Moe (1983).

¹⁷Examples include Calvert, McCubbins and Weingast (1989), Meier (1993), Brehm and Gates (1993, 1994, 1997), Epstein and O’Halloran (1999), Boehmke, Gailmard and Patty (2006), Gailmard and Patty (2007), and Patty (2009).

¹⁸For example, Wilson (2000), Ting (2002, 2003, 2011), Callander (2008), Hirsch and Shotts (2012), and Callander and Krehbiel (2014).

¹⁹Hammond (1986), p. 382, emphasis in original.

²⁰May, Workman and Jones (2008) study “attention” within agencies, and tasks that get attention are the same as those that are given higher priority.

²¹Kerwin (2007), p. 11.

²²West (2009), p. 583.

²³Terman (2012), p. 15.

²⁴Kerwin (2007), pp. 13–20.

Tiered Prioritization

The Environmental Protection Agency (EPA) uses a “three tier” system to prioritize and process its various rulemaking projects. Tier 1 contains regulations with very high economic impacts and/or political visibility. Rules in this tier are subjected to frequent review by multiple officials in various offices within the EPA. Rules in the next tier, Tier 2, are expected to have less significant impacts in both policy and political terms than those in Tier 1, but these rules are deemed important enough to require outside review and approval, and they are generally subject to deadlines. Finally, the remaining rules fall into the residual “Tier 3” because they are not foreseen to have significant policy or political impacts. The processing of these rules is not subject to review beyond the responsible program office. Other agencies that use some version of a tiered prioritization system to manage their rule making projects include the Animal and Plant Health Inspection Service (APHIS) in the Department of Agriculture, the Federal Aviation Administration (FAA), the National Highway Traffic Safety Administration (NHTSA), and the National Aeronautics and Space Administration (NASA).

Prioritization By Scoring

A few agencies have designed and use their own system to assign a numeric score to their various projects. For example, the Nuclear Regulatory Commission (NRC) prioritizes its rulemaking projects according to a formula that assigns points to each project on the basis of several characteristics, such as the project’s estimated impacts on public safety, national security, and transparency. The United States Coast Guard, located in the Department of Homeland Security (DHS), also uses a scoring system to manage its rulemaking projects, though its system is less formalized than that used by the NRC.

Decentralized Prioritization

Many agencies, including the Departments of Commerce, Labor, and Treasury, do very little agency-wide prioritization, relying instead on various decentralized approaches to policy management. For example, the Department of Labor relies heavily on the annual Regulatory Plan and the semi-annual Unified Agenda for centralized monitoring and coordination of rulemaking projects.

Complexity and Empirical Heterogeneity

The variety of approaches described above contrast with sustained, bipartisan calls for standardization of agency procedures for priority-setting.²⁵ A key conclusion from the theory developed here offers an explanation for why such calls have had so little apparent effect. Specifically, a “standardized” system will introduce potentially serious inefficiencies. Thus, the use of opaque decentralized systems (e.g., Commerce, Labor, and Treasury) need not imply that the agency in question is “captured” by outside interests. Instead the optimal prioritization system is usually a flexible one, difficult to describe in a succinct fashion, and often orders jobs in counter-intuitive ways.

External Influences On Prioritization

A variety of external factors can influence an agency’s prioritization of its different tasks (legislative mandates, oversight,

²⁵Both parties have called for such reforms, as I lay out in more detail below in fn.60.

executive orders, appointments). The theory provides insights into why these factors can be so vexing to agency administrators. Efficient management is *anticipatory* in nature—smart prioritization is necessarily dependent on expectations about what will transpire in the future. I now describe the theory of policy processing.

The Model

I first consider a simple institutional environment consisting of single **agent**, A , and a single **leader**, L . The game consists of the agent choosing and processing a single **job** in each period (i.e., time is discrete). To keep matters as simple as possible, the agent, the leader, and the set of jobs that can be done are fixed throughout the game. Jobs must be completed by the agent and subsequently approved by the leader in order to have an impact on policy.

If approved, the job is implemented and affects policy. This is a simplified version of bureaucratic policy-making. In a nutshell, most government policies must (1) be developed, shaped, and crafted prior to being put into action—this is mimicked by the agent processing a job—and then (2) formally approved by a higher-up. For the purposes of this model, it is unimportant who the leader is, but this general process matches up well with the structural realities of regulatory review as conducted by the OMB in the US Federal Government,²⁶ as well as the internal review processes utilized by most federal agencies, many of which explicitly rely upon approval by political appointees.²⁷

Sequence Of Decision-Making

The game proceeds in a discrete fashion, through time periods $\{1, 2, \dots\}$ as follows. In the first period, $t = 1$, an exogenous set of jobs, $J_1 = \{1, \dots, n_1\}$, is made common knowledge to both players, A and L . In each subsequent period $t \in \{2, \dots\}$, the agent A is confronted with a list of $n_t \geq 0$ jobs, denoted by $J_t \subseteq J_1$, from which the agent can choose one to process. The agent may also choose to not work (i.e., shirk) in any given period. The agent's **scheduling choice** in period t is denoted by $\sigma_t \in J_t \cup \{\varphi\}$, where $\sigma_t = \varphi$ represents shirking.²⁸

After the agent chooses a job to process in a given period, this job is then processed for a single period, after which the job is either completed or not. Upon completion of any job j , its characteristics are observed by the leader, L , and the distribution of the characteristics is independent of the completion time.²⁹ This is analogous to the moment when, for example, the text of a final rule and its accompanying analyses, are available for review by the the leader. After observing the characteristics of the completed job, the leader

then decides whether to approve implementation of the job, $a_j = 1$, or decline implementation, $a_j = 0$. I assume that approval/declination is mandatory and instantaneous, so that once a job is completed, it is either implemented immediately or rejected by the leader. Finally, upon completion of a job j , this job is removed from the set of jobs available for the agent to work on.

Jobs: Processing.

The length of time required to complete the job—the job's **completion time**—is also unknown until the job is completed by the agent. The probability that any given job j is completed after exactly $C_j > 0$ periods of processing is $f_j(d)$, with

$$f_j(C_j) \geq 0 \text{ for all } C_j, \text{ and } \sum_{C_j=1}^{\infty} f_j(C_j) = 1.$$

The probability that job j is completed on or before the C_j^{th} period of processing is denoted by

$$F_j(C_j) = \sum_{t=1}^{C_j} f_j(t).$$

Thus, the distribution of completion time is known by the agent, but the exact required completion time is known only when the job is completed. However, it will be useful at several points in the analysis to restrict attention to a special case of the model in which the processing times of the jobs are known with certainty *ex ante* (though they may still vary across jobs). I define the **known processing time** case formally as follows.

Definition 1. The model is characterized by **known processing times** if, for each job j there is a (known and exogenous) processing time, $P_j > 0$, such that $f_j(P_j) = 1$: with certainty, job j will require exactly P_j periods to complete.

Jobs: Policy Impacts and Valence Values

To capture the policy effects of the various jobs that can be completed and approved, each job j is characterized by a **policy impact**, denoted by $z_j \in \mathbf{R}$. Similarly, on each job j , the agent and leader are each individually characterized by an **ideal point**, $y_j^A \in \mathbf{R}$, and $y_j^L \in \mathbf{R}$, respectively. The policy impacts and ideal points for each job are each exogenous and common knowledge *ex ante* to the agent and principal.

In addition to its policy impact, each job is characterized by a **valence value**, $w_j \in \mathbf{R}$. I refer to this value as “valence” because it is a benefit (if $w_j > 0$) or cost (if $w_j < 0$) that *both* the agent and the leader receive/incur if job j is completed and approved. The value is observed with certainty once the job is completed.³⁰ Prior to that, the leader and the agent know only that the value is distributed according to an exogenous and commonly known cumulative distribution function, H_j .³¹ I denote the *ex ante* expected value of w_j by V_j .

I describe the notion of a job's valence value in more detail below (Section 7). For now, it suffices to say that a job j 's valence, w_j , captures the impact of all of the payoff-relevant factors other than j 's policy impact and completion time.

²⁶See, for example, Kagan (2001), Croley (2003), Wiseman (2009), and Kerwin and Furlong (2011).

²⁷The general question of how political appointees actually influence policy-making decisions is a longstanding concern (Mendelson (2009), Mullen (2022)).

²⁸The presumption that the agent may choose freely from the set of jobs mirrors practice in many agencies. For example, in the Federal Trade Commission, “Investigations are often triggered by the staff's monitoring of the general and trade press concerning mergers, distributional arrangements and other relevant conduct or agreements and can also arise out of other Bureau cases, investigations and projects.” US Federal Government (1999), p. 4.

²⁹I describe below both the characteristics of jobs and how the jobs are completed.

³⁰The random variable w_j is realized, but not observed, “at the beginning of the game.”

³¹Note that this setup does not rule out jobs having exogenous and known valence values: this is equivalent to H_j being a degenerate point mass.

The roles of the policy and valence components of a job are captured by the following “stage game” payoffs from any completed and approved job, which are received by the agent and leader the period a job j is completed and approved:

$$v^A(w_j, z_j, y_j^A) = w_j - |z_j - y_j^A|, \quad (1a)$$

$$v^L(w_j, z_j, y_j^L) = w_j - |z_j - y_j^L|. \quad (1b)$$

Hierarchical Decision-Making: Approval Of Completed Jobs

The agent is assumed to have full discretion over which job to work on—the leader has no direct role in setting period-to-period priorities for the agent. That said, I include hierarchical decision-making in the model by assuming that the agent is required to forward any completed job to the leader for approval: the agent has no veto, or gatekeeping, power after the job is complete: the leader unilaterally decides whether to approve the job.³² There are a variety of reasons that this might be the case, including presuming that the valence values of a job, which are enjoyed only if the job is approved, depend on political and other factors outside the practical and technical details of the job itself. Because the agent cares about the valence characteristics, but might ultimately be disappointed by either disapproval of a job that the agent would have approved or approval of a job that the agent would have rejected, this hierarchical loss of control by the agent can represent last-minute political complications, or what Kerwin and Furlong (2011) describe as “late hits” in regulatory development.

Histories Of Play and Payoffs

I provide a more complete formal definition of a **history of play** in Appendix 1. Informally, the key aspect of a history for our purposes is that it contains the valence values of all completed jobs, the period in which they were completed, and whether they were approved. Letting $C \equiv (C_1, \dots, C_n)$ denote the completion times for each job, these are sufficient to define the players’ **payoffs** as follows:³³

$$u_A(C, w, a) = \sum_{j=1}^n \beta^{C_j} a_j (w_j - |z_j - y_j^A|), \quad (2a)$$

$$u_L(C, w, a) = \sum_{j=1}^n \beta^{C_j} a_j (w_j - |z_j - y_j^L|), \quad (2b)$$

These payoffs are simply exponentially discounted sums of (1a) and (1b), respectively, but the dynamic aspect—specifically, the discount factor, β —can play an important role in the agent’s dynamic prioritization problem.

Equilibrium

I use perfect Bayesian equilibrium as the solution concept. I discuss some of the more technical aspects of this choice and the structure of the game (including a fuller description of the

players’ strategies and beliefs) in Appendix 1. In substantive terms, this equilibrium concept implies that neither the agent nor the leader are systematically incorrect with respect each others’ behaviors and, similarly, that they each believe that they will each respond optimally given their information at any point.³⁴

An Example: The Clean Power Plan

A high profile illustrative example of the type of dynamic my model is intended to capture is provided by the recent proposal, promulgation, repeal, and ultimate judicial reversal of the Obama Administration’s Clean Power Plan (CPP).³⁵

History Of the Rule

In 2015, The EPA promulgated the CPP under section 111 of the Clean Air Act (CAA).³⁶ A significant and complicated rule, one of the more controversial aspects of the rule was that, in addition to promoting the upgrading of existing power sources, it also explicitly called for shifting energy production from high carbon-emissions sources (e.g., coal-fired power plants) to lower emissions (e.g., natural gas-fired power plants) or zero emissions (e.g., wind- or solar-powered) sources.

The rule prompted a federal lawsuit by 27 states in early 2016.³⁷ After the Supreme Court stayed implementation of the CPP in February of 2016, the 10th Circuit Court heard the case *en banc* in September 2016. Shortly thereafter, Donald Trump won the US presidential election and, after his inauguration, President Trump issued an Executive Order directing the EPA to review the CPP for possible repeal.³⁸ Within a month of the 10th Circuit’s hearing, the EPA issued a notice proposing to repeal the CPP.³⁹ In 2019, the EPA formally revised the rule.⁴⁰ The revised rule dropped the CPP’s requirements that aimed at shifting power generation from higher to lower carbon emissions sources.

The EPA’s 2019 repeal was justified in part by its own determination that the CPP exceeded the statutory authority of the EPA, invoking what is known as the “major questions doctrine.” At least under the Trump Administration, the EPA stated that it did not believe that the CAA contained sufficiently clear language to justify the CPP’s design of the standards to achieve “a shift in the energy generation mix at the grid level.”⁴¹

³⁴Note that I am not assuming that individuals are “rational” in a narrow sense—rather, the theory presumes that the agent and leader understand each other’s motivations.

³⁵Formally, the rule in question was titled “Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units,” 80 Fed. Reg. 64661 (October 23, 2015).

³⁶42 U.S.C. 7411.

³⁷*West Virginia v. EPA*, No. 15–1363 (and consolidated cases) (D.C. Cir.).

³⁸Executive Order 13783, “Promoting Energy Independence and Economic Growth” (March 28, 2017).

³⁹“Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units,” 82 Fed. Reg. 48035 (October 16, 2017).

⁴⁰“Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations,” 84 Fed. Reg. 32520 (July 8, 2019).

⁴¹84 Fed. Reg. 32523.

³²The assumption that agents have unfettered discretion can be relaxed, as long as they have *some* discretion. Similarly, one can relax the assumption that the leader always has unilateral power to approve the project, as long as there is a positive probability that the agent *will not* be able to veto the project after it is completed.

³³Note that $C_j = \infty$ is allowed, as this represents a job that is never completed.

The CPP's (complicated) path to ultimate reversal is represented in my model by the "approval" stage of the hierarchical review process—in this case, either President Trump or the Supreme Court can be conceived of as the leader in my model. At the same time, the Obama administration's decision to develop and promulgate the CPP in the first place is represented by the agent's unfettered discretion over the job that he or she works on. This example accordingly clarifies the flexibility of the model: the model is itself agnostic about "who" the agent and/or leader are.

Analysis

Analysis of the baseline case is carried out by "working backwards," considering first the incentives of the leader and then using these incentives to derive the incentives of the agent.

The Leader'S Approval Decision

Because the leader observes w_j perfectly, his or her optimal strategy is simple: approve any job such that

$$w_j - |z_j - y_j^L| \geq 0 \Rightarrow w_j \geq |z_j - y_j^L|. \quad (3)$$

The probability that the leader will approve job j is denoted by

$$\alpha_j(z_j, y_j^L) \equiv 1 - H_j(|z_j - y_j^L|). \quad (4)$$

Note that, because H_j is a cumulative distribution function and accordingly non-decreasing (and in line with intuition), the leader is more predisposed to approve a project with a policy impact that is closer to the leader's policy goals. Formally, $\alpha_j(z_j, y_j^L)$ is decreasing in $|z_j - y_j^L|$, the distance between the project's policy impact and the policy goals of the leader. Note also that this is the *ex ante* probability that the project, if completed, will be approved. As we will see, this probability is central to the priority that the agent will assign to completing the project.⁴²

The Agent'S Choice Of Job

In considering the agent's incentives, it is key to note first that the agent will receive the payoff from a job only if it is completed by the agent *and* approved by the leader. As illustrated above (Equation (3)), approval of a project is a function of its valence value, w_j , which is a priori unknown to the agent, but the agent can form conditional beliefs about this value for any given job j based on the presumption that job j is completed *and* is ultimately approved by the leader. I denote the conditional expected value of w_j upon approval by the leader by $\hat{V}_j(y_j^L, z_j)$, as defined in Appendix 1 (Equation (1)).

At the beginning of any period t , the number of periods that the agent A has processed any given job j is denoted by d_j . It can be shown that the agent's sequentially rational expected payoff from working on job j is equal to its **Gittins index**.⁴³ In its fullest form, the Gittins index for job j , given that it has

been worked on for d_j periods, is equal to the following:

$$G_j(d_j) = \max_{\tau > 0} \frac{\sum_{s=0}^{\tau-1} \beta^{s+1} \alpha_j(z_j, y_j^L) (\hat{V}_j(y_j^L, z_j) - |z_j - y_j^A|) f_j(d_j + 1 + s)}{\sum_{s=0}^{\tau-1} \beta^{s+1} \sum_{t=0}^{\infty} f_j(d_j + s + t + 1)}. \quad (5)$$

Note that the Gittins index of not working, i.e. of selecting $\sigma_t = \varphi$, is zero: $G_\varphi(\cdot) = 0$.

The power of the Gittins index is that it completely characterizes payoff maximization by the agent. Specifically, the agent maximizes his or her expected payoff, as defined in Equation (2a), by choosing, in each period t , to work on the job j with the highest Gittins index in that period. This is stated formally in the next proposition.

Proposition 1 (Pinedo (2012), Theorem 10.2.1). In the baseline case with one leader and one agent, the agent's expected payoff is maximized by the following prioritization strategy: in each period $t \in \{1, \dots\}$, the agent should choose the job (including possibly $\sigma_t = \varphi$) with the highest Gittins index.

Proof: Follows directly from Theorem 10.2.1 in Pinedo (2012). \square

Gittins Index With Known Processing Times

In the special case of known processing times, the Gittins index as expressed in Equation (5) can be rewritten as follows:

$$G_j(d_j) = \frac{(1 - \beta) \beta^{p_j-1}}{1 - \beta^{p_j}} \alpha_j(z_j, y_j^L) (\hat{V}_j(y_j^L, z_j) - |z_j - y_j^L|). \quad (6)$$

Before continuing with the analysis, it is useful to pause and consider in a little detail exactly what the Gittins index represents.

Gittins Index, Sequential Rationality, and Expected Rewards

The Gittins index for a job is essentially equal to the agent's expected payoff from performing the job in an optimal fashion. Considering the problem in the initial period (so that $d_j = 0$ for all jobs j) without loss of generality and letting $EV_j^A \equiv \alpha_j(z_j, y_j^L) (\hat{V}_j(y_j^L, z_j) - |z_j - y_j^A|)$ denote the agent's conditional expected payoff from completion of job j , Equation (5) can be rewritten as

$$G_j(d_j) = \max_{\tau > 0} \frac{\sum_{s=1}^{\tau} \beta^s f_j(s) EV_j^A}{\sum_{t=1}^{\tau} \beta^t (1 - F_j(t-1))}. \quad (7)$$

Note that, for any given τ , the numerator of Equation (7),

$$\sum_{s=1}^{\tau} \beta^s f_j(s) EV_j^A,$$

represents the discounted expected value of the reward: the actual expected reward, EV_j^A , is discounted by two factors: the intertemporal discount rate, β , and the probability of the reward being received in each given period $s \in \{1, \dots, \tau\}$, $f_j(s)$. This is an aggregate expected reward in the sense that it is summed up over τ periods. Accordingly, the denominator of Equation (7),

$$\sum_{t=1}^{\tau} \beta^t (1 - F_j(t-1)),$$

⁴²Patty (2009) derives a similar result.

⁴³Pinedo (2012), p. 277.

represents the discounted cost of “waiting” τ periods. Again, this discounting involves two factors in each period: the intertemporal discount rate, β , and the probability that the processing will require at least s periods, $1 - F_j(s)$, for each period $s \in \{1, \dots, \tau\}$. Thus, *the Gittins index for a job j is essentially the maximum “per period expected reward” that the agent can achieve by working on job j .*

Dynamic Prioritization: Preemption and Switching In Job Processing

The agent’s optimal prioritization of jobs for processing is *dynamic* in the sense that, after each period, the agent should recalculate the Gittins index for each of the available jobs and possibly reorder their priority. This can result in switching between incomplete jobs, which is described as **preempting** the previously worked on, but still incomplete, job.⁴⁴

The question of preemption attracts attention from both scholars and policymakers in the real world. For example, in considering accountability of administrative agencies, scholars have worried about both agency inaction (Bressman (2004)), timing of action (O’Connell (2008)) and the form of agency actions (e.g., Magill (2004), Franklin (2010)). Procedural requirements such as executive branch regulatory review in the OMB and the notice and comment requirements of the Administrative Procedure Act (APA)⁴⁵ can introduce new information into the process, changing beliefs about how long the process will take. In equilibrium, such information might induce the agent to set aside the project that he or she is working on and work on a different uncompleted project. This is stated formally in the following proposition.

Proposition 2. Optimal prioritization can involve the agent switching back (and forth) between incomplete projects. However, this can not occur if the model is characterized by known processing times.

Proof: Proofs of this and all subsequent numbered results in the body of the article are contained in Appendix 2. \square

Proposition 2 has far-reaching substantive implications. For example, it establishes that the fact that an agency “switching back and forth” between tasks is not necessarily a sign of disorganization or incompetence unless the completion times of its jobs are all known in advance. Obviously, many government projects require significant time to complete. In such cases, while many factors such as changing political principals, unforeseen events, and individual dynamic inconsistency (among others) can lead to bureaucratic “inconsistency” across time, Proposition 2 provides another, “non-political/non-behavioral,” reason for such inconsistency.

Substantively, Proposition 2 implies that even an agency consisting only of a single agent sequentially processing jobs for a single leader, optimal processing might appear seemingly “time-inconsistent.” The basic reason for this possibility is that the expected time to complete the current job might go up after the agent has worked on it for a some time and the job has not yet been completed. I discuss the logic behind this possibility in more detail in Appendix 1.

Sources Of Delay

The origins of variation in completion times are black-boxed in this article for the sake of parsimony, but examples of possible causes include judicial review (Mashaw (1994)), executive oversight (e.g., regulatory review by OIRA), congressional oversight (e.g., audits by the GAO or hearings by congressional committees), or the discovery of pertinent technical or economic information necessitating further review and/or revision of the agency’s action. The dynamic prioritization framework implies that the occurrence of a delay such as judicial remand of a rule might lead to the activity being set aside for later processing, as has been observed in several regulatory agencies. For example, judicial remand of clean air standards for revision ultimately prompted the EPA to abandon many of the standards (O’Leary (1989)). Similarly, judicial review of auto safety rules ultimately led the NHTSA to focus its efforts on recalls of unsafe automobiles rather than developing overall safety regulations, thereby arguably stunting the agency’s performance relative to its overriding mandate (Mashaw and Harfst (1990)). More generally, even though the review processes of OIRA and OMB are rationalized as harmonizing the activities within and across executive agencies,⁴⁶ the reality is that the “back and forth” nature of its review process can lead to withdrawal and shuffling of agency priorities in an analogous manner.⁴⁷

I now turn to the question of how the leader’s and agent’s preferences affect the agent’s decision about which jobs to process.

The Effects Of Expected Completion Times and Players’ Preferences

I now consider the effects of the preferences of the leader and the agent on the agent’s incentive to process any given job. Given the Gittins index rule described in Proposition 1, the question of whether an increase or decreasing a given job’s Gittins index will affect the agent’s choice of job in the next period depends on the Gittins indices of the other jobs. Accordingly, to keep language simple, I will refer to the Gittins index of a job as the “agent’s incentive to perform” that job.⁴⁸

In order to keep the presentation as clear as possible, I focus on the known processing times case for this analysis. The following proposition describes how any job’s expected completion time, policy impact, and the players’ policy goals affect the agent’s incentive to work on the job.

Proposition 3. In the baseline case with one leader, one agent, and known processing times, the agent’s incentive to work on a given job j is

1. decreasing in the time required to complete the job, P_j ,
2. non-monotonic in the leader’s policy goals, y_j^L ,
3. non-monotonic in the distance between the job’s policy impact and the agent’s policy goals, $|z_j|$, and
4. maximized when the job’s policy impact is halfway between the agent’s and leader’s policy goals: $|z_j| = \frac{y_j^L}{2}$.

I defer a deeper discussion of the proposition’s conclusions to Appendix 4 and briefly discuss the main implications here.

⁴⁶For example, Kagan (2001), but see also Bagley and Revesz (2006).

⁴⁷Croley (2003).

⁴⁸This is in line with the description of the Gittins index provided in Section 4.3.1.

⁴⁴More details of this analysis are in Appendix 1.6.

⁴⁵5 U.S.C. §§ 551–559.

Complexity and Timing

Proposition 3 implies that simpler jobs *should* receive higher priority than complex ones. Slightly more subtly, the proposition implies that one *should* expect to see jobs that are begun “later on” in an administration will take *even longer* to complete than those initiated early in an administration. This speaks to ongoing debates about “ossification” of federal rule-making.⁴⁹ Specifically, the proposition implies that—even in the absence of judicial intervention—*optimal policy prioritization will, on the margin, tend to become more protracted as time goes on*. It also provides an alternative (perhaps competing, perhaps complementary) hypothesis regarding why administrations lose “steam” or vigor.⁵⁰

Policy Goals

The proposition implies that the agent’s incentive to work on a given policy is not necessarily maximized by appointing a leader who shares the agent’s policy goals.⁵¹ On the other hand, the agent will prioritize jobs closer to the agent’s policy goals. Substantively, this describes “sabotage” or “shirking” behavior by the agent (e.g., [Brehm and Gates \(1997\)](#)). I return to these points in [Section 6](#).

Shared Goals and Organization Mission

While various notions of “efficient policy-making” exist, it is nonetheless the case that “efficiency” is a common link between any pair of arguments justifying the delegation of authority to unelected bureaucrats. In this setting, efficiency is best thought of as “completing more important jobs earlier,” but this leaves unanswered the question of “important to whom?” From a *social* welfare perspective, it is ambiguous whose preferences should delineate the baseline for “optimal performance” should be or, in other words, what “society’s preferences” are. For the purpose of this brief discussion, I will presume that the Leader’s preferences are “correct,” in the sense of representing those of society.

The Value Of Shared Goals

Extending the theory to allow for multiple jobs with heterogeneous impacts illustrates the value of “shared goals.” I provide an example demonstrating this logic in [Appendix 1.7](#). The example in the appendix illustrates that incorporating the multi-task nature of policy-making demonstrates the value of *organizational culture* (or *mission*) within an agency ([Patty and Penn \(2020\)](#)).

Policy-Making and Top-Down Authority: The Ally Principle Revisited

[Bendor and Meirowitz \(2004\)](#) demonstrate that, in many settings, a principal choosing his or her agent should follow the *ally principle*: “the boss [should pick] the most ideologically similar agent as delegatee.”⁵² An implication from this is that elected leaders should be given the authority to choose not

only their agents, but also to allow their agents to choose their own subordinates. I now turn to the model’s implications for agency structure.

The Effects Of Hierarchical Structure

I now consider the impact of increasing the “height” of the agency’s structure by including an intermediate leader, or “supervisor,” who must sign off on a completed job prior to its approval by the leader. Such a supervisor is analogous to requiring that one or more individuals “sign off” on any proposed project prior to presenting the project to the agency or bureau head for final approval.⁵³ In line with the realities of most such systems, this supervisor possesses only the power to veto a project. The principal conclusion drawn from this enlarged setting is that, contrary to intuition, the insertion of an additional actor with veto power can actually increase the agent’s absolute incentive to work on any given project. Prior to the analysis, however, I describe one real world example of such a system.

The EPA’S Office Of Policy

The EPA is one of the most active, and significant, regulatory agencies in the Federal Government. The EPA is responsible for administering dozens of federal statutes spanning multiple policy areas and, as a result, contains four major regulatory branches.⁵⁴ This breadth of responsibility, combined with the centralization of executive branch review (e.g., in OIRA) over the past 50 years, has led the EPA to develop an “Action Development Process” (ADP) to guide the development, promulgation, and review of environmental regulations.

The penultimate step in the ADP, prior to submission of a proposed rule to OIRA for preclearance review, is final agency review (FAR), which is essentially conducted by the Office of Policy.⁵⁵ The process is ultimately flexible to the point of arguably being inchoate in practice,⁵⁶ but clearly indicates that proposed rulemakings should involve stakeholders early and often as appropriate, and demands special oversight for rules that have impacts closer to the sitting president’s agenda. The final step of internal review by the Office of Policy is presumably at least in part intended to gauge the match between the proposed rule and the priorities being overseen by the executive branch in OIRA and the OMB more generally.

To the degree that EPA’s Office of Policy can reject a proposed policy because its overall impact on the agency is negative, then Office of Policy plays a role analogous to the supervisor in this extension of the baseline model. Specifically, in my model, the supervisor is allowed to judge the wisdom of promulgating the policy in question with additional information about the various external (economic, political, *etc.*) factors that may have come to light after the final form of the proposed rule has been realized. We will see that this form of “last stop internal review” can serve as a form a “bailout” for the agency when making its processing decision. The bailout

⁴⁹For example, [Kerwin and Furlong \(1992\)](#), [McGarity \(1992\)](#), [Carpenter \(2002\)](#), [O’Connell \(2008\)](#), and [Yackee and Yackee \(2009\)](#).

⁵⁰For a related point in a slightly different setting, see [Dewan and Myatt \(2008\)](#).

⁵¹Similar asymmetries are identified by [Turner \(2016\)](#) and [Patty and Penn \(2019\)](#).

⁵²[Bendor and Meirowitz \(2004\)](#), p. 293.

⁵³Examples of such systems are used in many agencies, including the Coast Guard within DHS, and the FAA ([Kerwin \(2007\)](#), p. 18).

⁵⁴The Offices of (1) Air and Radiation, (2) Chemical Safety and Pollution Prevention, (3) Land and Emergency Management, and (4) Water.

⁵⁵I thank an anonymous reviewer for pointing out this practice, which should also be studied in more detail in separate work.

⁵⁶See, for example, the [Office of Inspector General \(March 31, 2021\)](#).

effect here is that the agency will be less likely to promulgate a project that ultimately (due to the project's realized valence value) would hurt the agency. This leads to the agency being more proactive with respect to processing projects.

Hierarchical Review More Generally

Moving beyond the EPA, all executive agencies are subject to "interim" external review of their policy-making in at least two ways. The first emanates from the notice and comment requirements of the APA, and the second is based on the increasing centralization of executive branch oversight of the regulatory process that has unfolded over the past 50 years or so. To the degree that these review steps offer the agency a chance to perfect—or at least insure itself against the downsides of—the product of its efforts, the substantive conclusion that these review processes will tend to increase the agency's incentive to process jobs it would otherwise not process in the absence of such possibilities of *ex post* review will remain true.⁵⁷

Height: Sequential Processing

I now extend the model to require that, upon completion of a job j , the job—which now is associated with a known valence, w_j —is reviewed and either given preliminary approval or declination by a *supervisor*, S . If the job is given preliminary approval, then it is forwarded to the leader. Otherwise, it is not implemented, just as if the leader did not approve it in the baseline model. The supervisor's preferences are characterized in a fashion analogous to those of the agent and leader: for each job j , y_j^S represents the supervisor's job-specific ideal point and his or her payoffs, u_S , are defined just as those for the agent and leader are defined in [Equations \(2\)](#).

At first blush, the insertion of the supervisor—an individual whose authority extends only so far as to effectively veto the approval of any completed job—would appear to diminish the incentive to work on any given project. However, the model offers the opposite prediction: appointing a supervisor with the same policy goals as the agent can only increase the agent's incentive to work. This stated in the following proposition.

Proposition 4. For any y_j^A , y_j^L , z_j , and d_j , the Gittins index for job j in the supervisor model, $G_j^S(d_j)$, is maximized when the supervisor's policy goals are identical to those of the agent: $y_j^S = y_j^A$. Furthermore, the Gittins index in the supervisor model is strictly higher than the Gittins index in the baseline (supervisor-less) model, $G_j(d_j)$, when the supervisor's policy goals are identical to those of the agent and the leader's policy goals differ from those of the agent.

The logic of [Proposition 4](#) is that a supervisor helps "insure the agent from the leader": when the leader is *more* predisposed toward the project than the agent, the supervisor can increase the agent's expected value of processing the job by reducing the downside risk of the leader approving a job that, upon completion, the agent prefers not be approved. The following corollary formally states that the supervisor model strictly increases the agent's incentive to process a job if and only if the agent is less predisposed toward the project than the leader.

Corollary 1. Suppose that the supervisor's policy goals are identical to those of the agent: $y_j^S = y_j^A$. The Gittins index for job j in the supervisor model, $G_j^S(d_j)$, is higher than the Gittins index in the baseline (supervisor-less) model, $G_j(d_j)$, if and only if leader is more predisposed toward the project than the agent: $|y_j^L - z_j| < |y_j^A - z_j|$.

[Proposition 1](#) acknowledges a fundamental property of gatekeeping power: the supervisor can "help" the agent only by blocking approval of a project. Such power is strictly valuable in proportion to the probability that the leader would approve a project that the agent preferred seeing declined. This then implies a different version of the ally principle ([Bendor and Meirowitz \(2004\)](#)): inserting a supervisor as a step of "red tape" is useful to incentivizing policy-making if and only if that supervisor is more aligned with the agent than the principal.

I now turn to two avenues for extending this framework to capture a wider array of the issues confronted in designing and managing policy-making: multiple agents and complexity.

Discussion

In this section, I discuss the substantive interpretation of some aspects of the model and its conclusions, beginning with the notion of what a "job" might be.

What Is A "Job"?

There are many ways to think about what the notion of a job represents in real-world policy-making. Some are obvious: preparing a Notice of Proposed Rulemaking (NPRM), responding to public comments on a proposed rule, and/or publication of a final rule each represent discrete steps in the federal rulemaking process, and of course all rules are discrete. Diving in a bit more, however, enforcement actions, license awards/renewals, hiring, procurement, and public reporting each represent discrete, costly, and important jobs that most agencies process on a regular basis. The key point from the standpoint of my theory is that these jobs can not all be accomplished "at once," necessitating prioritization. Viewed more broadly, the theory's implications are strongest for jobs about which the probability of successful implementation and/or time to complete are more uncertain.

Valence Values Of Jobs

The valence value of a job can represent a variety of motivations. For example, it could represent responses by the public to the potential policy,⁵⁸ political and legal actors such as Congress and the courts, or it could represent efficiency gains internal and/or external to the agency. It could also represent a shorthand approach to capturing unknown policy impacts of the project. Regardless of how one wishes to interpret this aspect of the model, the most important aspect of a job's valence value for the purposes of my theory is that *whatever factors the valence value of job represents might generate uncertainty about whether the job will be implemented once completed*.

⁵⁷For a complementary view of this impact of *ex post* review in the notice and comment process, see [Gailmard and Patty \(2017\)](#). For an alternative view of the downsides of such review, see [Patty and Turner \(2021\)](#).

⁵⁸On the upside, consider the very positive response to the Federal Trade Commission's FTC's implementation of the "Do Not Call" list and, on the other side, consider the negative response to the 2013 "roll out" of the healthcare.gov website.

Forms Of Agency Action

In the real world, agencies typically have several “levers” that might be used to achieve policy aims. In the United States, the most commonly discussed of such levers is rulemaking, but this is also among the least frequently used. A more “day-to-day” understanding of administration would probably focus on decisions such as procurement, enforcement, licensing, and permitting. The theory I have presented here is not tied to rule-making, *per se*, in any way. The only factors I have assumed about the agent’s and principal’s preferences over jobs that are key to this theory are that there might be uncertainty about (1) whether the principal and/or agent will ultimately prefer that the job be implemented and (2) the duration of the “policy process” to learn whether the job will be implemented.

The Practical Limits Of De Jure Control Mechanisms

The theory in this article is, at its heart, a pragmatic theory of policy-making. As such, it usefully stands in contrast to more normative/doctrinal models of accountability. Scholars across multiple disciplines have wondered in print about why “accountable administration” is so difficult to achieve in practice. This theory offers two complementary (and non-exclusive) reasons for this. The first is “by assumption” (though also in line with the practical realities of policymaking): the everyday decisions of administrators are typically outside the practical remit of their superiors (elected or otherwise). The second is closer to the heart of this article’s argument: *organizational* decision-making is inherently messy. To understand this, note that the “switching behavior” (Section 4.4) is arguably pathological (it looks like stonewalling, red tape, or other organizational pathologies typically associated with “bureaucracy”), but it is unclear how or whether statutory/administrative attempts to hold the agency accountable for its decision-making will ameliorate or eliminate it in the presence of the uncertainty inherent to (and indeed, ultimately part of justification behind delegation of the power of) policy-making.

Extensions

Multiple Agents: Centralization and Coordination

The theory I have presented in this article is obviously very stylized. Perhaps the most “stylized” aspect of the model relative to real-world policy-making processes is that there is a single policy-making agent. In Appendix 3, I explore an example of an extension of this model to allow for two agents simultaneously working on jobs. Such an agency can be described as processing policy “in parallel,” and the central interest is whether adding a second agent affects the incentives of the first agent.

This enriched setting generates three general conclusions. The first is that the agents’ prioritization schemes would generally be inefficient without centralization (e.g., coordination) of the agents’ individual choices. Second, even if we assume away coordination problems, the incentives of the agents differ dramatically between the baseline agency and the agency with multiple agents. Finally, even if the agents and the leader have identical policy goals on all jobs so that there is an unambiguously “optimal prioritization,” this schedule can be complicated to derive and, similarly, need not bear much resemblance to the optimal schedule in the single-agent version of the problem.

Complexity and Heuristics

Part of the reason that the model upon which my theory is based focuses on one agent is that the general question of how to optimally schedule jobs with multiple agents is an *NP-hard problem*, meaning that we currently do not know how (or if one even *can*) derive a general solution to the problem at all. At least currently, this computational complexity suggests that both empirical and theoretical research should focus on the *heuristics* that can be applied to these problems.⁵⁹ In other words, “best practices” in this area in the foreseeable future will need to focus on “approximate” solutions and/or examine how real-world agents *attempt* to solve them.

Thus, an “empirical implication” of this cursory theoretical analysis is (one) reason why a general empirical analysis of the effects of institutional design on bureaucratic performance has proven elusive to date. Viewed from a policy/administrative standpoint, the complexity of optimal policy management when “processing multiple jobs at once” suggests a procedural/institutional explanation for both the wide heterogeneity of management systems employed by various federal agencies (Kerwin (2007), Kerwin and Furlong (2011)) and the apparent stickiness of these systems in the face of recurring calls for development of transparent and efficient management systems by both presidents and Congress.⁶⁰

Conclusions

While spatial models of policy-making offer powerful and precise insights into “high level” and abstract notions of representation, they necessarily set aside the practical and granular realities of real-world policy processes. Bringing these realities into the conversation is important because, without considering how real-world policy decisions are made and implemented, we have little guidance about how to translate political representation into representative policy outcomes.

The Practical Limits Of Centralization

The most overarching conclusion from the theory regards the complexity of prioritization among a variety of discrete tasks. This complexity is sufficient for several organizational pathologies of policy-making (e.g., delay in, and/or apparent inconsistency of, dynamic implementation). Furthermore, these pathologies arise within the theory *even if the agency is headed by a single decision-maker*.

Constrained Choices

The theory of optimal prioritization aims to understand what jobs should be tackled first, but the substance of the theory’s causal explanation rests on what is often unobserved by outside analysts. Namely, a policy-maker’s optimal choice of what to do today is determined in large part by the set of jobs that he or she *could* do today. This indicates that attempts

⁵⁹For example, see Baker and Trietsch (2009) and Pinedo (2012).

⁶⁰Presidential exhortations to this effect include President Reagan’s Executive Order 12291 (“Federal Regulation”) and 12498 (“Regulatory Planning Process”), President Clinton’s E.O. 12866 (“Regulatory Planning and Review”), President George W. Bush’s E.O. 13450 (“Improving Government Program Performance”), and President Barack Obama’s E.O. 13563 (“Improving Regulation and Regulatory Review”). Congressional actions in the same vein include, among others, the Government Performance and Results Act (GPRA) of 1993 (Public Law 103-62) and the GPRA Modernization Act of 2010, (Public Law 111-352).

to make bureaucratic policy-making more sensible might be more effective by considering how to increase the *capacity* for bureaucratic policy-making by increasing the number of tasks that the agency in question can perform at once.⁶¹

Uncertainty and Policy Prioritization

Considering policy-making as a prioritization process provides insights into how uncertainty might affect policy-making. The first step in this direction is the separation of two different forms of uncertainty: uncertainty about the *length of time it will take to complete the job* and about the *probability that the job will be approved upon completion*. The theory illustrates that reducing uncertainty about whether a completed job will be approved will increase the efficiency of policy prioritization.

On the other hand, the effects of uncertainty about the completion time of any given job will require to complete are more complicated. Comparing Equations (5) and (6) indicates that, as the agency's information about completion times for any pair of jobs become more precise, the relative prioritization of these jobs becomes more *accurate*, but the overall *welfare* impact of such an increased accuracy is ambiguous.

"Middle Management" As "Policy Insurance"

The theory provides a new analytical argument for the value of shared goals, or "mission" within an agency. Similarly, the theory provides a clear conception of one way to measure "criticality" of various tasks within an agency (Wilson (2000)): the Gittins index.

Data Availability

No new data were generated or analyzed in support of this research.

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⁶¹Space precludes a full discussion of this direction of extension of the theory, but it is worth noting that other pathologies can easily emerge if any given agency's capacity is increased (e.g., Ting (2002)).

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