

Administrative Procedures and Bureaucratic Performance: Is Federal Rule-making “Ossified”?

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ABSTRACT

We provide the first empirical assessment of the ossification thesis, the widely accepted notion that procedural constraints on federal agencies have greatly hindered the ability of those agencies to formulate policy through notice and comment rule-making. Using data that cover all active federal rule-writing agencies from 1983 to 2006, our results largely disconfirm the ossification thesis. Agencies appear readily able to issue a sizeable number of rules and to do so relatively quickly. Indeed, our empirical results suggest that procedural constraints may actually speed up the promulgation of rules, though our model suggests that this positive effect may decline, or even reverse, as proposed rules age. We conclude that procedural constraints do not appear to unduly interfere with the ability of federal agencies to act, or in most cases, to act in a timely manner.

Have procedural constraints on federal agency autonomy unduly hindered the ability of federal agencies to regulate in the public interest or to regulate in a timely manner? Scholars working in the fields of public administration, administrative law, and political science routinely assert that the federal regulatory process is broken (Seidenfeld 1999, 429). These scholars present what we call the “ossification thesis”—the widely accepted notion that procedural constraints imposed on federal agencies by the president, Congress, and the courts have had the undesirable side effect of making the federal regulatory process so burdensome and inefficient that federal agencies now routinely promulgate important regulations only after significant delay (Mashaw 1994; McGarity 1992, 1997; Pierce 1995; Seidenfeld 1997; Verkuil 1995). Debate about ossification, such as it is, focuses mostly on whether ossification is normatively a good or a bad thing (Seidenfeld 1997) or, assuming that it is a bad thing, how best to “de-ossify” the rule-making process so that agencies can regulate more effectively and efficiently (Pierce 1995; Verkuil 1995).

The idea that the regulatory process has become ossified, and particularly that it now takes too long to regulate, is well entrenched, both in the ossification literature itself and in

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the larger political science and public administration literatures. Concern with regulatory “delay” is especially widespread (see, e.g., Balla and Wright 2005; Carpenter 2002; Kerwin and Furlong 1992). But is it really true that agencies are less able to regulate now than in the past? Do procedural constraints really delay agency action? In the sections that follow, we introduce a framework for statistically testing the ossification thesis against a large multiagency data set of federal rule-making from 1983 to 2006. Using descriptive statistics and Cox proportional hazard modeling techniques, we examine the effects of procedural constraints on the volume of substantively important rules that federal agencies are able to produce and the amount of time that it takes agencies to develop and promulgate those rules. Our analysis contributes to the small but growing empirical literature on the effects of administrative procedures on agency performance (see, e.g., Balla 1998; Kerwin and Furlong 1992; Potoski 1999), and it is, to our knowledge, the first such analysis to empirically examine the volume and speed of federal rule-making across all rule-writing agencies and for so many years.

To preview our results: we find mixed evidence of ossification. Despite the imposition of procedural constraints, the volume of federal rule-making does not appear to be worrisomely low.¹ Nor do procedural constraints appear to consistently delay the promulgation of rules. Instead, our statistical analysis suggests that for most rules, the imposition of procedural constraints is associated with a higher probability that a given rule will be promulgated in a given time period, a result which suggests a “speeding up” of rule-making. On the other hand, certain procedural constraints may delay rule promulgation for the minority of rules that have already, and for other reasons, resisted promulgation for a relatively long period of time. Put somewhat differently, our analysis illustrates a nuanced relationship between allegedly ossifying procedural constraints and the ability of agencies to regulate in a timely manner. Procedural constraints seem to encourage the promulgation of rules earlier in the life of a given regulatory proposal, but may delay promulgation for rules that are, in a sense, already ossified. We view these results as largely (but not completely) disconfirming the ossification thesis. Procedural constraints do not appear to unduly interfere with the ability of federal agencies to act, or in many cases, to act in a timely manner, though they may further delay rule-makings that are already delayed.

The article proceeds as follows: first we describe the ossification thesis in more detail and offer a critique of the thesis that focuses on reasons to suspect that agencies will retain significant capacity to regulate despite the imposition of procedural constraints. We then present descriptive statistics that provide a first-cut look at whether there is any evidence of ossification when the volume and speed of rule-making is analyzed at a highly aggregate level. Finally, we present results from a rule-level hazard model of the effects of procedural constraints on rule promulgation.

THE OSSIFICATION THESIS

The ossification thesis has been advanced by a number of prominent scholars of administrative law, and it has emerged as one of the most important theoretical justifications for reforming the federal regulatory process in ways that would likely decrease opportunities

¹ However, and as we discuss in more detail in the pages that follow, any attempt to characterize the volume of rule-making has “high” or “low” depends on the difficult task of defining proper baseline expectations.

for political oversight of the bureaucracy in favor of greater bureaucratic autonomy (Mashaw 1994; McGarity 1992, 1997; Pierce 1995; Seidenfeld 1997; Verkuil 1995; see also Wilson 1989, 369–76). These scholars view the federal regulatory process as hobbled by a variety of constraints on agency autonomy and discretion that are ostensibly designed to ensure bureaucratic responsiveness to the preferences of Congress, the president, or the courts (or to the preferences of their favored constituents). The most important of these constraints are of the *ex ante* “structure and process” type, suggested by the “political control” literature as providing Congress (McCubbins 1985; McCubbins and Schwartz 1984; McCubbins, Noll, and Weingast 1987, 1989) and the president (e.g. Moe and Wilson 1994) with an effective means of controlling regulatory outcomes.

Unlike the political control literature, which largely ignores the possibility that mechanisms to control the regulatory process may also impose certain undesirable costs, the ossification literature is explicitly and highly cost sensitive. These scholars argue that procedural constraints on agency autonomy and discretion have had the undesirable side effect of reducing what might be called bureaucratic performance (or effectiveness, Wolf 1993, or efficiency, Wilson 1989, 317) by tying the regulatory decision-making process in procedural red tape and by creating too many opportunities for political micromanagement and interference. The result is bureaucratic “torpidity” (Mashaw, 1994, 1987); agencies are allegedly now unable to readily revise their regulations or to issue new regulations to better suit changing political realities, new scientific understandings, or new facts on the ground. Perversely, then, attempts to ensure that federal regulations better match the desires of the bureaucracy’s political principals may have precisely the opposite effect, as mechanisms designed to ensure responsiveness may have made it too difficult for agencies to respond. This problem applies to both sides of the political spectrum because deregulation, like regulation, must often be accomplished through the (ossified) regulatory process itself (Mashaw 1994, 187).²

What are the precise causes of regulatory ossification? The ossification literature typically emphasizes a number of procedural constraints imposed by the president, Congress, and the courts on notice and comment rule-making under Section 553 of the 1946 Administrative Procedures Act (APA). The vast bulk of important federal agency policy initiatives pass through notice and comment procedures before becoming legally binding on regulated parties. Section 553 requires agencies to announce their intent to regulate in a “Notice of Proposed Rule-making” (NPRM), which solicits written comments by interested parties. Agencies are then required to “consider” the “relevant matter presented” in the comments when formulating a final rule. The final, legally binding rule, which is published in the Federal Register, must incorporate “a concise general statement” of the rule’s “basis and purpose.” Section 553 thus serves to facilitate public monitoring of agency policy proposals (through notice) and to encourage some degree of public participation (through commenting). In some circumstances, agencies are able to regulate outside of the notice and comment framework (e.g., through trial-like adjudications), but most agencies rely largely on notice and comment rule-making for their substantively meaningful regulatory undertakings. Although Section 553’s notice and comment procedures are not on their face very rigorous, the ossification literature

2 The Supreme Court case establishing this principle, *Motor Vehicle Manufacturing Association v. State Farm Mutual Insurance Co.*, was handed down in 1983 and is discussed at length in Mashaw (2005).

accuses the president, Congress, and the courts of adding undesirable procedural hoops and hurdles. We discuss each of these sources of allegedly ossifying procedure in turn.

Presidential Sources of Ossification

The ossification literature emphasizes mandatory Office of Management and Budget (OMB) review as the principle presidential source of ossification. OMB review has been characterized as “interference” with the regulatory process that leads to “costly delays that are paid for through the decreased health and safety of the American public” (Morrison 1986, 1064), and scholars writing outside of the ossification literature agree that one potential impact of OMB review is delay in rule-making. Indeed, OMB’s ability to delay rule-making may be an important source of executive branch leverage over agencies (Cooper and West 1988). Rigorous OMB review was initiated with President Reagan’s 1981 Executive Order 12291. OMB essentially enjoys veto power over regulatory initiatives, and if a proposed rule fails to satisfy OMB’s review criteria (or, more generally, fails to accord with presidential priorities), the rule will not be promulgated until the agency adequately responds to OMB’s concerns. Executive Order 12291 also required agencies to compile and submit to OMB a “regulatory impact analysis”—a kind of cost-benefit analysis—for all “major” draft and final rules. All subsequent presidents have imposed similar systems of OMB review, including President Clinton, who directed OMB to review all “significant” rule-making activities (Croley 2003; Kerwin 2003; West, 1995).³

OMB review is not the only alleged presidential source of ossification, though it is said to be the most important. Another prominent example is President Reagan’s Executive Order 12612, which required agencies to conduct extra study of “federalism” issues whenever a proposed rule would “have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Other presidents have issued more short-lived executive orders requiring additional regulatory analysis on topics such as children’s health and the energy supply.

Congressional (Statutory) Sources of Ossification

The most important potential congressional (or statutory) source of ossification is the 1980 Regulatory Flexibility Act (RegFlex), under which agencies are required to provide certain analyses where a proposed or final rule is likely to affect small businesses (McGarity 1992, 1404).⁴ Congress has also passed a handful of other statutes that, like RegFlex, may raise the administrative costs of rule-making through potentially burdensome procedural requirements. For example, the Paperwork Reduction Act of 1980 requires all agencies to calculate the paperwork requirements associated with any new rule-making activity (Kerwin 2003; Kerwin and Furlong 1992). Congress may also place additional procedural constraints on rules promulgated under the authority of specific laws (McGarity 1992). For instance, the 1998 Transportation Equity Act for the 21st Century compels the Federal

3 OMB does not review rules issued by independent agencies.

4 RegFlex, which was originally passed in 1980 (P.L. 96–354), was amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (P.L. 104–121).

Highways Administration to collect additional feedback from the public when writing rules connected to the Act’s implementation.

Court Sources of Ossification

Scholars have long argued that excessive court involvement in the regulatory process has the potential to cause bureaucratic inefficiency (Melnick, 1983). The ossification literature emphasizes that the federal courts have reinterpreted Section 553’s requirements of notice and comment in ways that make procedural compliance with the APA much more burdensome than it used to be. Section 553’s two key requirements—that agencies solicit and “consider” public comments and that they draft a “concise general statement . . . of basis and purpose” of their promulgated rules—were initially not understood as being terribly onerous. However, in the 1970s, courts began reinterpreting Section 553 to require agencies to give the evidence before them a “hard look” rather than mere “consideration” and to demand “exacting explanations for agency action” rather than a “concise” statement (Seidenfeld 1997, 484; see also Pierce 1995). Under this new interpretation, agencies that failed to give proper consideration or justification would risk seeing their rules overturned in court.

CRITIQUING THE OSSIFICATION THESIS

The ossification literature claims that the net cumulative effect of these various procedural constraints is to make notice and comment rule-making unduly costly and time consuming. Agencies must now expend scarce time and financial resources performing various analyses—leading to what Vladek and McGarity (1995) and others have called “paralysis by analysis.” Agencies must also wait while OMB is conducting its reviews and devote time and resources to responding to any of OMB’s concerns. And of course, if they fear the possibility of judicial review, they must spend time and resources giving a “hard look” at public comments, compiling elaborate justifications of agency decisions and defending their regulatory actions in court. As a result, agencies allegedly now face disincentives to initiate regulatory change through Section 553 rule-making. Anticipating all of these procedural difficulties, they may forgo regulatory change entirely or they may attempt to circumvent Section 553’s newly rigorous procedural regime through less transparent and more legally dubious policymaking mechanisms, such as “informal opinions, operating manuals, or even press releases” (Pierce 1995, 60). And when agencies do decide to go forward with a rule-making, the process will take much longer than it would have in the past.

These claims have only rarely been overtly criticized as potentially inaccurate or exaggerated (Shapiro 2002; O’Connell, 2008). But, in fact, there are good reasons to doubt that rule-making has become ossified. The critical shortcomings of the ossification literature are two-fold.

First, the ossification literature tends to ignore the ways in which the ossifying effects of procedural constraints may have been offset, or avoided, by other congressional, presidential, or court actions and decisions. For example, Congress has consistently refused to enact the more extreme bureaucratic reform proposals that have been advocated by the business community with the express intention of inducing “paralysis by analysis” (Anderson 1998). The reforms that it did adopt, like RegFlex, appear to be relatively mild when viewed

in light of what could have been. Congress has also sought to reduce ossifying tendencies by imposing deadlines on certain agency initiatives (Eisner 1989; Gersen and O'Connell 2008). These deadlines may speed up agency rule-making, despite ossifying procedural constraints, by signaling congressional interest in a particular regulatory initiative (cf., Woods 2005; Yackee, 2006) or by creating the possibility of legal or political sanctions for failure to regulate in a timely manner.

Presidents—despite their consistent desire for centralized review of rule-making—have likewise been sensitive to the possibility that OMB review might induce excessive delay in the regulatory process and have sought to structure the review process in ways that might counteract ossifying tendencies. President Clinton's Executive Order 12866, for example, amended the OMB review process by imposing relatively short deadlines on OMB to complete its rule reviews and exempted some rules from the most rigorous analytic requirements (Anderson 1998; Croley 2003).

As to the courts, the development of the hard look doctrine was accompanied by an increased willingness of courts to generously interpret statutes as granting agencies wide latitude to regulate. This doctrinal shift was important because previous case law suggested that agencies had little legal authority to issue binding regulations absent specific congressional authorization to do so (Merrill and Watts 2002). Thus, although the hard look doctrine may make rule-making more difficult than it was in the past, parallel doctrinal developments have granted agencies more opportunities to regulate. Perhaps more importantly, the Supreme Court's landmark 1983 *Chevron* decision and its more recent *Mead* decision may have operated, both independently and in tandem, to reduce opportunities for judicial interference in the regulatory process. In *Chevron*, the Court held that agency interpretations of ambiguous statutes would be granted substantial deference by reviewing courts, and in *Mead* the Court held that only agency regulations that were promulgated through relatively formal regulatory processes, such as notice and comment rule-making under Section 553, would enjoy this heightened level of deference.⁵ The two decisions serve to give agencies an important legal incentive to regulate through notice and comment, as doing so secures the agency a very favorable standard of review in the event of litigation. This incentive appears to be well recognized by agency staff. For example, at a recent conference of agency general counsels, one expressly admitted to advising his agency to regulate through notice and comment rather than through less formal alternatives precisely to ensure a deferential standard of review should the policy initiative be challenged in court.⁶

The second major weakness of the ossification literature is that it largely ignores the possibility that agencies may successfully resist or undermine efforts to restrict their procedural and substantive autonomy and discretion. We can expect agency resiliency in the face of tightening procedural constraints if, as a number of scholars suggest, Congress, the president, and the courts suffer from serious institutional difficulties in policing agency compliance with procedural hurdles, just as they may have serious difficulties controlling the substance of agency regulations themselves (Rosenberg 1999; Seidenfeld 1999; Spence 1997, 1999; cf., Hammond and Knott 1996). If this is the case, procedural compliance may

5 The cases are *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984); *United States v. Mead Corp.*, 533 U.S. 218 (2001).

6 The conference was sponsored by the American Bar Association and took place in Washington, DC, on October 27, 2006.

turn largely into a matter of checking boxes on forms or cutting and pasting boilerplate language into mandated reports and analyses or otherwise become routinized in ways that amount to little more than minor aggravations that can be funded through marginal increases in annual budgets.⁷

For example, in discussing our project recently with one rule writer in the US Department of Transportation, the bureaucrat told us that he did not believe that procedural constraints added very much time to the rule-making process because his agency simply hired more lawyers to help shepherd rules through the administrative process. This legal and procedural compliance work often takes place concurrently with the technical aspects of rule-making, which are handled by the technical staff. Anecdotes are not proof, of course, but our bureaucrat's assertion accords generally with Anderson's (1998, 491) observation that agencies have been able "to respond perfunctorily" to the requirements of RegFlex and also with the more general conclusions of Hammond and Knott (1996), among other scholars of bureaucratic autonomy, that the ability of the bureaucracy's political principals to control the substance of bureaucratic outputs is much more limited than is often assumed.

HYPOTHESES AND TESTING STRATEGIES

The ossification thesis suggests two main testable hypotheses. First, the imposition of procedural constraints should lead to a decrease in the volume of notice and comment rule-making. Second, where agencies nonetheless persist in initiating notice and comment rule-makings, procedural constraints should slow down the rule-making process. In contrast, our critique of the ossification thesis suggests three reasons to suspect that procedural constraints will have limited or negligible effects on the ability of agencies to promulgate regulations.

To test the ossification thesis's two hypotheses, we first generate aggregate-level descriptive statistics regarding the volume of notice and comment rule-making and the time it takes to write rules. This descriptive analysis is intended to provide a first-cut examination of the evidence (if any) that rule-making is ossified. Second, we test a proportional hazard model of the effect of allegedly ossifying procedural constraints on the speed with which individual rules move through the rule-making process. This second strategy allows us to take analytic advantage of the fact that certain important, potentially ossifying procedural constraints are imposed on some but not all rule-makings. The selective application of potentially ossifying procedures means that we can examine whether rule-makings afflicted with certain constraints indeed take longer to complete than relatively unconstrained rule-makings.

DATA

The primary data source for our study is the Unified Agenda of Federal Regulatory and Deregulatory Actions. The Unified Agenda is published semi-annually and summarizes the expected and pending substantive notice and comment rule-making activities of all federal agencies at that time point. Individual agencies contribute their portion of the

⁷ For example, Melnick (1983, 380) notes that Environmental protection agency's response to heightened court scrutiny of its rule-making was to increase the size of its general counsel's office.

document to the Regulatory Information Services Administration, which collects and systematizes the information before publishing it in a uniform format for public consumption. Federal agencies have been required by executive order to compile and distribute their regulatory agendas since 1978; comparable data are available beginning in 1983. Each rule-making activity is assigned a unique Regulatory Identifier Number (RIN), which allows for its tracking over time. So, for instance, we can identify when a particular regulatory initiative was formally commenced as an NPRM. We can then follow the RIN through time to identify when the agency completes the regulatory action. The Unified Agenda, like any other data source, is not without its flaws. For example, agencies may not reliably self-report all substantive rule-making developments or activities; however, Balla (2005, 70) concludes that it “represents as complete a snapshot as possible” of government rule-making. Additionally, the Unified Agenda may not record agency activity that some analysts might broadly categorize as “rules”; the Unified Agenda’s definition of a “rule” is narrower, in that it aims to identify substantive agency activities (Croley and Magill, forthcoming).

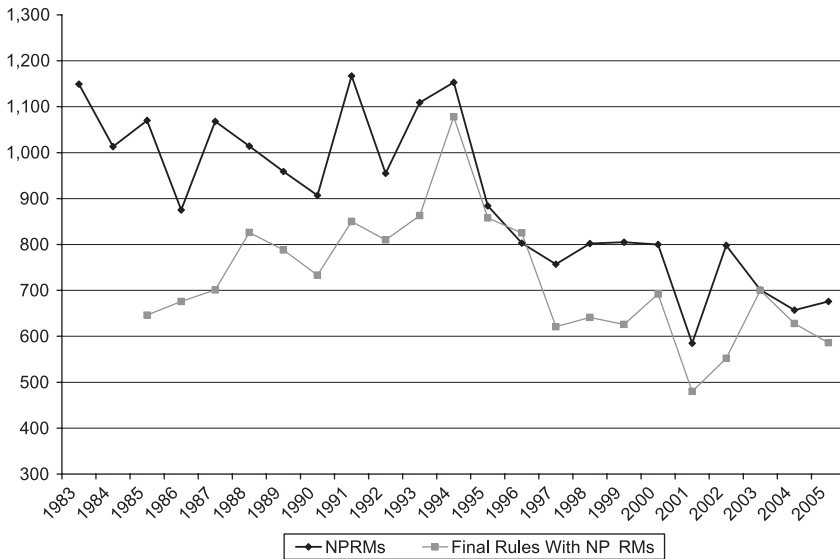
DESCRIPTIVE ANALYSIS

Figure 1 uses the Unified Agenda to calculate the number of new NPRMs issued by year across the entire federal government. The figure also plots the annual number of final (promulgated) rules that began with an NPRM in 1983 or later.⁸ The Unified Agenda’s count of NPRMs and Final Rules is below other scholarly estimates of the volume of federal rule-making. For example, West (2004) suggests that the federal government promulgates roughly 2,000 rules annually, whereas Noveck (2004) puts the number at somewhere between 4,000 and 8,000 regulations. The Unified Agenda data suggest that between 1990 and 2005, the federal government promulgated an average of approximately 720 notice and comment rules per year, with a peak of almost 1100 final rules in 1994. These discrepancies in estimates may arise from inconsistent definitions of what constitutes a “rule.” Other counts of agency rule-making activity may include substantive notice and comment rule-making as well as other, more minor (or even non-binding) kinds of agency actions, such as so-called “interpretive” rules, guidance manuals, policy statements, or rules concerned solely with internal agency procedure.

The ossification thesis predicts low levels of rule-making or that rule-making will be unduly slow. How low is “low”? And how slow is “slow”? The answers depend on baseline expectations. For instance, the proper baseline comparison may be between the amount of rule-making today and the amount of rule-making in earlier years, such as the 1960s or 1970s, before the development of the hard look doctrine or the imposition of OMB review. Unfortunately, neither available data nor the ossification literature itself provide a firm baseline for comparing the volume of rule-making today to the volume of rule-making prior to the early 1980s, and we caution that Figure 1 should thus be interpreted with care, as it does not provide a basis for comparison against the volume of pre-1983 rule-making, nor against some objectively proper volume of rule-making. As such, we are hesitant to make strong statements as to what the proper number of rules ought to be in a given year. We cautiously suggest, however, that the levels of rule-making illustrated in Figure 1 are

⁸ We begin the figure for final rules in 1985 because the Unified Agenda data does not include rules whose NPRMs were issued prior to 1983. This means that the Unified Agenda’s “count” of final rules in the early years of the data set is probably too low.

Figure 1
Volume of Rule-making Activity Data: Unified Agenda. See Text for Additional Details



not worrisomely low. In any given year since 1983, many hundreds of substantively important rules are proposed and many hundreds are entering into force.

Figure 1 does suggest at least one important trend: there is a downward shift in the number of NPRMs and final rules beginning around 1995. However, the timing and abruptness of this shift are difficult to understand in terms of the ossification thesis, which suggests that ossification should have occurred by the early 1980s and which does not suggest that ossification would have gotten noticeably or suddenly worse since then. One explanation may be that there were fewer major statutes calling for regulatory change in the later period. As Furlong (1995) notes, statutory commands to change the regulatory status quo are one of the primary drivers of federal regulatory activity, and under the first President Bush, Congress passed a number of ambitious regulatory statutes. The lack of similarly ambitious regulatory legislation under Clinton and the second President Bush may be the primary cause of the pattern illustrated in the figure. This explanation is admittedly speculative, but the important point is that there is little reason to believe that the shift was caused by ossification.

Figure 2 displays Kaplan-Meier survival estimates of the amount of time in months that it takes for a rule to move from an NPRM to final rule status. Kaplan-Meier estimates are nonparametric estimates that an observation (here, an NPRM) will survive (not be promulgated) past time t . Approximately 20% of the data are right-censored in the sense that the NPRMs are not promulgated during the span of our data set. This kind of censoring is common in duration analysis, and Kaplan-Meier analysis provides an appropriate method of estimating survival rates despite the fact that the full life spans of certain observations are not contained in the data set (Box-Steffensmeier and Jones, 2004).

Figure 2
 Rule Finalization Estimates Data: Unified Agenda. See Text for Additional Details

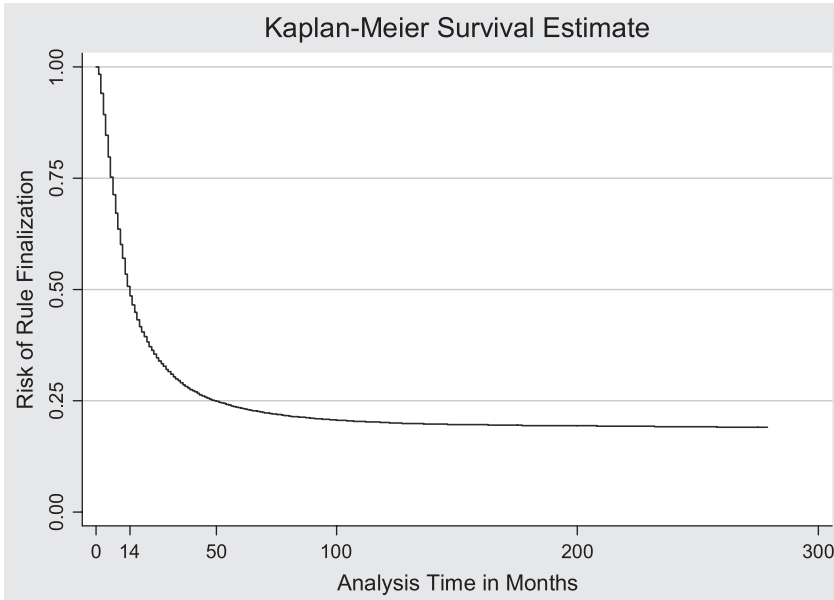


Figure 2 indicates that about 25% of rules are estimated to be finalized within 7 months of the issuance of the NPRM, about 50% within 14 months, and approximately three-quarters within 50 months. But does the figure illustrate regulatory ossification? Here we do have evidence of a proper baseline expectation. McGarity (1992) provides perhaps the most important statement of the ossification thesis, and he estimates that in the pre-ossification 1970s proposed rules often took only 2 years or less to reach final rule status. He contrasts this typical timeline with a number of allegedly ossified rule-makings in the 1980s that took 5 or more years to reach completion. Given McGarity’s claim, we would suggest that Figure 2 does not illustrate aggregate-level ossification. The majority of rules are estimated to be promulgated well within 2 years. This is not to deny that certain rules are estimated to, and do in fact, take many years to be promulgated, and it may be the case that procedural constraints are responsible for the delays in promulgating these longer lived rules. We test that possibility in the next section by using a Cox proportional hazard model to examine whether the imposition of specific procedural constraints on particular, individual rules causes those rules to take longer to reach completion.

COX PROPORTIONAL HAZARD MODEL

In this section, we present results from a Cox proportional hazard model that analyzes the effects of particular procedural requirements on the risk that a rule will be finalized in a given time period. Our unit of analysis is the rule, and we analyze all rules that begin with an NPRM in our data set. We study the time that it takes, in months, for rules to move

from the NPRM stage to the Final Rule or Final Action stage, as recorded in the Unified Agenda.⁹ Our analysis takes advantage of the fact that certain important procedural constraints on agency autonomy are imposed on some but not all rules. For example, some rules are required to go through OMB review and some are not. Our Cox framework allows us to examine whether rules that go through OMB review take longer to be promulgated than rules that are not reviewed by OMB by estimating the probability that a given rule will be promulgated in a given month. The ossification thesis predicts that rules that are reviewed by OMB review will have a lower probability of promulgation (or a higher probability of “surviving” to the next month). If OMB review is associated with a lower probability of promulgation, we can infer that OMB review “slows down” or “ossifies” rule-making. On the other hand, if OMB review is associated with a higher probability of promulgation, we can infer that OMB review “speeds up” rule-making.

Just over 23% of our observations are right-censored in the manner already described in the previous section and about 8.5% of these censored observations consist of rules that are withdrawn prior to promulgation. We follow standard practice by treating these withdrawn rules as censored events (Box-Steffensmeier and Jones 2004; Diermeier and Stevenson 1999; Zorn and Van Winkle 2000).¹⁰

Dependent Variable

Our dependent variable, *Rule Time*, is a count of the months elapsed between publication of an NPRM and its associated final rule. For example, the Department of Transportation’s Federal Aviation Administration issued an NPRM in November of 2001 to set standards for air traffic collision avoidance systems. The Unified Agenda records that this rule was finalized in April of 2003. Thus, Rule Time would take a value of 17 months.

Ossification Variables

We operationalize the potential for ossification-type delay through four independent variables. We include two measures of presidentially imposed procedural constraints. The first, *OMB Review*, is a count of the number of reviews completed by OMB. This variable scores a zero when OMB did not review a rule, a one when it reviewed either a rule’s NPRM or final rule, and a two when OMB reviewed both the NPRM and final rule. Although the criteria for OMB review differ somewhat by president, OMB’s basic role and practice—requiring agencies to submit additional analysis on what the executive deems to be “major” or “significant” rules—have been consistent over time. The Regulatory Information Services Administration collected the OMB data. The ossification literature suggests that OMB

⁹ Our analysis is calendar-time-invariant. In other words, we are not presenting a time series analysis; rather, our analysis focuses on what we call Rule Time—the amount of time in months that it takes individual rules to pass from the initial stage of the rule-making process (the NPRM) to the final stage (promulgation). A time invariant approach is appropriate here since our main independent variables of interest (the imposition of various procedural constraints) do not vary over calendar time.

¹⁰ In other words, we assume that the risks of being finalized or withdrawn are conditionally independent, in the sense that a rule that is not terminated by finalization by an agency will eventually be withdrawn. Our assumption is supported by the fact that our data set suggests that there are no material differences between withdrawn and final rules in terms of a rule’s Abstract Length (as a measure of complexity), the Rule Significance variable, and the extended commenting opportunity measure in the paper.

review will delay rule finalization. If this is the case, the coefficient will be negatively signed.

Our second measure, *Government Levels Affected*, records whether or not a rule was deemed to affect other parts of government, including states, localities, and/or other federal entities. Executives since President Reagan have required agencies to perform additional analysis of “federalism” issues for these kinds of rules. The variable is scored a zero when no other government entities are deemed affected by the rule, a one when either the state government, local governments, or other federal government entities are affected by a rule, a two when two of these three levels of government are deemed affected, and a three when all three levels are affected. The data are reported in the Unified Agenda from 1983 to 2006.

We include one statutorily imposed procedure, *Regulatory Flexibility Analysis*, which indicates whether a rule was required by RegFlex to undergo additional analysis as to its potential impact on small businesses. This variable takes a value of one when a rule was required to undergo RegFlex analysis and a zero otherwise and is available from 1988 to 2006. As we noted above, in some cases Congress imposes special procedural requirements on particular rule-making activities. However, the Unified Agenda does not record whether a particular RIN is subjected to rule-specific procedural constraints, and we are unable to control for their imposition.¹¹

Ossification scholars often stress that the establishment of the court’s hard look doctrine in the 1970s as helping to ossify rule-making. Data limitations prevent us from performing a comparative analysis of rule-making before and after the development of the hard look doctrine. Instead, we use LexisNexis to create a measure, *Court Cases 1970–82*, which counts the number of times each agency in our sample appears as a named party in a case before any of the US Courts of Appeals between 1970 and 1982. Our measure reflects McGarity’s (1992) suggestion that agencies’ rate of rule-making in the middle and late 1980s was influenced by their past experiences with court review.¹² The variable should be negatively signed (indicating delayed rule-making) if agencies with extensive litigation histories understand those histories as suggesting a high probability that *current* rules will be the subject of litigation. Under the logic of the ossification literature, agencies with extensive histories of rule-making litigation will face greater incentives to devote significant time and resources to complying to the letter with the procedural strictures of the hard look doctrine in the modern period, thereby delaying rule promulgation. (For ease of presentation of the results, we rescaled Court Cases using the variable’s standard deviation of approximately 200 cases.)

11 The ossification literature sometimes cites the Congressional Review Act (CRA) of 1996 as a statutory source of potentially ossifying procedure. We do not include the CRA because it applies uniformly to all rules since 1997, and, more importantly, because its main provisions come into play only after a rule has been promulgated—that is, after the rule has left our sample. CRA requires agencies to provide a copy of all promulgated rules to Congress and provides Congress with an expedited process for passing a resolution of disapproval, which would prevent the rule from entering into force. In practice, Congress has introduced only a small handful of disapproval resolutions, and the CRA is generally considered to have failed to provide Congress with an effective mechanism of “vetoing” agency action (Rosenberg 1999).

12 We recognize that this measure of court-imposed ossification is imperfect, and an ideal test of the effect of the development of the hard look doctrine would include data on all regulatory activities collected from the 1970s or earlier. Unfortunately, collecting these data is beyond the scope of our capabilities for this article, and as a result, our analysis provides only limited insight into the role that the courts might have played in ossification.

Other Rule-Specific Predictor Variables

The models contain six variables to assess various other theoretically relevant characteristics of particular rules. *Length of Abstract* is the character length of each rule's published abstract. *Abstract Length* serves as a proxy for rule complexity. Complex rules are likely to have longer abstracts because as rule complexity increases it will take more space to explain the rule's basis and purpose. We expect complex rules will take longer to complete than noncomplex rules. For ease of presentation, we rescale the abstract variable on the basis of one standard deviation or approximately 500 characters.

We also include two dichotomous variables as proxies for the political contentiousness of each rule. We expect contentious rules to take longer to complete because opponents will have to be pacified and compromises drawn up. The first measure, *Hearings Held*, takes a value of one if a public hearing was convened on the rule and a zero otherwise. The second measure, *Extended Comment Period*, indicates whether the rule's comment period was extended to allow for any additional opportunities to submit comments.¹³ An agency's decision to extend the commenting opportunities is often a response to interest group attention to and interest in a rule. We anticipate that contentious rules will take longer to finalize. We include two measures tapping whether Congress has imposed a deadline on a particular rule-making (*Congressional Deadlines*) and whether the federal courts have imposed a rule-specific deadline (*Court Deadlines*). We expect deadlines to speed up the promulgation of particular rules (Kerwin 2003; Kerwin and Furlong 1992). Both deadline measures are derived from the Unified Agenda and are available from 1988 to 2006.

Rule Significance is our last rule-specific predictor variable. The variable is a dichotomous dummy variable, scored "1" when the reporting agency deems the rule to be either "economically significant" or "significant" for "other" reasons and a zero otherwise. We expect significant rules to take longer to finalize, both because they are likely to be more complex and more contentious. All six rule-specific variables are taken from the Unified Agenda. Length of Abstract, Hearings Held, and Extended Comment Period are available from 1983 to 2006; the *Deadline* variables are available from 1988 to 2006, and Rule Significance is available only for rules written in 1995 or later.

Agency Capacity Variables

Kerwin and Furlong (1992) suggest that an agency's internal capabilities may affect its ability to efficiently regulate. We accordingly include a measure of *Budget Capacity*, collected from OMB. We construct this variable by calculating each department's share of the total annual federal budget in the year of the NPRM. We expect that agencies located within better-funded departments will enjoy greater resources to conduct their rule-makings in an efficient manner. We also include a measure of the number of *Department Employees* in the year of the NPRM collected by the Office of Personnel Management.¹⁴ We anticipate that greater resources in terms of overall personnel will speed up the rule-making process. We rescale by one standard deviation both the budget and employees variables (about 1 million dollars and 250,000 people) for ease of interpretation and presentation of the results.

¹³ The *Extended Commenting* variable includes whether or not a rule went through an ANPRM process.

¹⁴ We are not aware of a source of agency-level budget and employment data that covers all of the agencies and years in the data set.

ESTIMATION RESULTS

Table 1, Specification A presents the results of the analysis for the Cox model covering 1988–2006 (with pre-1988 rules excluded because of lack of data for three variables: Regulatory Flexibility Analysis and *Congressional* and Court Deadlines). Specification B presents the model including the measure of Rule Significance; here the sample is limited to the years 1995–2006. All models include agency frailty parameters to account for subgroup agency heterogeneity.¹⁵ Cox models assume that the effects of the independent variables are constant across analysis time, an assumption that is frequently unmet by data in the social sciences (Box-Steffensmeier and Jones 2004; Box-Steffensmeier and Zorn 2001). An analysis of our models' Schoenfeld residuals indicated that three of the four ossification variables and many of the remaining predictor variables violated the assumption of proportionality.¹⁶ We corrected for the nonproportionality by generating interaction effects, which are formed by multiplying the relevant variables by the natural logarithm of analysis time. The inclusion of these interactions effects in the models helps to produce accurate and efficient estimates (Box-Steffensmeier and Jones 2004; Box-Steffensmeier and Zorn 2001).

Table 1 provides mixed evidence that procedural requirements ossify the rule-making process, though we view our results as largely disconfirmatory. For example, in the basic model specification (Table 1, Specification A), all four of the ossification variables are statistically significant; however, they are all incorrectly signed. Take *OMB Review* first. In the context and language of duration analysis, the ossification thesis predicts that OMB-reviewed rules will have lower probabilities of moving to the final rule stage in a given time period—for example a negative coefficient. But in our analysis, the coefficient on the *OMB Review* variable is positively signed. This indicates that rules that go through OMB review have greater probabilities of failure (meaning greater probabilities of being promulgated as a final rule). In other words, *OMB Review* speeds up the rule-making process. How much so? Converting the coefficient to a hazard rate suggests that OMB-reviewed rules have a 180% greater risk of being promulgated than do rules that are not reviewed by OMB. However, because *OMB Review* is not proportional, and because we have corrected for this nonproportionality by interacting *OMB Review* with the natural log of analysis time, the reported coefficient, and its associated hazard rate, reflects the effect of *OMB Review* at only a single, discrete period of time in a proposed rule's life—here, at 1 month.

The negative sign on the associated interaction term, $OMB\ Review \times \ln(T)$, indicates that this speeding-up effect declines over time—that is, as rules resist promulgation, the positive effect of *OMB Review* on the probability of promulgation declines toward zero. To get a sense of how rapidly the positive effect of *OMB Review* declines as rules persist, Table 2 reports the effects of *OMB Review* at three different periods in a rule's life span: 7 months after issuance of an NPRM, 14 months, and 50 months. These time points correspond to the points at which our Kaplan-Meier analysis estimated that 25%, 50%, and 75% of the rules in our sample would be finalized.

15 In a separate sensitivity analysis, we included a variable indicating the partisanship of Congress and the President in the year of each NPRM. Inclusion of the partisanship variables did not substantively alter the results for the ossification variables presented in the article and the partisanship variables themselves performed inconsistently.

16 Table 1 indicates all model variables that violate the proportional hazards assumption.

Table 1
Testing the Ossification Thesis: Cox Models

Ossification Variables	Predicted Sign?	Specification A—Basic			Specification B—with Rule Significance		
		Coefficient	SE	Non-Proportional	Coefficient	SE	Non-Proportional
President							
OMB review	No	1.029	0.032	^	0.442	0.054	^
Government levels	No	0.142	0.018		2.516	0.050	^
Congress							
Regulatory flexibility	No	0.434	0.051	^	0.140	0.065	^
Courts							
Court Cases, 1970–82	No	0.560	0.049	^	0.330	0.058	^
Other predictor variables							
Hearing held	Yes	-0.402	0.220	^	-0.197	0.368	^
Congressional Deadlines	Yes	0.935	0.079	^	0.779	0.094	^
Court Deadlines	Yes	0.659	0.203	^	0.907	0.235	^
Department Budget Capacity	Yes	0.422	0.025	^	0.422	0.057	^
Department employees	Yes	0.814	0.035	^	0.730	0.055	^
Length of Abstract	No	1.818	0.026	^	0.967	0.038	^
Extended comment	No	0.907	0.105	^	1.114	0.150	^
Rule Significance	Yes				-0.262	0.042	
Interaction effects							
OMB review $\times \ln(T)$		-0.339	0.012		-0.125	0.020	
Government levels $\times \ln(T)$					-1.036	0.019	
Regulatory flexibility $\times \ln(T)$		-0.160	0.019		-0.018	0.028	
Court Cases $\times \ln(T)$		-0.260	0.015		-0.152	0.025	
Hearing held $\times \ln(T)$		0.145	0.071		0.018	0.127	
Congress deadlines $\times \ln(T)$		-0.358	0.030		-0.351	0.036	
Court Deadlines $\times \ln(T)$		-0.208	0.072		-0.264	0.086	
Department budget $\times \ln(T)$		-0.329	0.012		-0.312	0.019	
Department employees $\times \ln(T)$		-0.422	0.013		-0.283	0.017	
Length of Abstract $\times \ln(T)$		-0.742	0.011		-0.452	0.016	
Extended comment $\times \ln(T)$		-0.375	0.034		-0.482	0.050	
Theta		0.333	0.042		0.221	0.037	
Data coverage		1988–2006			1995–2006		
<i>N</i>		14,495			7,388		
Log pseudolikelihood		-90,302.93			-39,152.14		

Note: Unified Agenda and other data, with a Cox proportional hazards model. Two-tailed tests employed. Coefficients in gray are significant at $p \leq .05$. Agency frailty parameters are included in all models; the theta statistic indicates the importance of the frailty parameters. Coefficients with a ^ symbol are corrected for nonproportional hazards. See text for additional details.

At 7 months, *OMB Review*'s hazard rate of 145% suggests that the risk of rule finalization is 45% greater than the risk of finalization for non-reviewed rules. At 14 months, OMB-reviewed rules have a 14% greater risk of being finalized. This positive effect persists through 21 months, at which time the effect of *OMB Review* becomes essentially zero—neither ossifying nor deossifying. For the minority of rules that persist longer than 21 months, the model estimates that the effects of OMB review reverse sign, now slowing down rule-making. For example, at 50 months, *OMB Review* is estimated to decrease the risk of finalization by 26%. That said, less than 7% of observed finalized rules actually take 50 or more months to complete, suggesting that although this ossifying effect may

appear to be important in the abstract, in practice *OMB Review* can be said to “ossify” relatively few finalized rules.

Thus, depending on the age of a proposed rule, *OMB Review* is estimated to speed up promulgation, to slow it down, or to have no substantial effect. *OMB Review* generally seems to speed up rule-making, with its greatest effect on young rules; but for the relatively few rules that, for nonprocedural reasons, have proven exceptionally resistant to promulgation, *OMB Review* may further delay promulgation. In a sense, these differential effects are not surprising, as they follow from the empirical observation that *OMB Review* violates the assumption of proportional hazard. Viewed generally, however, we view the results as largely disconfirming the ossification literature’s prediction that *OMB Review* will, as a general matter, meaningfully delay rule-making because the majority of observed rules are promulgated well before the estimated effect of *OMB Review* becomes both negative and substantively important.

We see similar mixed results for *OMB Review* when we control for Rule Significance (Tables 1 and 2, Specification B), and the other nonproportional ossification variables also return roughly equivalent results. For example, in Table 1, Specification A, Congress’ Regulatory Flexibility Analysis is significant and positively signed, with a hazard rate suggesting that rules that are required to go through RegFlex have a 54% greater risk of being finalized after 1 month. The negative interaction term indicates that this positive effect declines over time, and after 15 months the effect of Regulatory Flexibility Analysis on the risk of finalization is effectively zero. Table 2, Specification A, provides the RegFlex point estimates at 7, 14, and 50 months. We see that that at 7 and 14 months, the effect is deossifying but declining, and at 50 months, RegFlex is estimated to decrease the risk of finalization—to slow down rule-making—by 17%. However, when controlling for Rule Significance, the effect of RegFlex is consistently positive (deossifying), even at 50 months. Again, the results are mixed, but the general thrust is to disconfirm the ossification thesis. For most observed rules (and, when controlling for Rule Significance, for virtually all rules), Regflex does not slow down rule-making.

The Court Cases variable provides somewhat more evidence in favor of the ossification thesis. In Table 1, Specification A, the positive coefficient indicates that a one standard deviation increase in the number of appellate Court Cases an agency litigated from 1970 to 1982 is associated with a 56% greater risk of rule finalization at 1 month—a deossifying effect. However, the relatively large, negative coefficient on the associated interaction term indicates that this effect dissipates to zero relatively quickly—within 9 months (a period of time by which approximately 45% of the rules in the sample are actually finalized). As Table 2, Specification A illustrates, at 14 months, Court Cases is estimated to reduce the risk of finalization by 12% and at 50 months by 33%. This same general pattern holds even when controlling for Rule Significance.

The results for the final ossification variable, *Government Levels*, are also mixed. This variable does not violate the assumption of proportional hazards in the model that does not control for Rule Significance, but it does violate it for the model that controls for Rule Significance. In the first model (Table 2, Specification A), *Government Levels* is estimated to increase the risk of rule finalization by 15%; this effect is consistent across a rule’s lifespan. However, when controlling for Rule Significance (Table 2, Specification B), the estimated effects are deossifying at 7 months, but are negative (ossifying) at 14 and 50 months. The estimated effects at 50 months are particularly large, with the 50-month-old rule’s risk of promulgation decreasing by nearly 90%. Given the

Table 2
Ossification Variable Estimates at Various Points across Analysis Time

Specification A—Basic	Predicted Sign?	7 Months	Predicted Sign?	14 Months	Predicted Sign?	50 Months
President						
OMB review	No	45%	No	14%	Yes	−26%
Government levels	No	15%	No	15%	No	15%
Congress						
Regulatory flexibility	No	30%	No	13%	Yes	−17%
Courts						
Court Cases, 1970–82	No	6%	Yes	−12%	Yes	−33%
Specification B—with Rule Significance						
President						
OMB review	No	22%	No	10%	Yes	−5%
Government levels	No	65%	Yes	−20%	Yes	−88%
Congress						
Regulatory flexibility	No	11%	No	10%	No	7%
Courts						
Court Cases, 1970–82	No	4%	Yes	−7%	Yes	−23%

Note: The estimates are generated based on the Table 1 models. See text for additional details.

instability of results for *Government Levels*, we are hesitant to offer any strong conclusions in regard to it. However, we think the results, because of their instability and because they are mixed, fit with the general theme that emerges from our analysis—that there is little evidence that procedural constraints consistently ossify rule-making.

As to our other predictor variables, our proxy for rule contentiousness, *Hearing Held*, appears to slow down most rule-makings, as predicted. For instance, the hazard ratio associated with the coefficient presented in Specification A suggests that the risk of rule finalization is 34% lower for a rule with a hearing than a rule without a hearing in the month immediately following the rule's NPRM. However, its effect is also nonproportional and diminishing, reaching approximately zero after 16 months.¹⁷ Results for the measures of agency capacity (budget and employee) generally accord with expectations in the months following a proposed rule. Both are positive and significant, indicating that agencies in better-funded and larger-staffed departments are better able to regulate quickly, but these positive effects also fade with time. In contrast, *Abstract Length*, our proxy for rule complexity, and *Extended Comment Opportunities*, a proxy for rule contentiousness, do not perform as expected. Both of these variables are associated with faster rule-making in the months immediately following the NPRM issuance, though these positive effects fade and eventually reverse with time.

Of particular interest are the results of the two deadline variables, *Congressional Deadlines* and *Court Deadlines*. Here we find evidence that Congress and the courts are able to markedly speed up rule-making in the months immediately following an NPRM—and perhaps to counteract any potentially ossifying tendencies in the administrative process—by requiring agencies to complete regulatory actions within specified periods of time. Table 1 indicates that at 1 month after an NPRM, the hazards of rule finalization are

17 The *Hearing Held* variable is significant at the 0.10 level in the basic model specification.

substantially higher for rules with deadlines. In fact, the results suggest that rules with Congressional Deadlines have a 154% greater risk of rule finalization than rules without deadlines in the month following NPRM promulgation. Similarly, rules with Court Deadlines have a 93% greater risk of completion. As time passes, the power of the deadlines to speed up rules diminishes, so that after 14 and 24 months, respectively, the effect is near zero. These results suggest that for most rules, congressional and Court Deadlines increase the hazards of rule finalization.

Finally, the measure of Rule Significance, included in Specification B, behaves as expected. Here the data satisfy the assumption of proportionality, and our results suggest rules that are significant enjoy a 23% lower risk of finalization in any given period. In other words, significant rules tend to take longer to complete.

SENSITIVITY ANALYSIS: ANTICIPATORY OSSIFICATION?

An underlying assumption of our analysis is that the rule-making process meaningfully begins with the issuance of an NPRM and ends with a final agency action, with ossification (potentially) taking place between these initial and final events. But as a factual matter agencies begin rule-making sometime before issuing an NPRM. We can think of rule-making beginning when agency officials have the initial idea to regulate in a particular issue-area. After the initial idea has emerged, agencies typically invest some amount of time and resources preparing for the issuance of the NPRM, and agencies often have discretion in determining how much time they wish to spend during this pre-NPRM stage. Indeed, it is possible that this is precisely where the effects of ossification may be felt. Rationally anticipating the hurdles that will arise once an NPRM has been issued, agencies may devote more time prior to issuing an NPRM in order to better lay the groundwork for a successful rule-making.

To test for this possibility, we would ideally want to measure the entire span of time between the emergence of the initial idea and the final agency action. The difficulty is reliably identifying the emergence of the initial idea, an impossible task for a large n sample of rules because agencies do not consistently record their initial decisions to begin considering rule-makings. As a second-best alternative, we conducted a separate Cox analysis that relied on the publication of an “Advanced Notice of Proposed Rule-making” (ANPRM), as a proxy for the emergence of the initial idea. Agencies occasionally use ANPRMs to gather initial thoughts from interested parties and to lay the groundwork for an eventual NPRM. We first limited the sample to rules that listed an ANPRM in the Unified Agenda and that eventually moved to the NPRM stage. This reduced the estimation sample to 728 or 320 rules, depending on whether or not we included the Rule Significance variable. Second, we recalculated our dependent variable to measure the time to completion from the issuance of the ANPRM, rather than from the issuance of an NPRM. Despite the much smaller sample, the statistical results for the ossification variables were similar to what we have already reported above.

DISCUSSION AND CONCLUSION

Our aim in this article has been both modest and, we think, important. It is modest in the sense that we are neither claiming to advance a new theory of rule-making nor to have uncovered strong evidence in favor of any such new theory. Rather, our aim has been to test one of the most prominent critiques of the modern federal administrative

process—the critique that the process has become so overburdened with procedural constraints on agency autonomy and discretion that agencies can no longer regulate or can no longer regulate in a timely manner. This is what makes our article important. To our knowledge, this basic thesis has remained more or less fully untested, despite the fact of its prominence and despite the fact that its implications for bureaucratic reform efforts are of significant normative and practical importance. Do we need to remove procedural constraints that may increase opportunities for political and public oversight of the bureaucracy in order to allow regulators to better regulate? The ossification literature emphatically says “yes.” Our results suggest, but do not prove, that such reform efforts are unlikely to speed up most rule-making, or to significantly increase the volume of rule-making. Despite the imposition of procedural constraints, federal agencies appear relatively capable of proposing and promulgating a fairly large number of substantively important rules and to promulgate most of those rules relatively quickly.

We discussed in the body of the article some important reasons to suspect that the ossification literature has exaggerated the possibility of ossification. Our empirical results, although admittedly nuanced—a result of the non-proportionality of the data—can be viewed most generally as failing to support the ossification thesis, at least as to the vast bulk of rule-making. Beyond largely disconfirming ossification, or at least providing little evidence in support of it, our results suggest the intriguing possibility that procedural constraints may, at least at some points in a rule’s life, have the opposite effect. Why might procedural constraints speed up rule-making for young rules? Our discussion here must be brief and speculative, but we offer it as a suggestion for future research.

We would suggest, for example, the possibility that the imposition of certain procedural constraints might serve to focus agency resources on completing those rules which, because they are procedurally constrained, will be more likely to attract the attention of Congress and the president, particularly when the agency views the rules as capable of quick finalization. Agencies typically have any number of regulatory initiatives ongoing at any one time, and it may be that agencies organize and prioritize their internal “to-do” lists by reference to whether a particular rule will be reviewed by OMB, or whether it will burden small businesses or other small entities. Such rules are likely to be the most important rules on the agencies’ dockets, and the fact of their importance is reflected in the fact that the White House will review them, or that they have to go through Regulatory Flexibility Analysis. In this interpretation, agencies may shift resources away from completing less important (and less constrained) rules toward the completion of important (but procedurally constrained) rules.

The interpretive puzzle is why this effect, perhaps driven by resource shifting, may decline and even reverse direction over time (as our empirical results suggest that it might). One possibility, deserving of further study, is that as rules continue to resist promulgation—enduring for 2 years or more after the issuance of an NPRM—agencies may readjust their forward-looking estimates of the possibility of quick finalization downward, and in doing so, may shift resources to other, newer rules whose “newness” suggests the possibility of quicker finalization. This readjustment of expectations may be especially pronounced where an already long-lived rule is procedurally constrained because the agency will recognize that the constraints make the likelihood of promulgation after such a long delay even lower, perhaps because the passage of time and the operation of the procedural constraints have allowed opponents of the rule-making to mobilize effectively against the rule. We are positing, in other words, a kind of feedback loop, where agencies

presume optimistically that young rules are capable of quick promulgation, and in which they focus their resources on quickly promulgating procedurally constrained rules. But a failure to promulgate a procedurally constrained rule may lead the agency to shift resources back to other, younger, rules that have not revealed themselves as the kinds of rules that will be difficult to finalize.

In closing, we wish to emphasize that our analysis does not call into question the undeniable empirical fact that some rule-makings have long histories or that some agencies are more likely to struggle with political and court interference than others. Rule-making can take years and involve a great deal of effort and expense. However, the ossification literature probably makes too much of the relatively rare cases of extraordinarily long-lived rule-makings, extrapolating from a small number of high-profile and exceptional regulatory “failures,” such as the Environmental Protection Agency’s experience in implementing the Clean Air Act or the Occupational Safety and Health Administration’s experience developing and promulgating ergonomics regulations (Shapiro 2006), to conclude that the rule-making process has failed as a more general matter.

More work obviously remains to be done. We have made no attempt to examine whether (or the extent to which) procedural constraints do in fact provide Congress, the president, or the courts with meaningful influence over agency policy outputs. Nor have we attempted to explain variation in the volume of rule-making observed over time, such as the apparently rapid decline in notice and comment rule-making beginning in 1995. Future research would also do well to examine more closely and systematically the extent to which agencies are actually resorting to policy statements and to other so-called “non-rule rules” to informally implement substantively important regulatory change. Finally, it is imperative for researchers to develop a clearer empirical picture of the realities of the regulatory process in the earlier (pre-1982) years of the APA. This would allow, for example, a closer examination of the hard look doctrine’s potential contribution to regulatory ossification. In short, we encourage scholars to view our article as justifying further investment in the empirical study of rule-making, which remains, despite our efforts here, one of the least understood and most complex aspects of the American policy-making process.

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REFERENCES

- Anderson, James E. 1998. The struggle to reform regulatory procedures, 1978–1998. *Policy Studies Journal* 26:482–98.
- Balla, Steven J. 1998. Administrative procedures and political control of the bureaucracy. *American Political Science Review* 92:663–73.
- . 2005. Between commenting and negotiation: The contours of public participation in agency rule-making. *Journal of Law and Policy for the Information Society* 1:59–94.
- Balla, Steven J., and John R. Wright. 2005. Consensual rule-making and the time it takes to develop rules. In *Politics, policy, and organizations frontiers in the scientific study of bureaucracy*, eds. George A. Krause and Kenneth J. Meier, 187–206. Ann Arbor, MI: Univ. of Michigan.
- Box-Steffensmeier, Janet M., and Bradford S. Jones. 2004. *Event history modeling: A guide for social scientists*. New York: Cambridge Univ.

- Box-Steffensmeier, Janet M., and Christopher J. W. Zorn. 2001. Duration models and proportional hazards in political science. *American Journal of Political Science* 45:972–88.
- Carpenter, Daniel P. 2002. Groups, the media, agency waiting costs, and FDA drug approval. *American Journal of Political Science* 46:490–505.
- Cooper, Joseph, and William W. West. 1988. Presidential power and republican government: The theory and practice of OMB review of agency rules. *Journal of Politics* 50:864–95.
- Croley, Stephen P. 2003. White House review of agency rule-making: An empirical investigation. *University of Chicago Law Review* 70:820–85.
- Croley, Steven, and Mary Elizabeth Magill. Forthcoming. Chapter 4—agency rule-making. In *An overview of federal agency regulatory activity*. Chicago, IL: American Bar Association.
- Diermeier, Daniel, and Randy T. Stevenson. 1999. Cabinet survival and competing risks. *American Journal of Political Science* 43:1051–68.
- Eisner, Neil. 1989. Agency delay in informal rule-making. *Administrative Law Journal* 3:7–52.
- Furlong, Scott R. 1995. The 1992 regulatory moratorium: Did it make a difference? *Public Administration Review* 55:254–62.
- Gersen, Jacob E., and Anne Joseph O’Connell. 2008. Deadlines in administrative law. *University of Pennsylvania Law Review* 156:923–90.
- Hammond, Thomas, and Jack Knott. 1996. Who controls the bureaucracy?: Presidential power, congressional dominance, legal constraints, and bureaucratic autonomy in a multi-institutional model of policy making. *Journal of Law, Economics, and Organization* 12:119–66.
- Kerwin, Cornelius M. 2003. *Rule-making: How government agencies write law and make policy*, 3rd ed. Washington, DC: CQ Press.
- Kerwin, Cornelius M., and Scott R. Furlong. 1992. Time and rule-making: An empirical test of theory. *Journal of Public Administration Research and Theory* 2:113–38.
- Mashaw, Jerry L. 1994. Improving the environment of agency rule-making: An essay on management, games, and accountability. *Law and Contemporary Problems* 57:185–257.
- . 2005. The Story of Motor Vehicle Manufacturers Association of the U.S. v. State Farm mutual Automobile Insurance Co.: Law, Science and Politics in the Administrative State. In *Administrative Law Stores*, ed. Peter Strauss, 334–97. Minneapolis, MN: Foundation Press.
- McCubbins, Mathew D. 1985. Legislative design of regulatory structure. *American Journal of Political Science* 29:721–48.
- McCubbins, Mathew D., Roger G. Noll, and Barry R. Weingast. 1987. Administrative procedures as instruments of political control. *Journal of Law, Economics, and Organization* 3:243–77.
- . 1989. Structure and process as solutions to the politicians principal-agency problem. *Virginia Law Review* 74:431–82.
- McCubbins, Mathew D., and Thomas Schwartz. 1984. Congressional oversight overlooked: Police patrols versus fire alarms. *American Journal of Political Science* 28:164–79.
- McGarity, Thomas O. 1992. Some thoughts on ‘Deossifying’ the rule-making process. *The Duke Law Journal* 41:1384–462.
- . 1997. The courts and the ossification of rule-making: A response to Professor Seidenfeld. *Texas Law Review* 75:525–58.
- Melnick, R. Shep. 1983. *Regulation and the courts: The case of the clean air act*. Washington, DC: Brookings Institution.
- Merrill, Thomas W., and Kathryn Tongue Watts. 2002. Agency rules with the force of law: The original convention. *Harvard Law Review* 116:467.
- Moe, Terry M., and Scott A. Wilson. 1994. Presidents and political structure. *Law & Contemporary Problems* 51:1–44.
- Morrison, Alan B. 1986. OMB interference with rule-making: The wrong way to write a regulation. *Harvard Law Review* 99:1059.
- Noveck, Beth Simone. 2004. The future of citizen participation in the electronic state. *Journal of Law and Policy for the Information Society* 1:1–32.
- O’Connell, Anne Joseph. 2008. Political cycles of rule-making: An empirical portrait of the modern administrative state. *Virginia Law Review* 94:889–986.

- Pierce, Richard J. 1995. Seven ways to deossify agency rule-making. *Administrative Law Review* 47:59–95.
- Potoski, Mathhew. 1999. Managing uncertainty through bureaucratic design: Administrative procedures and state air pollution control agencies. *Journal of Public Administration Research and Theory* 9:623–39.
- Rosenberg, Morton. 1999. Whatever happened to congressional review of agency rule-making? A brief overview, assessment, and proposal for reform. *Administrative Law Review* 51:1051–92.
- Seidenfeld, Mark. 1997. Demystifying deossification: Rethinking recent proposals to modify judicial review of notice and comment rule-making. *Texas Law Review* 75:483–524.
- . 1999. Bending the rules: Flexible regulation and constraints on agency discretion. *Administrative Law Review* 51:429–95.
- Shapiro, Stuart. 2002. Speed bumps and roadblocks: Procedural requirements and regulatory change. *Journal of Public Administration Research and Theory* 12:29–58.
- . 2006. The role of procedural controls in OSHA’s ergonomics rule-making. *Public Administration Review* 67:688–701.
- Spence, David B. 1997. Administrative law and agency policy-making: Rethinking the positive theory of political control. *Yale Journal on Regulation* 14:407–50.
- . 1999. Agency discretion and the dynamics of procedural reform. *Public Administration Review* 59:425–42.
- Verkuil, Paul R. 1995. Comment: Rule-making ossification—A modest proposal. *Administrative Law Review* 47:453–9.
- Vladek, David, and Thomas McGarity. 1995. Paralysis by analysis: How conservatives plan to kill popular regulation. *The American Prospect* 6:78–83.
- West, William F. 1995. *Controlling the bureaucracy: Institutional requirements in theory and practice*. New York: M.E. Sharpe.
- . 2004. Formal procedures, informal procedures, accountability, and responsiveness in bureaucratic policy making: An institutional policy analysis. *Public Administration Review* 64:66–80.
- Wilson, James Q. 1989. *Bureaucracy: What government agencies do and why they do it*. New York: Basic Books.
- Wolf, Patrick J. 1993. A case survey of bureaucratic effectiveness in U.S. cabinet agencies: Preliminary results. *Journal of Public Administration Research and Theory* 3:161–81.
- Woods, Neil D. 2005. Interest group influence on state administrative rule-making. *American Review of Public Administration* 20:1–13.
- Yackee, Susan Webb. 2006. Assessing inter-institutional attention to and influence on government regulations. *British Journal of Political Science* 36:723–44.
- Zorn, Christopher J. W., and Steven R. Van Winkle. 2000. A competing risks model of supreme court vacancies, 1789–1992. *Political Behavior* 22:145–66.