Strategic Avoidance and Rulemaking Procedures

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Abstract

Informal, "notice-and-comment," rulemaking is the prototypical mechanism employed by U.S. regulators. However, agencies frequently claim their actions exempt from the process, and courts typically agree. Agencies thus face an important strategic choice between informal rulemaking and avoidance. To study this choice, we analyze a model of rulemaking with exemption, empirically analyze agency avoidance, and assess welfare implications. Our model implies that more biased agencies engage in less avoidance, as they face more skepticism from the courts and, thus, require support from group comments to have their rules upheld. Additionally, the model makes contingent predictions about the relationship between agency skill and avoidance. Empirically, we find support for our model's predictions. As for policy implications, while the exemption option's existence and use substantially impacts welfare, there are countervailing forces that condition whether we are better off with the avoidance option available.

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1 Introduction

Despite their lack of direct public accountability, federal agencies have significant discretion to make policy through rulemaking. To address concerns over the extent of agency authority, Congress enacted the Administrative Procedure Act (APA). This "bill of rights for the hundreds of thousands of Americans whose affairs are controlled or regulated in one way or another by agencies of the Federal Government"[1] implemented a number of stipulations for agency establishment of regulations. The APA's provision for informal, *notice-and-comment*, rulemaking is especially noteworthy given its widespread implementation across classes of rules and agencies. Indeed, participation through this venue appears to play an important role in shaping agency decisions and benefits groups that comment (Balla, 1998; Yackee, 2006; Libgober, 2020*a*). In this sense, notice-and-comment appears to achieve the goal of making agencies more responsive to outside interests.[2]

The notice-and-comment process, however, does not always function as intended, as agencies are often able to avoid engaging the public for comments. A 2012 Government Accountability Office report found that 35% of major rules and 44% of nonmajor rules avoided notice-and-comment.[3] Figure 1 plots trends in avoidance versus notice-and-comment. While there are fluctuations over time, in particular a spike in avoidance following the September 11, 2001 terrorist attacks, throughout this period agencies regularly circumvent notice-and-comment on a significant proportion of rules. There are a number of situations in which agencies are allowed to engage in such avoidance. For example, if the rule is interpretive, if the agency is exempt due to national security concerns, or, perhaps most flexibly, if the agency claims a "good cause" exemption.[4] This potential for avoidance may undermine earlier arguments in favor of using administrative procedures to control the bureaucracy (e.g., McCubbins, Noll and Weingast, 1987).

Indeed, agencies do not only avoid when the issue is non-controversial or politicians inattentive. In June 2019, the Environmental Protection Agency (EPA) claimed itself exempt

[1] Floor speech by Senator Pat McCarran, Chairman of the Senate Judiciary Committee, March 12, 1946. Many scholars agreed, e.g., administrative law pioneer Kenneth Culp Davis called informal rulemaking "one of the greatest inventions of modern government" (Davis, 1970). However, by the end of the "era of rulemaking" in the 1970s, both Scalia (1981) and McGarity (1992) concurred that the "bloom [was] off the rose."

[2] There are concerns that such responsiveness may create a bias towards business, see, e.g., Yackee and Yackee (2006). Groups also extensively lobby the bureaucracy (You, 2017), which creates another avenue through which agencies may be responsive to outside interests.

[3] "Federal Rulemaking: Agencies Could Take Additional Steps to Respond to Public Comments." December 2012. These figures come from a random sample of final rules published from 2003–2010.

[4] The good cause exemption allows agencies to avoid notice-and-comment if its use would be "impracticable, unnecessary, or contrary to the public interest." See 5 U.S.C. 533(b)(3)(B). The aforementioned GAO report found that 77% of exemptions to major rules claimed good cause.

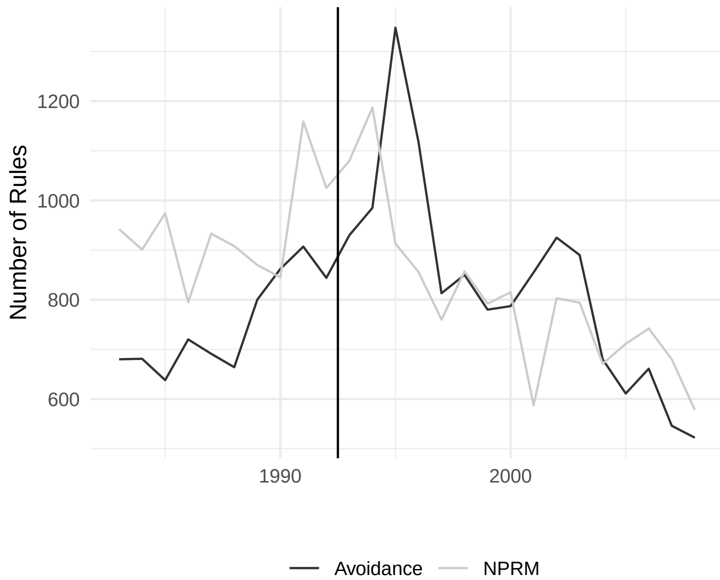


Figure 1: Notice-and-comment versus avoidance choices by regulation publication date. Data compiled by O'Connell (2008); the vertical line indicates the beginning of our empirical analysis.

from notice-and-comment and updated its procedures for responding to Freedom of Information Act requests.[5] Members of Congress from both parties and environmental groups criticized the change as giving too much power to political appointees; however, the EPA maintained that it was exempt from notice-and-comment and did not revise the change. Consequently, the possibility of avoidance creates a strategic opportunity for agencies to obtain its preferred policy. Furthermore, such avoidance is consistent with work that shows bureaucrats use their extensive knowledge of rulemaking procedures to obtain their goals (Potter, 2019). Figure 2 shows the use of avoidance by agency and demonstrates that (a) agencies avoid at different rates; and (b) most agencies employ a blend of notice-and-comment and avoidance strategies.

[5]EPA Freedom of Information Act Regulations Update, 40 CFR 2 (2019).

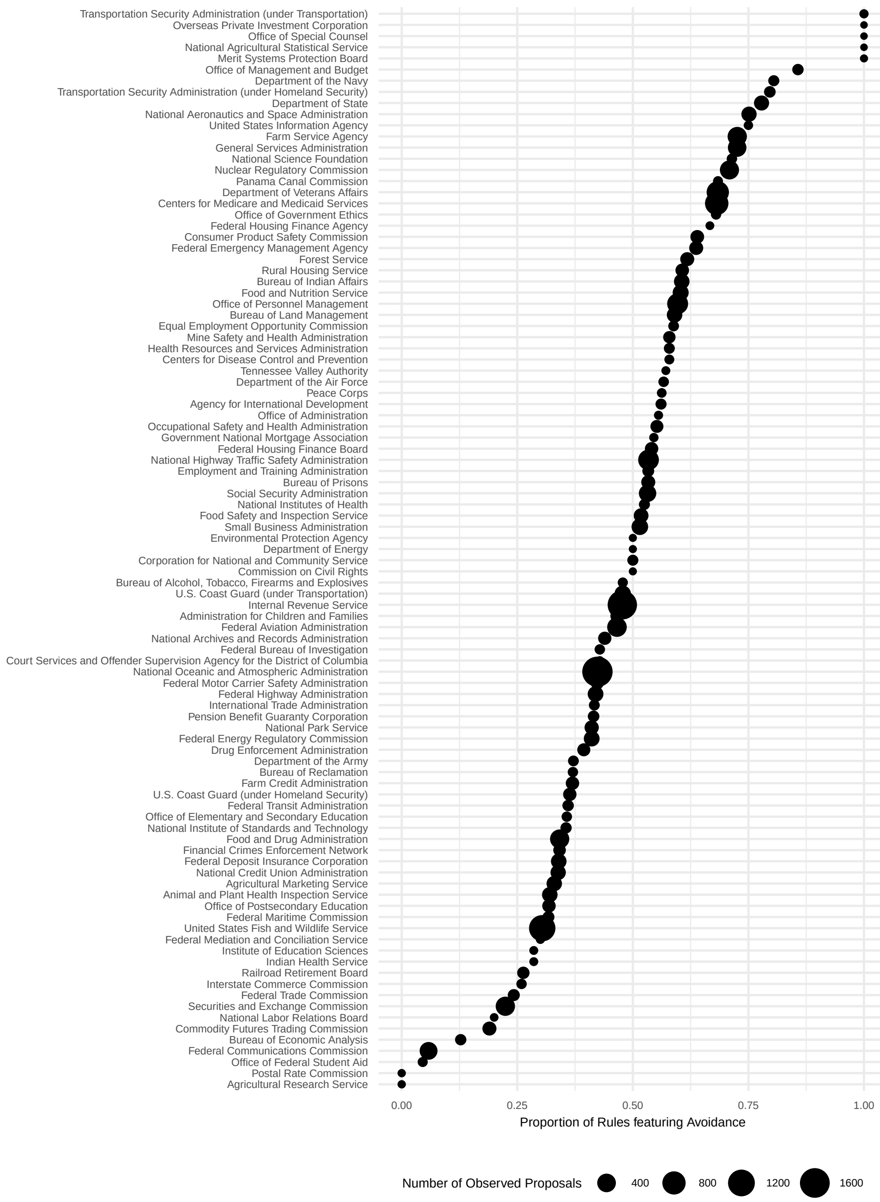


Figure 2: Avoidance by agency.

In this paper, we ask: under what conditions do agencies avoid notice-and-comment? In particular, we are interested in how the existence of the exemption option generates strategic rulemaking incentives for agencies. We analyze this question by developing a formal model of rulemaking and testing its predictions using data on agency rulemaking. Our model incorporates four players: an agency, two competing interest groups, and a court. The agency decides both which rule to propose and whether to attempt to avoid notice-and-comment. If it makes policy through avoidance, the court reviews the available evidence and may reject the agency's claimed exemption, in which case the agency must alter its rule. Otherwise, if the court upholds the exemption then the game ends and the rule takes effect. Should the agency enter into notice-and-comment, the groups may expend effort to learn about and comment on the proposed rule. After the groups comment, the court reviews the evidence and, as in the previous case, upholds or overturns the agency's proposed rule.

Importantly, our model allows us to both make predictions about patterns of avoidance and to understand the mechanisms underlying these patterns. The theory highlights the salience of the costs of notice-and-comment—often talked about in the relevant literature with great frustration—to courts and agencies, conditioned by the expected participation of interested groups, in determining what we observe. When the court is mostly concerned with delay's costs, it approves policies generated through agency avoidance even if it believes that the policy is poorer than the alternative; the agency, in turn, uses avoidance to realize its preferred policies. By contrast, when the court places greater importance on the actual policy outcome, e.g., if the potential rules that can be adopted differ significantly, then outcomes depend on the agency's notice-and-comment costs relative to its policy motivations.

Intuitively, if the agency has high notice-and-comment costs then it always claims exemption, even though this requires implementing its least preferred policy. At the spectrum's other end, with low costs the agency always proposes its preferred policy and engages in notice-and-comment, hoping for supporting evidence from favorable groups. Most interesting is when the agency has moderate costs: in this case, the agency uses notice-and-comment when its information is favorable towards its preferred policy, but when it lacks favorable information it often avoids and implements its least preferred policy. In this moderate cost case, the agency only turns to notice-and-comment when expecting group comments to confirm its proposed rule.[6]

Our model generates two counterintuitive empirical implications about the the relation-

[6]This usage is consistent with the characterization of notice-and-comment by critics of the process. For example, Elliott (1992, 1492) argues that agencies only allow notice-and-comment when administrators do *not* care about input: "Notice-and-comment rulemaking is to public participation as Japanese Kabuki theater is to human passions—a highly stylized process for displaying in a formal way the essence of something which in real life takes place in other venues."

ship between agency characteristics and the frequency of agency avoidance. First, agencies with strong policy biases employ notice-and-comment *more* than moderate agencies. In equilibrium, the policy decisions of highly biased agencies are less credible to the court; consequently, they must more often rely on the comments of supportive groups to not be overturned. Second, our model provides a nuanced result relating an agency's political skill to notice-and-comment rulemaking: more skilled agencies use notice-and-comment more *if they view the process as costly.*

To test these claims, we analyze unique data on agency avoidance using modern measures of agency skill and ideology. We estimate a model of exemption use and find support for our theoretical predictions. In support of our first claim, we find that agencies that are more ideologically extreme use notice-and-comment more often. Remarkably, the result obtains for both very liberal and very conservative agencies, indicating that it is indeed ideological bias, rather than any particular ideology, that drives this result. As for the second claim, we find that more skilled agencies use notice-and-comment rulemaking more on significant policies and, what is more, that this effect is magnified during times where delay is likely to be costly, such as the year immediately following the terrorist attacks of September 11, 2001. These results provide support for our theoretical approach and suggest new directions for theoretical and empirical research in the field. Previous empirical research on avoidance finds that agencies claim exemptions more often when there is a lower risk of a lawsuit (Raso, 2015). By incorporating measures of agency ideology, our results further our understanding of what factors shape exemption decisions.

Modeling the avoidance process yields insights into the policy debates over agency exemptions as well. Certainly, many in the legal community have found exemptions troubling and have called for clarifying when they apply and reducing their employment (for a recent example, see Golinghorst (2018)). Emblematic, the Administrative Conference issued recommendations in 1969, 1973, 1983, and 1992 to such effect. However, no legislative act has been forthcoming and case law has not clearly identified exemption boundaries.[7] While occasionally talking tough,[8] judges have proven unwilling to step in and systematically stop agencies' frequent invocations of notice-and-comment exemption. Indeed, the Supreme Court recently expanded the power of agencies to avoid by ruling that agencies do not have to engage in notice-and-comment rulemaking when amending or reversing interpretive rules (see *Perez v. Mortgage Bankers Ass'n*, 2015).

[7]In the words of William Hughes Mulligan, Second Circuit Appeals Court judge, exceptions are "enshrouded in considerable smog," see *Noel v. Chapman* (1975).

[8]A quarter century ago, the DC Circuit stated that good cause exceptions are to be "narrowly construed and reluctantly countenanced" *(New Jersey v. EPA*, 1980). Yet, per the aforementioned GAO report, agencies were citing good cause for approximately one-quarter of all rules.

While having important policy implications, our results provide no unambiguous policy recommendation about whether having an exemption available is generally good or not. The welfare effects of exemptions depend both on the costs for delay and, in instances where these costs are not too high, agency bias in favor of one policy alternative over another. There are conditions where the avoidance option's existence will yield better results than if notice-and-comment is mandatory, as avoidance circumvents costs that many involved with the process lament. In other circumstances, despite the costs, forcing the agency to use notice-and-comment to learn potentially more about the state of the world is better. All told, our welfare analysis suggests that any well-intentioned attempt to clean up the rulemaking process must account for an array of factors and their interactions, which highlights the importance of providing a unified theoretical framework for thinking through policy experiments.

Our theory complements existing work that models the rulemaking process.[9] In particular, our work relates to Gailmard and Patty (2017) and Libgober (2020*b*). Gailmard and Patty focus on the normative issue of optimal judicial review and show that biased courts improve welfare by incentivizing agency information acquisition. Libgober studies how agency bias affects which policies it proposes, anticipating comments from groups, and argues that empirical findings are consistent with agencies having preferences that are not overly biased in favor of either public or industry interests. Importantly, neither paper incorporates agency avoidance; as such, we focus on a different set of empirical implications and policy issues. Furthermore, our analysis suggests that what we observe coming out of notice-and-comment rulemaking should be interpreted as endogenous to the agency's choice to use the process in the first place.

Our analysis proceeds in four parts. We initially describe and analyze our model, with specific focus on its empirical implications. We then estimate our empirical model of notice-and-comment avoidance. Before concluding, we discuss our findings and analyze key social welfare implications.

2 A Theory Of Regulatory Avoidance

Our model features an agency (A), court (C), and two interest groups (G_0 and G_1), interacting in an extensive form Bayesian game with uncertainty over a policy decision. The agency sets policy but its choice is subject to judicial review. It then decides whether to claim an exemption or to engage in notice-and-comment rulemaking. In the latter case groups have

[9] Beyond theories of rulemaking, Stephenson (2006, 2008) and Turner (2017) provide similar models of interactions between a court and an agency, but exclude interest groups, much less informal rulemaking. Fox and Stephenson (2011) model executive posturing under judicial review, but do not include commenting by public interests.

the opportunity to provide new information. The agency and groups have preferences for one policy over the other, with the two groups on opposite sides of the divide, while the court wants what is societally best.

2.1 Timing of the Game

The game proceeds as follows:

1. Nature draws the state of the world, which represents the best policy for society. We denote this state as $\omega \in \{0, 1\}$, where both 0 and 1 are possible policies. With probability $q \in (0, 1)$ the state is 1 and with probability $1 - q$ the state is 0, i.e., policy 0 is ex ante more likely best for society. The state ω is *unobserved* by the players.

2. The agency receives a *private* signal about the state of the world, $s_A \in \{0, 1\}$, which is correct with probability p. As p increases, the agency is more competent at learning the true state from its signal. We assume $p \in (\max\{q, 1 - q\}, 1)$. Thus, the agency is reasonably but not perfectly competent, with a signal accurate enough to overcome its prior.

3. After observing signal s_A, the agency recommends a policy, $x \in \{0, 1\}$, that is observed by both the court and the groups.

4. The agency decides whether to avoid the notice-and-comment process or not.[10] Denote this choice $a \in \{0, 1\}$, where $a = 1$ indicates avoidance and $a = 0$ indicates notice-and-comment.

5. If the agency circumvents notice-and-comment, $a = 1$, then the court reviews the agency's decisions and decides whether to uphold the policy or overturn it.[11] If the court upholds the exemption, then the game ends with the proposed rule x enacted. Otherwise, x is overturned and the alternate policy is enacted. Let $\pi \in \{0, 1\}$ denote the final policy outcome.

6. If the agency does not declare an exemption, then the game enters notice-and-comment. Each group simultaneously expends resources to try and learn the state of the world. That is, group i exerts unobservable effort $e_i \in [0, 1]$, $i \in \{0, 1\}$. After choosing e_i,

[10] In the U.S. context an agency could also enter into negotiated rulemaking, which was developed in the 1970s as a means of getting around informal rulemaking's lengthy, costly, processes. However, experience with this alternative has been disappointing and its use is extremely rare (Blake and Bull, 2017)

[11] Our results are robust to making judicial review of the agency's claimed exemption endogenous to a group's decision to contest in the courts, assuming the costs for suing are sufficiently low.

group i observes a *private* signal $s_i \in \{\omega, \phi\}$, where $s_i = \omega$ indicates that group G_i learns the state of the world, while $s_i = \phi$ indicates that G_i obtains no new information. With probability e_i group i observes $s_i = \omega$ and with probability $1 - e_i$ the signal is uninformative. The group next chooses whether to comment on proposed policy x. Commenting reveals its signal to the agency. Thus, group comments are modeled as "hard" or "verifiable" information.

7. Finally, after observing the comments by the groups, the court decides to uphold or overturn the agency's policy choice. If the court upholds the policy then the proposed policy x is implemented, $\pi = x$. If the court overturns the policy, then the alternative policy is adopted, $\pi \neq x$.

2.2 Payoffs

Having laid out the stages of our game, we now describe the components of each player's payoff. There are both policy and non-policy elements for each player.

As for policy, the agency has preferences over the final outcome. In particular, it is biased in favor of policy 1 and gets policy payoff $b > 0$ if policy 1 is implemented and payoff 0 for policy 0. Thus, b measures the extent of the agency's bias. If $b = 0$, then the agency is moderate, as it is indifferent between the two policies. Increasing b heightens the extremity of the agency's preference in favor of policy 1 over policy 0. The court desires what is best for society; its policy payoff is 1 if the final policy matches the state of the world and 0 if it does not. Groups want their preferred policy, and each gets a payoff of 1 if the final policy matches its preferred policy, and gets a payoff of 0 otherwise. We assume that group G_0 prefers policy 0 and group G_1 prefers policy 1.[12]

Turning to non-policy components of the final payoffs, the agency's payoff is impacted by whether it endures delay costs either because it goes through notice-and-comment or because it avoids notice-and-comment but the court rejects its policy on grounds of failing to qualify for exemption. Whatever the reason for delay, the agency incurs a cost $\delta_A > 0$. Therefore, the agency's final payoff is

$$b\pi - (1 - a(1 - \rho))\delta_A,$$

where $\rho = 1$ if the agency's request for exemption is overturned, otherwise $\rho = 0$. As for the court, besides desiring the best policy for society, it considers the consequences of

[12]Including groups with competing preferences captures the reality of myriad rulemakings. Indeed, the presence of competing interest groups with heterogeneous preferences has been used as a primary criterion for classifying notice-and-comment cases (Reiss, 2009).

delaying a new policy's enactment on social welfare. Thus, if the agency goes through notice-and-comment or there is delay because the court overturns the agency following a claimed exemption, then the court pays an extra cost $\delta_C > 0$. The court's payoff is therefore

$$(1 - |\pi - \omega|) - (1 - a(1 - \rho))\delta_C.$$

With respect to groups, effort costs come into play. Group G_0, which prefers policy 0, incurs effort costs such that its final payoff is

$$(1 - \pi) - \frac{1}{2}e_0^2,$$

while group G_1's utility is given by $\pi - \frac{1}{2}e_1^2$.

2.3 Comments on the Model

Before proceeding to the analysis, we comment on a number of aspects of the model.

First, we model delay as costly for the agency and court (i.e., society). The costliness and frustration of delay is part of the textbook discussion of informal rulemaking (Kerwin and Furlong, 1992, 2018). As the Administrative Conference of the United States put it in its 1992 round of APA recommendations, agency costs from notice-and-comment could include "the time and effort of agency personnel, the cost of Federal Register publication, and the additional delay in implementation that results from seeking public comments and responding to them."[13] Almost all would agree that, at least in some instances, these costs are substantial, e.g., the process sometimes drags on for years and even across presidential administrations. Furthermore, the existence of exceptions recognizes that delay may be costly for society in general, e.g., due to wasted resources on routine issues or matters that require immediate action.

Second, group comments are modeled as hard information rather than, for example, cheap talk. This captures that the APA directs agencies to focus on comments that provide "relevant matter". Moreover, our assumption is consistent with evidence that sophisticated comments are more influential (Cuéllar, 2005), and that agencies are less responsive to mass commenting campaigns (Balla et al., 2020). Additionally, this form of information transmission follows previous models of notice-and-comment, such as Gailmard and Patty (2017) and Libgober (2020*b*).

Third, we assume the court decides whether to overturn immediately following commenting. Instead, we could assume that the agency has a chance to revise its policy choice after

[13] Recommendations of the Administrative Conference of the United States, 1 C.F.R. s305.92-1.

observing comments from the groups. In this case, instead of being overturned by the court, the agency would revise its policy choice. We note that, under this alternative formulation, the model would predict we should rarely see agencies being overturned. However, as equilibrium avoidance decisions and policy outcomes are not affected by this change, we maintain the simpler formulation.

Fourth, as noted in the introduction, we are primarily interested in how the exemption's existence, and the ambiguities surrounding when it can be claimed, impacts the agency's strategic rulemaking decisions. As such, the model is agnostic on whether claiming the exemption is legally justified. That is, we do not capture matters that are routine or non-political, i.e., issues where the agency's claimed exemption is clearly valid.

Fifth, we assume that the court wants to match the state of the world, ω. Although we interpret ω as the policy that is best for society, it could instead be any information that is policy-relevant for the court. That is, the court does not have to be interpreted as welfare-maximizing for our equilibrium characterization and comparative statics to hold. However, it would impact the interpretation of our welfare results in Section 6.

Finally, we take a moderate agency to be one that is indifferent between the two policy choices, i.e., it is still ideological. Instead, a moderate agency could be one that is trying to choose the policy that matches the state of the world. Such an agency proposes policies based on its information, uses notice-and-comment when it genuinely wants input from groups, and only avoids when notice-and-comment would be too costly. In the Appendix, we show that if the agency in our baseline model is sufficiently biased, then it goes through notice-and-comment more often than a welfare maximizing agency. Thus, in this form, Proposition 2 still holds.

3 Equilibrium Rulemaking

As our regulatory avoidance model features incomplete information and agency signaling, our equilibrium concept is perfect Bayesian equilibrium (henceforth "equilibria"). Players must maximize their expected utility at each stage of the game and update their beliefs according to Bayes rule whenever possible. Additionally, in the equilibrium we characterize, we allow the groups to condition their strategy on a public randomization device when multiple pure strategy commenting equilibria exist.[14] We do this to ensure continuity of the agency's strategy for part of the parameter space. See the Appendix for proofs and additional details of the equilibrium characterization.

[14]Public randomization devices are commonly used in repeated games, e.g., Harris, Reny and Robson (1995).

Let μ_i represent an arbitrary belief that $\omega = 1$ for player $i \in \{C, G_1, G_0\}$. In equilibrium, this belief depends on the agency's strategy and, given notice-and-comment, the groups' behaviors. Let $\mu_A(s_A)$ be the agency's updated belief (using Bayes rule) that $\omega = 1$ after observing signal s_A. Define $\mu_G(x, a)$ as the groups' (and the court's) belief that $\omega = 1$ after observing policy proposal x and exemption decision a.

To commence our examination of equilibrium behavior, Lemma 1 analyzes the court's decision to uphold the agency's policy choice. This decision hinges on the court's belief that the agency's choice matches the state and whether the agency avoided notice-and-comment.

Lemma 1. *Judicial review of agency actions.*

1. *Assume the agency uses notice-and-comment. When $x = 1$, the court upholds the policy if $\mu_C \geq 1/2$. When $x = 0$, the court upholds the policy if $\mu_C \leq 1/2$.*

2. *Assume the agency avoids notice-and-comment. When $x = 1$, the court upholds the policy if $\mu_C \geq \frac{1-\delta_C}{2}$ and overturns it otherwise. When $x = 0$, the court upholds the policy if $\mu_C < \frac{1+\delta_C}{2}$. For $x \in \{0, 1\}$, if $\mu_C = 1/2$ then the court is indifferent and may uphold or strike down the policy with any probability.*

When the agency employs notice-and-comment, the court upholds the policy when it believes that the agency's choice is more likely to be correct than the alternative, as the court wants to match the state. However, if the agency avoids notice-and-comment then the court upholds the agency's choice for some beliefs that are less than 1/2, as the court is averse to creating further costs and delays by overturning the agency. As we will show, this aversion sometimes allows the agency to implement a policy that is unlikely to be optimal for the court.

Lemma 2 details the equilibrium effort and commenting strategies of the groups. Group i's optimal effort depends on its belief $\mu_G(x, a)$ and, in one case, on the outcome of a randomization device. Throughout we suppress this dependence and denote optimal effort as e_i^*.

Lemma 2. *Group effort.*

1. *Assume $\mu_G(x, a) > 1/2$. Group G_1 exerts effort $e_1^* = 0$ and G_0 exerts effort $e_0^* = 1 - \mu_G(x, a)$.*

2. *Assume $\mu_G(x, a) < 1/2$. Group G_1 exerts effort $e_1^* = \mu_G(x, a)$ and G_0 exerts effort $e_0^* = 0$.*

3. *Assume* $\mu_G(x,a) = 1/2$. *With probability* $P(\delta_A, b, p, q)$ *Group* G_1 *exerts effort* $e_1^* = \mu_G(x,a)$ *and* G_0 *exerts effort* $e_0^* = 0$. *With probability* $1 - P(\cdot)$ *Group* G_1 *exerts effort* $e_1^* = 0$ *and* G_0 *exerts effort* $e_0^* = 1 - \mu_G(x,a)$.

4. *Whenever a group obtains a favorable signal it reveals its information.*

If, absent new information, the court would uphold a group's preferred policy, then the group expends no effort and does not comment as there is no benefit to doing so. Conversely, if changing an outcome from unfavorable to favorable is possible, the group will expend positive and this effort depends on the group's belief that the state matches its preferred policy. When $\mu_G(x,a) = 1/2$ there exists an equilibrium where G_1 is active and G_0 passive and an equilibrium with G_1 passive and G_0 active. In this case, we make use of a randomization device with weight $P(\cdot)$ to select an equilibrium. See the Appendix for the definition of $P(\cdot)$.

Finally, we turn to the agency's decision. We start by analyzing the case where $q > 1/2$, that is, the prevailing context is favorable to the agency's preferred policy.

Lemma 3. *Assume* $q > 1/2$. *There exists a perfect Bayesian equilibrium where the agency always avoids notice-and-comment, proposes its preferred policy,* $x = x_1$, *and is upheld by the court.*

When the situation is ex ante favorable to the agency, it is able to always use avoidance to obtain its preferred outcome. Although x_1 is ex ante more likely to be socially optimal, such avoidance is still potentially detrimental as there is not an opportunity for groups to bring new information about the policy.

Moving forward, we assume that $q < 1/2$. Thus, the agency's preferred policy is ex ante unlikely to be socially optimal. For characterizing agency behavior it is convenient to define $\overline{\delta}_A$, $\underline{\delta}_A$, and δ_A^* as follows:

$$\begin{aligned}\overline{\delta}_A &= b[2\mu(1) - \mu(1)^2],\\ \underline{\delta}_A &= b[\mu(1) + \mu(0) - \mu(0)\mu(1)],\\ \delta_A^* &= b[q\mu(0)].\end{aligned}$$

This allows us to analyze the agency's policymaking decisions in terms of the agency's costs as well as the court's delay costs.

Proposition 1. *Agency policymaking.*

1. *Assume* $\delta_C \leq 1 - 2q$.

(a) *If* $\delta_A > \overline{\delta}_A$ *then the agency chooses* $x = 0$ *and avoids notice-and-comment following either signal.*

(b) *If* $\delta_A \in [\underline{\delta}_A, \overline{\delta}_A]$*: When* $s_A = 1$ *the agency chooses* $x = 1$ *and goes through notice-and-comment. When* $s_A = 0$ *the agency chooses* $x = 0$ *and avoids notice-and-comment.*

(c) *If* $\delta_A \in [\delta_A^*, \underline{\delta}_A]$*: When* $s_A = 1$ *the agency chooses* $x = 1$ *and goes through notice-and-comment. When* $s_A = 0$ *with probability* $\sigma(\delta_A)$ *the agency chooses* $x = 1$ *and goes through notice-and-comment, with probability* $1 - \sigma(\delta_A)$ *it chooses* $x = 0$ *and avoids notice-and-comment.*[15]

(d) *If* $\delta_A < \delta_A^*$ *then the agency chooses* $x = 1$ *and enters notice-and-comment following either signal.*

2. *Assume* $\delta_C > 1 - 2q$*. The agency chooses* $x = 1$ *and avoids notice-and-comment following either signal.*

As shown in Figure 1, which depicts equilibrium rulemaking for combinations of agency and courts costs, the agency takes advantage of exemptions when the court faces high delay costs. In this case, exemptions have the downside, discussed by previous scholars, of allowing a biased agency to avoid comments and to always implement its preferred policy.

Rulemaking is more nuanced with more moderate court costs, as agency costs are now crucial. There are conditions where the agency always uses notice-and-comment, where it conditionally employs notice-and-comment, and where it always uses exemption. We now outline the intuition behind these different cases.

First, an agency facing high costs is incentivized to avoid notice-and-comment and still not get overturned by the court. Consequently, after either signal it claims exemption and, by selecting its least preferred policy, is upheld by the court. Put differently, the agency *panders* to the court by choosing the latter's ex ante preferred policy (given our assumption that policy 0 is more likely to fit the state of the world) to avoid the costs of getting overturned.

Second, with moderate to high agency costs, the agency's action depends on its information, with the agency only using notice-and-comment when confident that the outcome will support its preferred policy. When the agency has favorable information it goes through notice-and-comment. When $s_A = 1$ the agency is reasonably certain that notice-and-comment will not produce contradictory information, so it will incur cost δ_A to have a probability of getting its preferred policy enacted. Conversely, when $s_A = 0$ the agency is

[15]See the Appendix for the definition of $\sigma(\delta_A)$.

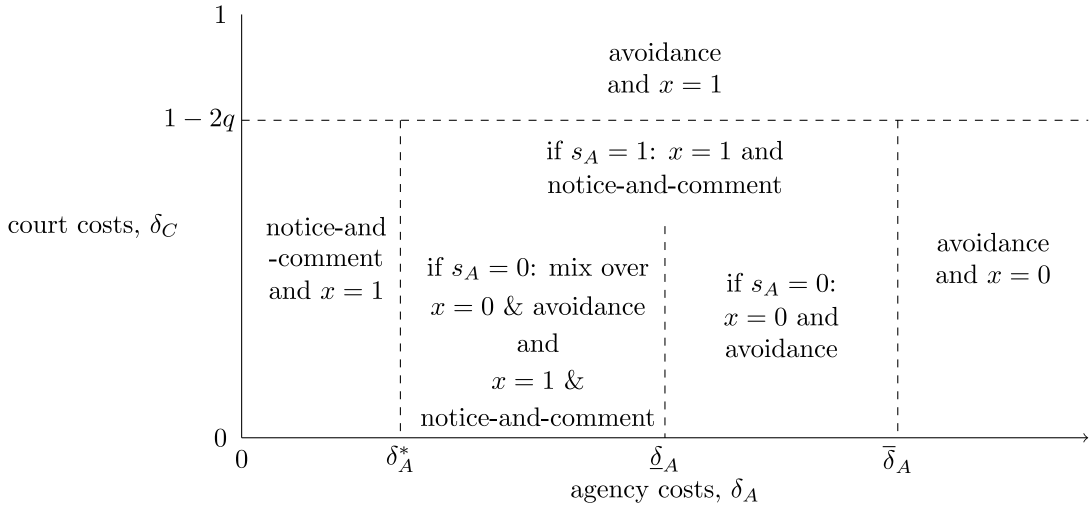


Figure 3: Agency's equilibrium use of notice-and-comment and avoidance options.

dissuaded from notice-and-comment, as it knows there is a high probability that a group will bring forth contradictory information and the agency's policy will be overturned. Hence, it avoids notice-and-comment and chooses $x = 0$. As in the case when agency costs are highest, doing so circumvents incurring extra costs, although this is the agency's least preferred policy. Hence, exemptions provide the agency the opportunity to credible signal its information to the court and groups.

Third, if an agency's costs are low to moderate then it continues to always push for its preferred policy when it has favorable information. When the agency has unfavorable information it now mixes between attempting to implement its preferred policy through notice-and-comment or avoiding by choosing the policy it does not prefer. As agency costs of delay increase it becomes less willing to go through notice-and-comment and, thus, avoids more often following the unfavorable signal. This shift continues until δ_A hits $\underline{\delta}_A$, at which point the agency fully separates. Therefore, higher agency costs of delay result in more informative policymaking by the agency in this region.

Finally, if the agency's costs for notice-and-comment are low then the agency always attempts to push its preferred policy through using notice-and-comment. Again, when $s_A = 1$ the agency is confident no contradictory information will be uncovered. When $s_A = 0$, because costs are low the agency will risk a high probability of getting overturned to have a chance of getting its preferred policy.

4 Empirical Implications

We now lay out our model's empirical implications. We first focus on agency ideology and skill, and then turn to when a group should inject itself into the rulemaking process. Predictions that can be, or have been, examined empirically are produced about ideology, skill, and group effort. Additionally, our findings about group commenting lead to inferences about organizational influence on rulemaking.

Assume that agency costs, δ_A, are drawn uniformly over $[0,1]$, where F denotes the uniform distribution and assume $b<1$. The probability of observing notice-and-comment is then given by:

$$\Phi(b,p) = \Big[pq + (1-p)(1-q)\Big] F(\overline{\delta}_A) + \Big[1 - pq - (1-p)(1-q)\Big]\Big[(F(\underline{\delta}_A) - F(\delta_A^*))\sigma(\delta_A) + F(\delta_A^*)\Big].$$

We can now state the relationship between the agency's ideological bias and its employment of notice-and-comment rulemaking.

Proposition 2. *Agency bias.*

Increasing the agency's bias increases the probability of notice-and-comment, $\frac{\partial \Phi(b,p)}{\partial b} > 0$.

Proposition 2 indicates that more ideologically biased agencies will use notice-and-comment more often. A more biased agency has a greater willingness than its more moderate counterpart to incur notice-and-comment's costs to increase the probability of implementing its preferred policy. Returning to Figure 1, an increase in b grows both the regions in which the agency always uses notice-and-comment and in which it uses notice-and-comment when $s_A = 1$, while shrinking the region in which an exemption is always claimed.

Besides an agency's bias, its skill — captured by its signal's informativeness — affects notice-and-comment's probability. Unlike agency bias, increasing the agency's skill has more cross-cutting effects on the probability of notice-and-comment. However, as our next two propositions show, we can obtain clear predictions by considering how costly the agency views notice-and-comment. While many descriptions would suggest that agencies view the process as quite costly, we will be able to empirically investigate which implication holds.[16]

First, we examine the relatively low cost case. Specifically, we say that the agency has *low costs of delay* if δ_A is drawn from a uniform distribution over $[0, \tilde{\delta}_A]$, where $\tilde{\delta} \in (\delta_A^*, \underline{\delta}_A)$ and $\tilde{\delta}$ is sufficiently small. Given this assumption, raising p, the informativeness of the agency's signal or skill, reduces the probability of notice-and-comment.

[16] While there is little dispute that the notice-and-comment process is lengthy, there is discussion of whether the process became increasingly ossifying over time (Pierce Jr., 2012; Yackee and Yackee, 2012*a*,*b*).

Proposition 3. *If the agency has low costs of delay, then increasing the agency's skill decreases the probability of notice-and-comment,* $\frac{\partial \Phi(b,p)}{\partial p} < 0$.

Increasing p decreases δ_A^*, which shrinks the set of costs for which the agency always goes through notice-and-comment. Furthermore, higher skill makes the agency less likely to observe the favorable signal and enter notice-and-comment because its preferred policy is ex ante less likely to be socially optimal. Finally, in the range $[\delta_A^*, \tilde{\delta}_A]$, higher skill makes the agency more likely to avoid following the unfavorable signal, as the opposing group has a higher chance of finding opposing information, conditional on a successful investigation.

However, to reiterate, these results are sensitive to the costs associated with notice-and-comment. If δ_A is drawn from a support with a greater lower bound or, more broadly, if agencies are expected to have high costs for engaging in notice-and-comment, then our prediction is reversed. Specifically, we say that the agency has *high costs of delay* if δ_A is drawn from a uniform distribution over $[\hat{\delta}, 1]$, where $\hat{\delta} \in (\underline{\delta}_A, \overline{\delta}_A)$ and $\hat{\delta}$ is sufficiently large.

Proposition 4. *If the agency has high costs of delay, then increasing the agency's skill increases the probability of notice-and-comment,* $\frac{\partial \Phi(b,p)}{\partial p} > 0$.

Increasing skill increases $\overline{\delta}_A$. This effect increases the probability that an agency with favorable information goes through notice-and-comment, while decreasing the probability that the agency's costs fall in the range where it never uses notice-and-comment. If the support of δ_A does not include lower costs of notice-and-comment then, unlike the case in Proposition 3, there is no countervailing effect from decreasing $\underline{\delta}_A$. Overall, this implies that higher skilled agencies use notice-and-comment more frequently when they expect high delay costs.

Finally, our model yields insights into behavior by interested parties that may comment on proposed agency rules.

Proposition 5. *Group behavior.*

1. *During notice-and-comment rulemaking only one group makes comments.*

2. *If the agency views notice-and-comment as costly, then increasing the agency's skill weakly decreases the probability that a group comments on a proposed rule. If the agency does not view notice-and-comment as very costly, then increasing the agency's skill weakly increases the probability that a group comments on a proposed rule.*

First, the model implies that most comments on a rule should only come from one side. This is because the group whose preferences align with the agency's policy proposal is less motivated to act.

Second, increasing the agency's skill decreases the probability that the active group comments, when the agency views the process as very costly. When the agency views notice-and-comment as costly the opposing group is active. Here, greater skill reduces the likelihood of the group's comment having an influence and, hence, the probability of a comment. However, the opposite conclusion holds when the agency views notice-and-comment as not very costly. In this case, the friendly group is active. Thus, improving the accuracy of the agency's signal motivates the friendly group to work harder to find supporting information for the agency.

We note that existing findings about group commenting correspond to the first two empirical predictions in Proposition 5. Although some rules receive many comments from competing interests, overall, McKay and Yackee (2007) supports part 1's prediction that comments on rules should be one-sided. Furthermore, in the model, when a group comments the final rule corresponds to the group's preference. Thus, the model is consistent with findings that commenting by groups is influential (Yackee and Yackee, 2006; McKay and Yackee, 2007). The model also suggests a further empirical implication that could be tested, namely that most comments should come from the side opposed to the proposed rule. Finally, Moore (2018) finds that higher skilled agencies receive fewer comments. Together with part 2 of Proposition 5, this suggests that agencies view notice-and-comment as fairly costly. Moreover, agencies viewing the process as costly will be consistent with our empirical results.

5 Empirical Evidence

We specified our avoidance theory with the explicit idea of taking it to data. In particular, we investigate our propositions on how bias and skill affect the probability of avoidance.

5.1 The Data

The core of our data on rulemaking and its avoidance is from O'Connell (2008), who created a comprehensive database from the *Unified Agenda of Federal Regulatory and Deregulatory Actions*. Executive Order 12866 tasks agencies with semi-annual submissions regarding pending and anticipated rulemaking. Importantly, this includes whether or not agencies employ notice of proposed rulemaking procedures (NPRM), allowing us to examine agency avoidance choices. Our dependent variable is dichotomous, scored 0 when the proposed rule does not go through NPRM procedures and scored 1 when it does go through NPRM procedures.[17]

While O'Connell's data spans 1983–2008 and includes 256 agencies, our analysis begins

[17] A rule going through notice-and-comment at any point in the process is coded as 1, e.g., even if courts make the agency do so.

in 1993 and covers 82 agencies so that, as we detail, we can incorporate measures of agency bias and skill.[18] Specifically, we employ measures developed by Richardson, Clinton and Lewis (2018, henceforth RCL), who survey over 1,500 federal executives and use a measurement model to transform these skill/ideology perceptions into agency-specific measures.[19] While using the RCL measures limits our time frame and agencies (although virtually all major agencies are included), we nonetheless have 16,575 proposed rules to study. We focus our attention on the 3,602 proposed rules identified as either "economically significant" or "other significant," dropping those coded as "substantive but nonsignificant," "routine and frequent," or "other administrative." Among these, 59.7% feature NPRM procedures.

5.2 Testing the Bias Hypothesis

To test Proposition 2 (more agency bias yields more NPRM), we reduce the data further by operating at the agency level. Doing so allows us to begin our analysis without having to worry about the lack of variance for agency-level variables. We consider the straightforward linear regression model

$$\text{NPRM}_i = \beta_0 + \beta_1 \text{Bias}_i + \beta_2 \text{Skill}_i + \beta_3 \text{Independent}_i + \varepsilon_i, \tag{1}$$

where:

- NPRM_i is the proportion of rules proposed by Agency i featuring NPRM procedures;[20]
- Bias_i is the absolute value of Agency i's RCL ideology score;
- Skill_i is Agency i's RCL skill score; and
- Independent_i is a dummy variable coded 1 if Agency i is an independent agency.[21]

We estimate the model via OLS and summarize the results in Table 1.[22] Though the model's

[18] We also focus only on agencies with at least 10 proposed rules in our timeframe of interest.

[19] Given these measures, agency skill and bias are assumed constant over time. RCL specifically phrased their questions to encourage respondents to emphasize "long term, stable leanings", where in particular respondents were asked to think "across Democratic and Republican administrations" (305).

[20] We pause to report that this dependent variable has no distributional pathologies—in particular, it is unimodal and reasonably symmetric. A Kolmogorov-Smirnov test failed to reject the null hypothesis that the variable comes from the same distribution as a Normal distribution with the same mean (0.62) and standard deviation (0.24).

[21] Though our formal model has nothing to say on the political independence of an agency, it stands to reason that independent agencies are more likely to utilize NPRM procedures.

[22] It is worth noting that the model reported here demonstrated no signs of the usual potential regression pathologies like heteroskedasticity or (unduly) influential observations.

Variable	Estimate	S.E.	t-statistic	p-value
Bias	0.087	0.047	1.86	0.062
Skill	0.006	0.031	0.20	0.845
Independent	0.205	0.069	2.99	0.003
Constant	0.527	0.045	11.8	<0.001
N	82 (agencies)			
R^2	0.128			
AIC	-1.03			
S.E.E.	0.232			
F-statistic	3.83 ($p = 0.014$)			

Table 1: OLS estimates of the linear regression model described by Equation (1) predicting the proportion of rules with NPRM procedures. Estimate and standard error columns (along with all goodness-of-fit statistics) averaged across 25 imputations. All tests two-tailed.

fit is relatively weak, the picture is clear enough to assess Proposition 2. We see that a one-unit increase in an agency's bias[23] is associated with an 8.7 percentage-point increase in the proportion of rules promulgated with NPRM procedures. The estimate is not statistically significant at the 0.05 cutoff but is significant at the 0.10 cutoff; it is worth noting that our strong theoretical hypothesis and modest sample make one-sided testing appealing, and we leave the task of further inferential judgment at the reader's doorstep. We see also that, in this model, an agency's skill level has a negligible effect on whether they use NPRM procedures. Finally, independent agencies indeed use NPRM procedures (much) more often than non-independent agencies.

As we have measured bias using the absolute value of the RCL ideology score, we have assumed away any possibility of asymmetric effects across the ideological spectrum. Put differently, our empirical model treats very liberal and very conservative agencies the same, which is in keeping with our theoretical model. To make sure this assumption is reasonable, we consider a second linear regression model:

$$\text{NPRM}_i = \beta_0 + \beta_1 \text{Ideology}_i + \beta_2 \text{Ideology}_i^2 + +\beta_3 \text{Skill}_i + \beta_4 \text{Independent}_i + \varepsilon_i, \qquad (2)$$

where all other variables are the same but Ideology_i is Agency i's RCL ideology score. The results of that model are summarized in Table 2. The fact that $\hat{\beta}_1$ (the "linear" part of the ideology effect) is quite modest relative to $\hat{\beta}_2$ (the "quadratic" part of the ideology effect) indicates that the effect is symmetric and that our bias-motivated, rather than ideology-

[23]For a frame of reference, a one-unit increase in bias is approximate to shifting attention from the National Institute for Standards and Technology (0.009) to the Federal Mediation and Conciliation Service (1.007) or from the Railroad Retirement Board (0.885) to the Department of the Navy (1.914).

Variable	Estimate	S.E.	t-statistic	p-value
Ideology	−0.016	0.030	−0.56	0.579
Ideology^2	0.530	0.027	1.94	0.052
Skill	0.004	0.031	0.13	0.896
Independent	0.208	0.069	3.01	0.003
Constant	0.544	0.037	14.8	<0.001
N	82 (agencies)			
R^2	0.136			
AIC	0.234			
S.E.E.	0.232			
F-statistic	3.04 ($p = 0.0214$)			

Table 2: OLS estimates of the linear regression model described by Equation (2) predicting the proportion of rules with NPRM procedures. Estimate and standard error columns (along with all goodness-of-fit statistics) averaged across 25 imputations. All tests two-tailed.

motivated, approach is well-founded. (The same goes for model fit, where our primary model has a better AIC, along with other parsimony-respecting statistics like adjusted R^2.) Again, skill has a negligible effect on NPRM procedures in this model. We delve deeper into the role of skill on NPRM protocols in the next section.

5.3 Skill, Costs, and NPRM

In the previous subsection, both of our reported models yielded null effects of agency skill in the proportion of proposed rules featuring NPRM procedures. This comes as no surprise, as our theoretical analysis anticipated cross-cutting effects for the skill variable depending on the associated costs of delay. However, it is difficult to know whether any given proposed rule—much less agency—has high or low costs of delay, so it is difficult to determine the effect of skill on NPRM utilization.

We now take advantage of our full rule-level, rather than agency-level, data structure. Our dependent variable is dichotomous and coded 1 when a proposed rule features NPRM procedures. Our independent variables include:

- Bias, the absolute value of proposing agency's RCL ideology score;
- Skill, the proposing agency's RCL skill score;
- Extreme Costs, a dummy variable coded 1 for rules proposed in the 365 days after 9/11/2001, where our motivating idea is that agencies faced much higher costs of delay in the aftermath of the World Trade Center attacks;

Variable	Estimate	S.E.	z-statistic	p-value
Bias	0.178	0.221	0.81	0.421
Skill	0.202	0.124	1.63	0.102
Extreme Costs	−0.578	0.188	−3.08	0.002
Skill × Extreme Costs	0.379	0.241	1.58	0.115
Independent	1.090	0.329	3.32	<0.001
State	−0.027	0.158	−0.17	0.867
Federal	0.437	0.218	2.00	0.045
Constant	0.193	0.227	0.85	0.396
N		3602		

Table 3: ML estimates of the logistic regression model described in the text predicting the use of NPRM procedures at the rule level. Standard errors clustered at the agency level (82 agencies). Estimates and standard errors averaged across 25 imputations.

- Skill × Extreme Costs, the interaction of the previous two variables, which tells us how the effect of skill depends on extreme costs (and vice versa);
- Independent, a dummy variable coded 1 if the proposing agency is independent;
- State, a dummy variable coded 1 if the proposed rule affects state agencies; and
- Federal, a dummy variable coded 1 if the proposed rule affects federal agencies.[24]

We estimate a logistic regression using this battery of predictors and cluster our standard errors at the agency level.

The results of that analysis are summarized in Table 3. As a check of the premise motivating this exercise, it is heartening that there exists a strong, negative effect of our 9/11 dummy on NPRM procedures—this suggests that this is indeed a period of high costs of delay, at least among agencies with median skill. Independent agencies remain far more likely to employ NPRM protocols than non-independent agencies. It is also the case that rules influencing federal agencies are more likely to feature NPRM. The bias variable retains its positive sign, but inferences are weaker compared to the previous subsection.

Here we are mainly concerned with the skill variable. Recall, that the model predicts that the effect of skill on the probability of notice-and-comment is conditioned by whether the agency expects costs of delay to be high or low. For observations outside our Extreme Costs timezone, we see a positive effect of skill on the probability of NPRM procedures for a given rule, though the effect is not statistically significant. This offers some suggestive evidence

[24]It is worth noting that some agencies propose rules that influence both state and federal agencies, and that other levels of analysis exist—say, municipal or tribal. In other words, there is no fear of collinearity.

that day-to-day costs of delay are relatively high, so that it is Proposition 4 (high costs of delay encourage skilled agencies to employ NPRM more often than unskilled agencies) that is relevant for our purposes rather than Proposition 3 (low costs of delay encourage skilled agencies to employ NPRM less often than unskilled agencies). This makes sense, as we have focused only on significant proposed rules. Given this result, it seems reasonable to expect the Extreme Costs timezone to feature a larger positive effect of skill, as the costs of delay in the immediate aftermath of the 9/11 attacks were only higher than normal.[25]

We therefore turn our attention to the estimated interaction term and expect to see a positive influence of enhanced costs of delay on the effect of skill on the probability of NPRM procedures. We plot the coefficients in Figure 4. We see that more (less) skilled agencies

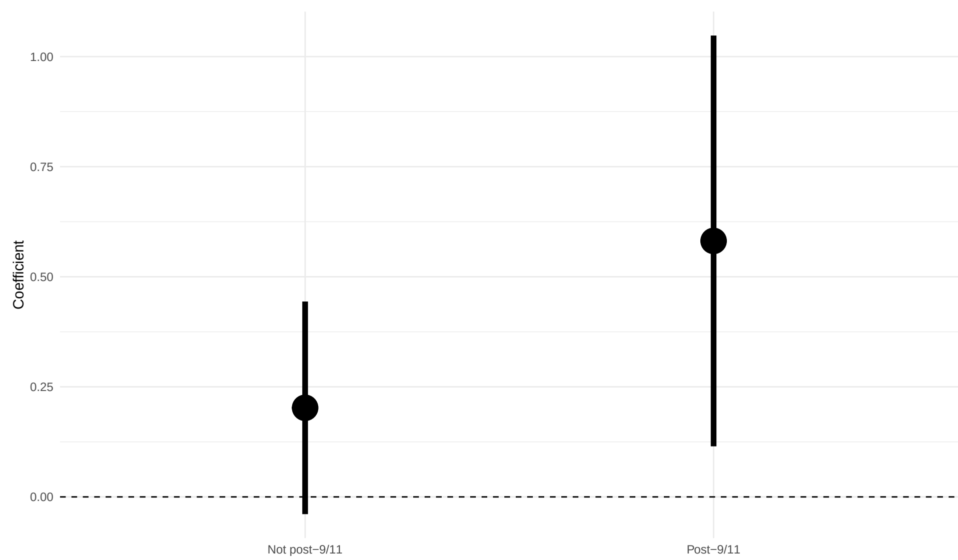


Figure 4: Estimated coefficients from the model summarized in Table 3. Results averaged across 25 imputations. All other predictors held at their respective means.

made more (less) use of NPRM procedures in the immediate aftermath of the 9/11 attacks, *even though far fewer rules at that time were proposed using NPRM procedures.*

To get a sense of how the Extreme Costs variable introduces large differences in degree, but not in kind, on the effect of skill on NPRM, consider the predicted probability plot in Figure 5. The darker ribbon is during normal times, and (to repeat) it features a positive marginal effect of skill on NPRM utilization, suggesting that day-to-day rulemaking on significant policies is a high-cost affair. It would be very bad news for our theoretical model

[25]To see why this point is relevant, suppose—*contra* the results just discussed—that the effect of skill on NPRM during normal times was negative. The larger costs of delay after 9/11 may have nudged the cost of delay out of the Proposition 3 zone, or they might not have. Put differently, we have satisfied a necessary condition for our empirical strategy to be useful.

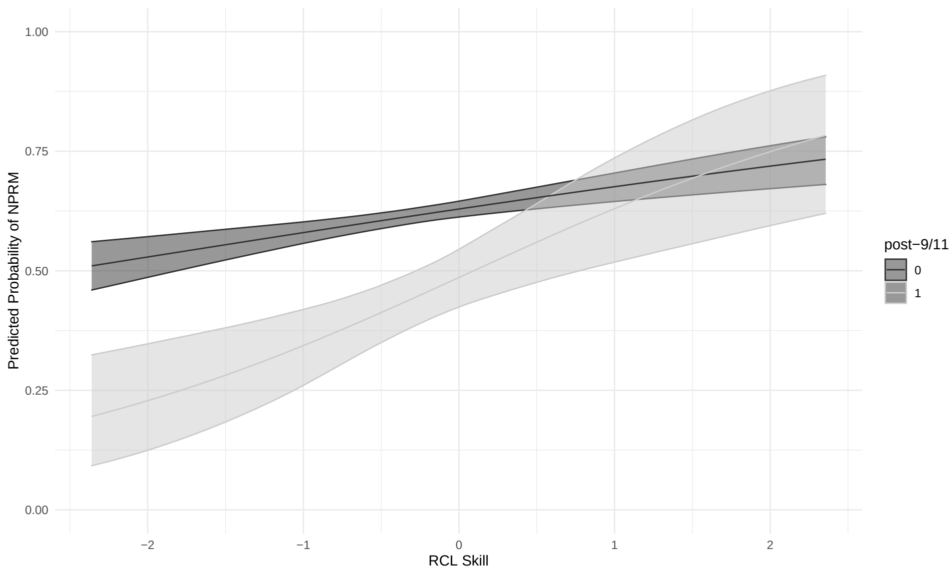


Figure 5: Predicted probability of NPRM as a function of agency skill and extreme costs. Results averaged across 25 imputations. All other predictors held at their respective means. Standard errors obtained via a bootstrap balanced by agency.

if the Extreme Cost time period featured a null or negative effect of skill on NPRM usage. However, this is not the case; indeed, during the Extreme Costs timezone, the effect of skill on NPRM utilization is positive and (by any reasonable standard) substantively meaningful.

All things considered, the empirical results provide promising suggestive evidence that we are on the right track with our theoretical model. In particular, it appears that those agencies with more political bias do indeed use NPRM procedures more often than those without bias, which is consistent with our Proposition 2. Perhaps more interestingly, our analysis of significant rules, both in normal times and in the immediate aftermath of a catastrophe, suggest that skilled agencies use NPRM procedures more often, which is consistent with our Proposition 4. Of course, our data are somewhat limited and the measures are themselves the output of a measurement model, so it is important to maintain humility in light of these results. That said, we are confident that these results are strong enough, not to mention consistent enough with our theoretical model, to warrant further attention from empirically-minded scholars in this area as the literature continues to unfold.

6 Welfare Implications

Given our empirical analysis supports the positive implications of our theory, it is of interest to leverage our model to study its implications for institutional design. While some of these implications are straightforward, overall our findings suggest that notice-and-comment rulemaking has nuanced effects on social welfare and, therefore, it is difficult to make a recommendation on the best social design without conditions attached.

In our model allowing the agency to claim exemptions has potential social welfare benefits by avoiding socially costly delays and producing more informed policymaking, as it incentivizes a biased agency to separate based on its signal. But the actual avoidance choice involves costs given that groups are unable to participate, leading to less informed policy outcomes. Conversely, if exemptions are not an option the agency always proposes $x = 0$ and it is upheld unless Group 1 provides evidence to the contrary.

Proposition 6 addresses this question of when agencies should be given the authority to claim exemptions.

Proposition 6. *Welfare and avoidance.*

1. *Exemptions should be allowed when the societal costs of notice-and-comment are high,* $\delta_C \geq 1 - 2q + q^2$.

2. *Exemptions should be removed when the societal costs of notice-and-comment are moderate,* $\delta_C \in [1 - 2q, 1 - 2q + q^2)$.

3. *The benefits of exemptions depend on the environment when the societal costs of notice-and-comment are low,* $\delta_C < 1 - 2q$. *There exists* $\overline{\delta}_C(b, p, q, \delta_A) \in [0, 1 - 2q]$ *such that if* $\delta_C < \overline{\delta}_C(\cdot)$ *then exemptions should be allowed, otherwise, they should be removed.*

   (a) *If p is sufficiently high then exemptions should always be allowed when* $\delta_A \in [0, \overline{\delta}_A]$, *i.e.,* $\overline{\delta}_C(\cdot) = 1 - 2q$.

   (b) *If q is sufficiently high then there exists p sufficiently low such that exemptions should always be removed when* $\delta_A \in [0, \overline{\delta}_A]$, *i.e.,* $\overline{\delta}_C(\cdot) = 0$.

Analogous to the discussion of how societal costs condition how agency costs impact welfare, the results for avoidance and welfare are nuanced and, again, are conditioned by the social costs of delay. Here, three ranges of societal delay costs are key.

Intuitively, with very high delay costs, $\delta_C \geq 1 - 2q + q^2$, the court is best off allowing allowing exemptions as a choice. This is true even though, in this case, the agency uses exemptions to obtain its preferred policies whether appropriate or not.

Conversely, with moderately high delay costs, $\delta_C \in (1-2q, 1-2q+q^2)$, exemptions should be removed. Delay's costs are low enough that they are always worth incurring. Forcing the agency to obtain potentially informative comments is better than allowing the agency to force through its preferred policy with an exemption.

When societal delay costs are moderate to low things are more complicated. Recall that when such costs fall below $\delta_C < 1 - 2q$, the agency is unable to always get its preferred policy through exemptions and policymaking is more involved. With moderate social costs, $\delta_C \in (\overline{\delta}_C, 1 - 2q)$, exemptions should be removed. But when these social costs are low, $\delta_C \in (0, \overline{\delta}_C)$, then exemptions should be allowed.

The cut-point $\overline{\delta}_C$ depends on the characteristics of the other parameters and can take the boundary values 0 and $1 - 2q$. Figure 6 summarizes these welfare findings, highlighting whether or not exemptions are beneficial generally depend on the characteristics of the agency and the policymaking environment. The dashed line denotes welfare under no exemptions, while the solid lines give welfare with exemptions. Exemptions improve welfare whenever the solid line is above the dashed line and vice versa. Moreover, Figure 6 shows how welfare can be non-monotonic in the agency's costs for notice-and-comment.

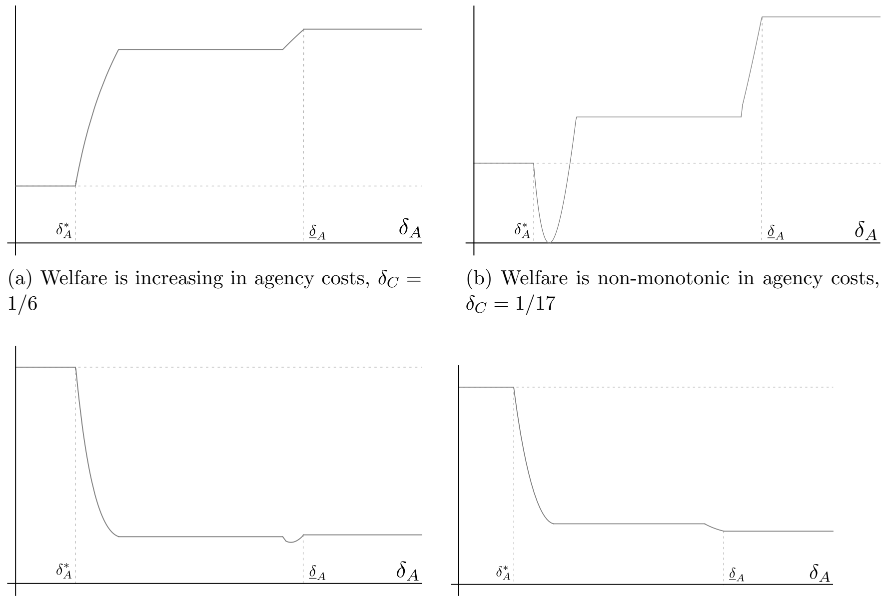
From a social design perspective, our welfare results lead to one clear recommendation and one more cautious observation. Overall, there is no one-size-fits-all policy prescription, and the conditions under which it is best to allow exemptions should be tailored to the characteristics of the agency and type of rule.

Our one unconditional inference is that it is always better to allow exemptions for highly skilled agencies and to forbid them for their low skilled counterparts when there is high uncertainty about the correct course of action. High skilled agencies maximize the informational benefits of allowing the option of choosing whether to go through notice-and-comment. With low skilled agencies and high uncertainty, by Proposition 5 the active group exerts a sufficiently high level of effort to make the informational cost of allowing avoidance too high.

But this recommendation is tempered by the recognition that, in general, whether exemptions should be allowed or not may be non-monotonic in societal costs. By Proposition 6, if p is sufficiently large, then exemptions should be allowed when $\delta_C > 1 - 2q + q^2$ and when $\delta_C < 1 - 2q$; however, they should be removed for $\delta_C \in [1 - 2q, 1 - 2q + q^2]$.

7 Conclusion

Understanding the structure and impacts of the rulemaking process has been a subject of interest to social scientists, legal scholars, and policy analysts. Rulemaking has been a particularly relevant topic given a gridlocked world where moving policy statutorily has proven extraordinarily difficult and attention has increasingly focused on how agencies can adjust policies directly. To date, most consideration has been given to notice-and-comment per se even though past work has acknowledged that agencies have promulgated many rules, including very important ones, via an end run around the process. With a few exceptions,



(a) Welfare is increasing in agency costs, $\delta_C = 1/6$

(b) Welfare is non-monotonic in agency costs, $\delta_C = 1/17$

(c) Welfare is non-monotonic in agency costs, $\delta_C = 1/30$.

(d) Welfare is decreasing in agency costs, $\delta_C = 1/50$.

Figure 6: Social welfare as a function of agency costs for notice-and-comment for $\delta_A \in [0, \overline{\delta}_A]$. We set $p = 5/8$, $q = 2/5$, and $b = 1/2$. We consider the case where $\delta_C < 1 - 2q$ and let δ_C vary across pictures. The horizontal dashed line denotes social welfare if the agency is never allowed to claim an exemption.

social scientists have not examined the implications of the exemption option.

Our analysis of avoidance choices fills this gap. Broadly, we demonstrate that ignoring an agency's ability to employ the exemption option strategically will obfuscate inferences about what determines agency outputs, what role the courts might play, and what impacts groups might have. Additionally, having an avoidance alternative has substantial social welfare ramifications, with there being instances where the exemption is best removed and others where it is ideally retained.

Moreover, our theoretical analysis shows that not all notice-and-comment corresponds to rulemaking being "Kabuki theater," as suggested by Elliott (1992). Rather, in a non-trivial subset of the parameter space, agencies receive messages contrary to their political aspirations, but intermediate agency and court costs incentivize mixing over avoidance and NPRM. In other words, agencies sometimes enter notice-and-comment understanding that they can be ruled against, but may also utilize notice-and-comment understanding that they can solidify their political interests. Our ability to discriminate between these incentives is a strength of our analysis.

More specifically, our theoretical analysis finds that characteristics such as a well-meaning court's costs of demanding notice-and-comment and an agency's costs and policy bias are relevant. These features structure whether we observe avoidance not only being attempted even if legally inappropriate but being used in situations where the agency is positioned either to implement a policy that it prefers at society's expense or to choose its least favorite alternative to pander to the court while sidestepping notice-and-comment's costs. Our model also shows that empirical estimates of group influence not integrating organizational strategic behavior along with avoidance are likely misspecified.

Empirically, we find support for our model's predictions about agency avoidance. Some predictions are borne out by existing research, others by our own analysis. With indeterminate predictions, our model best corresponds to a world where agencies view notice-and-comment as costly — an assumption consistent with much discussion of the process (e.g., that emphasizing the attractiveness of the exemption when the need to move quickly for national security concerns is examined).

Finally, we show that whether avoidance is allowed or not can substantially impact social welfare. Court costs, which are conditioned by the likelihood that the state of the world is contrary to what an agency prefers, and the extent of an agency's bias will determine whether a socially-regarding judge should just remove exemptions or allow avoidance as a possibility. Above a threshold of court costs bias is irrelevant, with exemptions sometimes being socially better and other times worse; below that threshold, which is partially determined by the likelihood that the state of the world corresponds to the group's preferred choice is sufficiently high, bias is key for whether exemptions should be removed (low bias) or allowed (high bias).

There are a variety of ways on which we can build on the analysis here. Broadly, continued back-and-forth between theoretical and empirical work should prove fruitful for improving our understanding of rulemaking and our ability to make policy recommendations for how to organize the bureaucracy.

For example, our theoretical and empirical models consider notice-and-comment and avoidance conditional on rulemaking occurring. Moving forward it would be productive to integrate selection into rulemaking. Theoretically, this would entail adjusting our model so that the agency either engages in rulemaking, incurring a cost to observe a signal about the state before playing per our model, or does nothing and retains the status quo, getting a payoff between 0 and 1. With selection, we would no longer see the agency engage in any rulemaking when agency costs are very high and court costs are low. Additionally, the agency's bias will alter its incentive to propose a rule. Empirically, this would involve integrating a selection equation with the main specification.

Further exploring the ties between different theories should also prove informative about the rulemaking process. For example, Libgober (2020*b*) shows that patterns of notice-and-comment rulemaking can be rationalized without invoking judicial oversight. However, the shadow of judicial review plays an important role in our model. In particular, absent judicial oversight, more biased agencies would always avoid more. However, our empirical results find the opposite, i.e., the data are consistent with our model in which agencies anticipate judicial review. This holds despite the court never overturning the agency's claimed exemption in equilibrium. Hence, while oversight may not be necessary to explain notice-and-comment rulemaking, our paper suggests that it is an important determinant for explaining avoidance.

Finally, moving forward it would be beneficial to further distinguish between claimed exemptions that are legitimate, versus those that are not. Theoretically, it would be interesting to consider a model in which there is uncertainty about whether the exemption is valid. Empirically, it would be useful to develop a rule-level measure of whether an agency would be legally justified in claiming exemption. Doing so could generate new insights into how agencies use exemptions, and provide further evidence on the role of bias.

Thus, our analysis has shown that exemptions are important for rulemaking and what we observe with notice-and-comment. Models of influence need to take such options into account. Moreover, there are conditions where the avoidance alternative's existence is better for society, allowing quick action and eschewing notice-and-comments' costs, while there are others where it imposes a price on society. Nor do agency exemptions always mean that the bureaucrat is selecting her preferred policy, as sometimes she does and other times she settles on the alternative to avoid conflict.

A Proofs

A.1 Equilibrium Characterization

Off the path of play we assume that the other players believe the action came from the $s_A = 0$ agency type.

Proof of Lemma 1. Assume that the agency avoided notice-and-comment. If $x = 1$ then the court's expected utility for upholding the policy is μ_C, while its expected utility for overturning the policy is $1 - \mu_C - \delta_C$. Thus, it upholds the policy if $\mu_C \geq \frac{1-\delta_C}{2}$. On the other hand, if $x = 0$ then upholding the policy yields $1 - \mu_C$, while overturning it yields expected utility $\mu_C - \delta_C$. In this case, the court upholds the policy if $\mu_C \leq \frac{1+\delta_C}{2}$. If the agency avoided notice-and-comment then the cost δ_A is sunk and similar comparisons yield that the court upholds $x = 1$ if $\mu_C \geq 1/2$ and upholds $x = 0$ if $\mu_C \leq 1/2$.

Proof of Lemma 2. First, assume that after the group proposes policy x the other players have belief $\mu_C = \mu_G < 1/2$. In this case, if neither group comments with new information then the judge's belief μ_C decreases and so the final policy will be $\pi = 0$. This is because, given the groups' conjectured equilibrium strategies, the judge expects G_1 to expend effort and comment if it learns that the state is $\omega = 1$. Thus, G_0 has no incentive either to expend effort or comment. On the other hand, if G_1 learns that $\omega = 1$ it will comment, as this results in $\pi = 1$. Given this, G_1's expected utility for expending effort is

$$e\mu_G - \frac{1}{2}e_1^2.$$

As this is strictly concave in effort, differentiating and solving the resulting first-order condition yields optimal effort $e_1^* = \mu_G > 0$.

Similarly, if, following proposed policy x, $\mu_G > 1/2$ then group G_1 expends no effort and does not comment, while G_0 expends effort $e_0^* = 1 - \mu_G > 0$, and comments if $\omega = 0$.

At $\mu_C = 1/2$ the judge upholds the proposed policy x. Thus, if $x = 1$ then G_0 expends effort as described above and G_1 does nothing, while this is reversed if $x = 0$.

Proof of Proposition 1. First, consider $\delta_C > 1 - 2q$. In this case, if the agency pools on avoidance and $x = 1$ then the court's expected utility for upholding is q, while its expected utility for overturning is $1 - q - \delta_C$. Thus, if $\delta_C \geq 1 - 2q$ then the court upholds. As this is the agency's highest possible payoff neither type wants to deviate from the pooling strategy.

Moving forward, assume $\delta_C \leq 1 - 2q$.

Recall that

$$\overline{\delta}_A = b[2\mu(1) - \mu(1)^2]$$
$$\underline{\delta}_A = b[\mu(1) + \mu(0) - \mu(0)\mu(1)]$$
$$\delta_A^* = b[q\mu(0)],$$

where $\mu(1)$ is the agency's updated belief that $\omega = 1$ after observing $s_A = 1$ and $\mu(0)$ is the agency's updated belief that $\omega = 1$ after observing $s_A = 0$. Specifically,

$$\mu(1) = \frac{pq}{pq + (1-p)(1-q)}$$
$$\mu(0) = \frac{(1-p)q}{(1-p)q + p(1-q)}.$$

We break the remainder of the proof into several parts.

Case 1: $\delta_A > \overline{\delta}_A$

Assume $\delta_A > \overline{\delta}_A$. We want to show that there exists an equilibrium in which both types of the agency pool on $x = 0$ and avoid notice-and-comment.[26]

For the $s_A = 1$ type playing this strategy yields a payoff of 0. It does not choose $x = 1$ and avoidance, as the court will believe that the deviation came from the $s_A = 0$ type and overturn the policy, yielding $-\delta_A$. The same comparison shows that the $s_A = 0$ type will not deviate to $x = 0$. Going through notice-and-comment, the $s_A = 1$ type's highest possible expected utility occurs if the other players believe the deviation came from the $s_A = 1$ type. This yields expected utility $-\delta_A + b[1 - (1 - \mu(1))^2]$, but this is strictly less than 0 by the assumption that $\delta_A > \overline{\delta}_A$. As the $s_A = 0$ type's expected utility for notice-and-comment is strictly less than the expected utility to the $s_A = 1$ type, neither will deviate to notice-and-comment.

Case 2: $\delta_A \in [\underline{\delta}_A, \overline{\delta}_A]$

We now show that the conjectured strategies form a fully separating equilibrium for $\delta_A \in [\underline{\delta}_A, \overline{\delta}_A]$. In this case, if the court observes $x = 1$ and notice-and-comment then, because the

[26]Note that a semi-separating equilibrium does not exist for $\delta_A > \overline{\delta}_A$. This is because $\overline{\delta}_A$ is already defined using the best possible payoff to the agency for choosing notice-and-comment, yet the agency still does not want to deviate for $\delta_A > \overline{\delta}_A$. Furthermore, given the agency is engaging in avoidance, the different agency types do not have differing costs for choosing $x = 1$ or $x = 0$. Thus, there can be no separation with mixing across notice-and-comment or across policies for $\delta_A > \overline{\delta}_A$.

agency is supposed to play a separating strategy, absent new information it believes that $s_A = 1$. Thus, $\mu_C > 1/2$.

As such, the expected utility to the $s_A = 1$ type for not deviating from its equilibrium strategy is

$$-\delta_A + b[1 - (1 - \mu(1))(1 - \mu(1))].$$

Deviating to $x = 0$ and going through notice-and-comment yields expected utility

$$-\delta_A + b[\mu(1)\mu(0)].$$

Comparing, the condition for the agency to not deviate is:

$$\begin{aligned}
&1 - (1 - \mu(1))^2 \geq \mu(1)\mu(0) \\
&\Leftrightarrow 2\mu(1) - \mu(1)^2 \geq \mu(1)\mu(0) \\
&\Leftrightarrow 2 \geq \mu(1) + \mu(0),
\end{aligned}$$

where the last line holds as $\mu(1)$ and $\mu(0)$ are probabilities and strictly less than 1. Next, consider an agency deviation to avoid notice-and-comment. If it chooses $x = 0$ its payoff is 0 because the court believes it is the $s_A = 0$ type and upholds. On the other hand, choosing $x = 1$ is off the path of play. This yields expected utility $-\delta_A$ because the court believes the deviation came from the $s_A = 0$ type and, thus, it overturns the policy. Therefore, if the $s_A = 1$ type deviates to avoid notice-and-comment it would choose $x = 0$. Comparing this with its equilibrium payoff, we get that the agency will not deviate if and only if:

$$\begin{aligned}
&-\delta_A + b[1 - (1 - \mu(1))^2] \geq 0 \\
&\Leftrightarrow b[2\mu(1) - \mu(1)^2] \geq \delta_A.
\end{aligned}$$

The last line holds by assumption that $\delta_A \leq \overline{\delta}_A$; thus, the $s_A = 1$ type agency lacks a profitable deviation.

Now consider if the agency's signal is $s_A = 0$. Choosing $x = 0$ and avoiding notice-and-comment yields a payoff of 0. This is strictly better than avoiding notice-and-comment and choosing $x = 1$, as the court will overturn this decision yielding a payoff of $-\delta_A$. If the agency instead chooses $x = 1$ and goes through notice-and-comment its expected utility is $-\delta_A + b[1 - (1 - \mu(1))(1 - \mu(0))]$. Comparing, we get that the agency will choose $x = 0$ and to avoid when:

$$
\begin{aligned}
&0 \geq -\delta_A + b[1-(1-\mu(1))(1-\mu(0))] \\
&\Leftrightarrow \delta_A \geq b[\mu(0)+\mu(1)-\mu(1)\mu(0)],
\end{aligned}
$$

which holds by assumption that $\delta_A \geq \underline{\delta}_A$. Finally, we need that the agency also does not want to choose $x = 0$ and go through notice-and-comment. In this case, doing so yields expected utility $-\delta_A + b[\mu(0)\mu(0)]$. Thus, the agency will not switch and go through notice-and-comment if and only if:

$$
\begin{aligned}
&0 \geq -\delta_A + b[\mu(0)\mu(0)] \\
&\delta_A \geq b[\mu(0)^2].
\end{aligned}
$$

Note that:

$$
\begin{aligned}
&\mu(0) < 1 \\
&\Leftrightarrow \mu(0)(\mu(0)+\mu(1)) < \mu(0)+\mu(1) \\
&\Leftrightarrow \mu(0)^2 < \mu(0)+\mu(1)-\mu(1)\mu(0) \\
&\Leftrightarrow b[\mu(0)^2] < \underline{\delta}_A.
\end{aligned}
$$

Thus, by assumption that $\underline{\delta}_A \leq \delta_A$, we have that the agency will not deviate to $x = 0$ and go through notice-and-comment.

Case 3: $\delta_A \in (\delta_A^*, \underline{\delta}_A)$

Next, assume $\delta_A \in (\delta_A^*, \underline{\delta}_A)$. Note, in such a semi-separating equilibrium after observing $x = 1$ and notice-and-comment the groups and court update their belief to

$$
\mu_C(\sigma) = \frac{[p+(1-p)\sigma]q}{[p+(1-p)\sigma]q + [(1-p)+p\sigma](1-q)}.
$$

Before defining $\sigma(\delta_A)$, we define three variables. First, let σ_1^* be the solution to

$$
\mu_C(\sigma) = \frac{\frac{\delta_A}{b} - \mu(0)}{1-\mu(0)}.
$$

Second, define σ_2^* as the solution to

$$\mu_C(\sigma) = \frac{1}{2}.$$

Finally, let σ_3^* solve

$$\mu_C(\sigma) = \frac{\delta_A}{b\mu(0)}.$$

Now we define $\sigma(\delta_A)$ as follows:

$$\sigma(\delta_A) = \begin{cases} \sigma_1^* & \text{if } \delta_A \in [\frac{b}{2}(1+\mu(0)), \underline{\delta}_A) \\ \sigma_2^* & \text{if } \delta_A \in (\frac{b}{2}\mu(0), \frac{b}{2}[1+\mu(0)]) \\ \sigma_3^* & \text{if } \delta_A \in (\delta_A^*, \frac{b}{2}\mu(0)). \end{cases}$$

As indicated by our definition of $\sigma(\delta_A)$, we will proceed by partitioning the parameter space into three cases.

1. $\delta_A \in [\frac{b}{2}(1+\mu(0)), \underline{\delta}_A)$. From the definition of $\sigma(\delta)$ in this part of the parameter space we have $\sigma(\delta) = \sigma_1^*$. First, we show that $\mu_C(\sigma_1^*) > 1/2$.

$$\mu_C(\sigma_1^*) > 1/2 \tag{3}$$
$$\Leftrightarrow \frac{\frac{\delta_A}{b} - \mu(0)}{1-\mu(0)} > 1/2 \tag{4}$$
$$\Leftrightarrow \frac{\delta_A}{b} - \mu(0) > \frac{1}{2}(1-\mu(0)) \tag{5}$$
$$\Leftrightarrow \delta_A > b\frac{1}{2}[1+\mu(0)]. \tag{6}$$

Equation (3) is the condition we want to hold. Inequality (4) follows from the definition of σ_1^*. Line (5) rearranges (4) and equation (6) rearranges (5). Finally, (6) holds by assumption.

Thus, if the $s_A = 0$ type mixes with probability σ_1^* then, in equilibrium, G_0 is the active group, optimally expends effort $1 - \mu_C(\sigma_1^*)$, and the court will uphold $x = 1$ absent contrary information. For the $s_A = 0$ type to mix between notice-and-comment with $x = 1$ and avoidance with $x = 0$, it must be indifferent between these two actions. This requires

$$0 = -\delta_A + b[1 - (1 - \mu_C(\sigma_1^*))(1 - \mu(0))].$$

Rearranging, we get that this holds if and only if:

$$\mu_C(\sigma_1^*) = \frac{\frac{\delta_A}{b} - \mu(0)}{1 - \mu(0)},$$

which follows from the definition of σ_1^*. As $0 > -\delta_A$ the $s_A = 0$ type will not deviate off the path to $x = 1$ and avoidance. If it chooses notice-and-comment and $x = 0$ this is also off the path of play, as such $\mu_C = \mu(0)$, group G_1 is active, and the agency's expected utility is $-\delta_A + b\mu(0)\mu(0)$. For it to not deviate requires:

$$-\delta_A + b\mu(0)\mu(0) \leq 0 \tag{7}$$

$$\Leftrightarrow b\mu(0)^2 \leq \delta_A, \tag{8}$$

where inequality (8) holds as $\mu(0) < q < 1/2$ and, by assumption, we have $b\frac{1}{2}(1 + \mu(0)) \leq \delta_A$.

Finally, for the $s_A = 1$ type its expected utility for not deviating is $-\delta_A + b[1 - (1 - \mu_C(\sigma_1^*))(1 - \mu(1))] > -\delta_A + b[1 - (1 - \mu_C(\sigma_1^*))(1 - \mu(0))] = 0 > -\delta_A$. Thus, it will not deviate to avoidance. Furthermore, deviating to $x = 0$ and notice-and-comment yields expected utility $-\delta_A + b\mu(0)\mu(1)$. As the $s_A = 1$ type's equilibrium payoff is strictly greater than 0, a sufficient condition for the agency to not deviate is:

$$-\delta_A + b\mu(0)\mu(1) \leq 0 \tag{9}$$

$$\Leftrightarrow b\mu(0)\mu(1) \leq \delta_A. \tag{10}$$

Because $\mu(0) < 1/2$ and $\mu(1) < 1$, inequality (23) holds by assumption that $\delta_A \geq b\frac{1}{2}(1 + \mu(0))$. Therefore, the $s_A = 1$ is responding optimally as well.

2. $\delta_A \in (\frac{b}{2}\mu(0), \frac{b}{2}[1 + \mu(0)])$.

   At $\mu_G = 1/2$ there exists an equilibrium in which G_1 expends effort 1/2 (and G_0 effort 0) and the court overturns $x = 1$ unless it sees information to the contrary. However, there is also an equilibrium in which G_0 expends effort 1/2 (and G_1 effort 0) and the court upholds $x = 1$ unless G_0 provides alternative information. In order to support a semi-separating equilibrium that moves continuously through the parameter space we must introduce a public randomization device to coordinate equilibrium. In particular, for $\delta_A \in (\frac{b}{2}\mu(0), \frac{b}{2}[1 + \mu(0)])$, following $x = 1$ and notice-and-comment the groups and court play the equilibrium in which G_1 is active with probability $P(\delta_A, b, p, q)$ and play the equilibrium in which G_0 is active with probability $1 - P(\cdot)$, where $P(\cdot)$ is defined as:

$$P(\cdot) = 1 + \mu(0) - 2\frac{\delta_A}{b}.$$

Note that $P(\cdot) \geq 0$, as $\delta_A < \frac{b}{2}[1 + \mu(0)]$, and $P(\cdot) \leq 1$, as $\delta_A > \frac{b}{2}\mu(0)$.

For the type $s_A = 0$ agency to be willing to mix with probability $\sigma(\delta_A)$ it must be indifferent between avoidance with $x = 0$ and notice-and-comment with $x = 1$, which requires that:

$$0 = -\delta_A + P(\delta_A)b\frac{1}{2}\mu(0) + (1 - P(\cdot))b\frac{1}{2}(1 + \mu(0)). \tag{11}$$

Rearranging, we get that equation (11) is satisfied if:

$$P(\cdot) = -2\frac{\delta_A}{b} + 1 + \mu(0), \tag{12}$$

which holds by the specification of $P(\delta_A)$. Thus, for all $\delta_A \in (\frac{b}{2}\mu(0), \frac{b}{2}[1 + \mu(0)])$ the agency is indifferent between notice-and-comment with $x = 1$ and avoidance with $x = 0$.

As $0 > -\delta_A$, the $s_A = 0$ type will not deviate off the path to $x = 1$ and avoidance. If it chooses notice-and-comment and $x = 0$ this is also off the path of play, as such $\mu_C = \mu(0)$, G_1 is active, and the agency's expected utility is $-\delta_A + b\mu(0)\mu(0)$. For it to not deviate requires.

$$-\delta_A + b\mu(0)\mu(0) \leq 0 \tag{13}$$

$$\Leftrightarrow b\mu(0)^2 \leq \delta_A, \tag{14}$$

where inequality (14) holds as $\mu(0) < q < 1/2$ and by assumption we have $b\mu(0)q \leq \delta_A$.

Finally, for the $s_A = 1$ type its expected utility for not deviating is $-\delta_A + P(\delta_A)b[\frac{1}{2}\mu(1)] + (1 - P(\delta_A))\frac{b}{2}[1 + \mu(1)] > -\delta_A + P(\delta_A)b\frac{1}{2}\mu(0) + (1 - P(\delta))b\frac{1}{2}(1 + \mu(0)) = 0 > -\delta_A$. Thus, it will not deviate to avoidance. Furthermore, deviating to $x = 0$ and notice-and-comment yields expected utility $-\delta_A + b\mu(0)\mu(1)$. As the $s_A = 1$ type's equilibrium payoff is strictly greater than 0, a sufficient condition for the agency to not deviate is

$$-\delta_A + b\mu(0)\mu(1) \leq 0 \tag{15}$$

$$\Leftrightarrow b\mu(0)\mu(1) \leq \delta_A. \tag{16}$$

Because $\mu(0) < 1/2$ and $\mu(1) < 1$, inequality (23) holds by assumption that $\delta_A \geq b\frac{1}{2}(1 + \mu(0))$. Therefore, the $s_A = 1$ is responding optimally as well.

3. $\delta_A \in (bq\mu(0), \frac{b}{2}\mu(0))$. From the definition of $\sigma(\delta)$ in this part of the parameter space we have $\sigma(\delta) = \sigma_3^*$. First, we show that that $\mu_C(\sigma_3^*) < 1/2$.

$$\mu_C(\sigma_1^*) < 1/2 \tag{17}$$
$$\Leftrightarrow \frac{\delta_A}{b\mu(0)} < 1/2 \tag{18}$$
$$\Leftrightarrow \delta_A < \frac{1}{2}b\mu(0). \tag{19}$$

Equation (17) is the condition we want to hold. Inequality (18) follows from the definition of σ_3^*. Line (19) rearranges (18), and inequality (19) holds by assumption.

Thus, if the $s_A = 0$ type mixes with probability σ_3^* then, in equilibrium, G_1 is the active group, optimally expends effort $\mu_C(\sigma_1^*)$, and the court will overturn $x = 1$ absent contrary information. For the $s_A = 0$ type to mix between notice-and-comment with $x = 1$ and avoidance with $x = 0$ it must be indifferent between these two actions. This requires:

$$0 = -\delta_A + b[\mu_C(\sigma_3^*)\mu(0)].$$

Rearranging, we get that this holds if:

$$\mu_C(\sigma_3^*) = \frac{\delta_A}{b\mu(0)},$$

which follows from the definition of σ_3^*. As $0 > -\delta_A$, the $s_A = 0$ type will not deviate off the path to $x = 1$ and avoidance. If it chooses notice-and-comment and $x = 0$ this is also off the path of play, as such $\mu_C = \mu(0)$, group G_1 is active, and the agency's expected utility is $-\delta_A + b\mu(0)\mu(0)$. For it to not deviate requires:

$$-\delta_A + b\mu(0)\mu(0) \leq 0 \tag{20}$$
$$\Leftrightarrow b\mu(0)^2 \leq \delta_A, \tag{21}$$

where inequality (21) holds as $\mu(0) < q < 1/2$ and, by assumption, we have $b\mu(0)q \leq \delta_A$.

Finally, for the $s_A = 1$ type its expected utility for not deviating is $-\delta_A + b[\mu_C(\sigma_3^*)\mu(1)] > -\delta_A + b[\mu_C(\sigma_3^*)\mu(0)] = 0 > -\delta_A$. Thus, it will not deviate to avoidance. Furthermore, deviating to $x = 0$ and notice-and-comment yields expected utility $-\delta_A + b\mu(0)\mu(1)$. As the $s_A = 1$ type's equilibrium payoff is strictly greater than 0, a sufficient condition for the agency to not deviate is:

$$-\delta_A + b\mu(0)\mu(1) \leq 0 \tag{22}$$

$$\Leftrightarrow b\mu(0)\mu(1) \leq \delta_A. \tag{23}$$

Because $\mu(0) < 1/2$ and $\mu(1) < 1$, inequality (23) holds by assumption that $\delta_A \geq b\frac{1}{2}(1 + \mu(0))$. Therefore, the $s_A = 1$ is responding optimally as well.

Case 4: $\delta \leq \delta_A^*$

Finally, assume $\delta \leq \delta_A^*$. We want to show that there exists an equilibrium in which both types of the agency pool on $x = 1$ and go through notice-and-comment. For the $s_A = 0$ type not deviating yields expected utility $-\delta_A + b[q\mu(0)]$. If the agency deviates to $x = 0$ and goes through notice-and-comment this is off the path of play. As the other players believe that it came from the $s_A = 0$ type this yields expected utility $-\delta_A + b[\mu(0)\mu(0)] < -\delta_A + b[q\mu(0)]$, by $\mu(0) < q$. If the agency deviates to avoid notice-and-comment we assume that the court believes the deviation came from the $s_A = 0$ type. Thus, not deviating is optimal if:

$$0 \leq -\delta_A + b[q\mu(0)]$$

$$\Leftrightarrow \delta_A \leq b[q\mu(0)],$$

where the last inequality holds by assumption that $\delta_A \leq \delta^*$. As the $s_A = 1$ type obtains strictly higher utility for its equilibrium action, it clearly will also not deviate to avoidance. Thus, the last thing that needs checking is that the $s_A = 1$ type does not want to deviate to $x = 0$ and notice-and-comment. Not deviating yields expected utility $-\delta + b[q\mu(1)]$ while deviating yields $-\delta_A + b[\mu(0)\mu(1)]$. As $q > \mu(0)$ the $s_A = 1$ type does not have an incentive to deviate from $x = 1$ and notice-and-comment.

A.2 Proofs of Empirical Implications

Proof of Proposition 2. Assuming δ_A is drawn uniformly from $[0, 1]$ and, using the definition of $\sigma(\delta_A)$ from above, the probability of observing notice-and-comment can be written as:

$$\Phi(b,p) = Pr(s_A = 1)\overline{\delta}_A$$
$$+ Pr(s_A = 0)\Big((\underline{\delta}_A - \frac{b(1+\mu(0))}{2})\sigma_1^* + (\frac{b(1+\mu(0))}{2} - \frac{b\mu(0)}{2})\sigma_2^* + (\frac{b\mu(0)}{2} - bq\mu(0))\sigma_3^* + \delta_A^*\Big).$$

Differentiating with respect to b and consolidating terms yields:

$$\frac{\partial \Phi}{\partial b} = P(s=1)(2\mu(1) - \mu(1)^2) + P(s_A = 0)\Big((1-\mu(0))(\mu(1) - 1/2)\sigma_1^*$$
$$+ b(1-\mu(0))(\mu(1) - 1/2)\frac{\partial \sigma_1^*}{\partial b} + \frac{\sigma_2^*}{2} + \mu(0)(1/2 - q)\sigma_3^* + b\mu(0)(1/2 - q)\frac{\partial \sigma_3^*}{\partial b}\Big).$$

As $\mu(1) > 1/2 > q > \mu(0)$, the only terms that are not clearly positive are $\frac{\partial \sigma_1^*}{\partial b}$ and $\frac{\partial \sigma_3^*}{\partial b}$. Thus, a sufficient condition for $\frac{\partial \Phi}{\partial b} > 0$ is that $\frac{\partial \sigma_1^*}{\partial b}, \frac{\partial \sigma_3^*}{\partial b} > 0$.

Note, $\frac{\partial \mu_C(\sigma)}{\partial \sigma} < 0$. First, recall that σ_1^* solves $\mu_C(\sigma) = \frac{\frac{\delta_A}{b} - \mu(0)}{1-\mu(0)}$. Applying the implicit function theorem we get:

$$\frac{\partial \sigma_1^*}{\partial b} = -\frac{\frac{\delta_A}{(1-\mu(0))b^2}}{\partial \mu_C(\sigma_1^*)/\partial \sigma_1^*} > 0.$$

Second, we have that σ_3^* solves $\mu_C(\sigma) = \frac{\delta_A}{b\mu(0)}$. By the implicit function theorem, we have:

$$\frac{\partial \sigma_3^*}{\partial b} = -\frac{\frac{\delta_A}{\mu(0)b^2}}{\partial \mu_C(\sigma_1^*)/\partial \sigma_1^*} > 0,$$

and, therefore, $\frac{\partial \Phi(b,p)}{\partial b} > 0$.

Proof of Proposition 3. We now analyze how the probability of notice-and-comment changes as a function of agency skill, p, when costs of delay are expected to be low. Assume δ_A is drawn from the uniform distribution over $[0, \tilde{\delta}]$, where $\tilde{\delta} \in (\delta_A^*, \frac{b}{2}\mu(0))$. In this case, the probability of notice-and-comment is:

$$\Phi(b,p) = F(\delta_A^*) + \Big[F(\tilde{\delta}) - F(\delta_A^*)\Big]\Big[Pr(s_A = 1) + Pr(s_A = 0)\sigma_3^*\Big].$$

Differentiating Φ with respect to p yields

$$\begin{aligned}\frac{\partial \Phi}{\partial p} &= f(\delta_A^*)\frac{\partial \delta_A^*}{\partial p} - f(\delta_A^*)\frac{\partial \delta_A^*}{\partial p}\Big[Pr(s_A = 1) + Pr(s_A = 0)\sigma_3^*\Big] \\ &+ \Big(F(\tilde{\delta}) - F(\delta_A^*)\Big)\Big(\frac{\partial P(s_A = 1)}{\partial p} + Pr(s_A = 0)\frac{\partial \sigma_3^*}{\partial p} + \frac{\partial Pr(s_A = 0)}{\partial p}\sigma_3^*\Big) \\ &= f(\delta_A^*)\frac{\partial \delta_A^*}{\partial p}\Big[1 - Pr(s_A = 1) - Pr(s_A = 0)\sigma_3^*\Big] \\ &+ \Big(F(\tilde{\delta}) - F(\delta_A^*)\Big)\Big(\frac{\partial P(s_A = 1)}{\partial p}(1 - \sigma_3^*) + \frac{\partial \sigma_3^*}{\partial p}Pr(s_A = 0)\Big).\end{aligned}$$

A sufficient condition for the derivative to be negative is that $\frac{\partial \delta_A^*}{\partial p} < 0$, $\frac{\partial Pr(s_A=1)}{\partial p} < 0$, and $\frac{\partial \sigma_3^*}{\partial p} < 0$. First, we have:

$$\frac{\partial \delta_A^*}{\partial p} = bq\frac{\partial \mu(0)}{\partial p}.$$

As $\frac{\partial \mu(0)}{\partial p} = -\frac{(1-q)q}{(p+q-2pq)^2} < 0$, we have $\frac{\partial \delta_A^*}{\partial p} < 0$.

Next, we have $Pr(s_A = 1) = pq + (1-p)(1-q)$. Differentiating yields:

$$\begin{aligned}\frac{\partial Pr(s_A = 1)}{\partial p} &= q - 1 + q \\ &= 2q - 1 < 0,\end{aligned}$$

where the last line holds by assumption that $q < 1/2$.

To finish the proof, consider σ_3^*. Applying the implicit function theorem, we get:

$$\frac{\partial \sigma_3^*}{\partial p} = -\frac{\frac{\partial \mu_C(\sigma)}{\partial p} + \frac{\delta_A}{b\mu(0)^2}\frac{\partial \mu(0)}{\partial p}}{\partial \mu_C(\sigma)/\partial p}.$$

Differentiating $\mu_C(\sigma)$ with respect to σ yields:

$$\frac{\partial \mu_C(\sigma)}{\partial p} = -\frac{(2p-1)(1-q)q}{([p + (1-p)\sigma]q + [(1-p) + p\sigma](1-q))^2} < 0.$$

Next, differentiating $\mu_C(\sigma)$ with respect to p yields:

$$\frac{\partial \mu_C(\sigma)}{\partial p} = -\frac{(1-q)(1-\sigma^2)}{([p + (1-p)\sigma]q + [(1-p) + p\sigma](1-q))^2} < 0.$$

Finally, we already have that $\frac{\partial \mu(0)}{\partial p} < 0$. Therefore, $\frac{\sigma_3^*}{\partial p} < 0$, as required.

Proof of Proposition 4. Now assume δ_A is drawn uniformly from $[\hat{\delta}_A, 1]$, where $\hat{\delta}_A > \underline{\delta}_A$. In this case, the probability of observing notice-and-comment is:

$$\Phi(b,p) = Pr(s_A = 1)\frac{\overline{\delta}_A - \hat{\delta}_A}{1 - \hat{\delta}_A}.$$

Differentiating with respect to p yields:

$$\begin{aligned}\frac{\partial \Phi(b,p)}{\partial p} &= (2q-1)\frac{\overline{\delta}_A - \hat{\delta}_A}{1-\hat{\delta}_A} + P(s_A = 1)\frac{\partial \overline{\delta}_A}{\partial p}\Big(\frac{1}{1-\hat{\delta}_A}\Big) \\ &= \frac{2(1-p)(1-q)^2 qb}{(1-\hat{\delta}_A)(1-q-p+2pq)^2} - (1-2q)\frac{\overline{\delta}_A - \hat{\delta}_A}{1-\hat{\delta}_A}.\end{aligned}$$

Thus, the probability of observing notice-and-comment is increasing in p if:

$$\frac{2(1-p)(1-q)^2 qb}{(1-q-p+2pq)^2} > (1-2q)(\overline{\delta}_A - \hat{\delta}_A).$$

Rearranging, we have that if δ_A is drawn uniformly over $[\hat{\delta}_A, 1]$, where:

$$\hat{\delta}_A > \overline{\delta}_A - \frac{2(1-p)(1-q)^2 qb}{(1-2q)(1-q-p+2pq)^2},$$

then $\frac{\partial \Phi}{\partial p} > 0$. Note, because $\frac{2(1-p)(1-q)^2 qb}{(1-2q)(1-q-p+2pq)^2} > 0$, this $\hat{\delta}_A$ is always less than $\overline{\delta}$ and the proposition holds for $\hat{\delta}_A > \max\{\underline{\delta}_A, \overline{\delta}_A - \frac{2(1-p)(1-q)^2 qb}{(1-2q)(1-q-p+2pq)^2}\}$.

Proof of Proposition 5. The first part of the proposition follows from the equilibrium characterization.

For the second part, if $\delta_A \leq \delta_A^*$ then G_1 is active and exerts effort $e_1^* = q$, which is not a function of p. If $\delta_A \in [\delta_A^*, \frac{b}{2}\mu(0)]$ then G_1 is active. The probability it comments is $Pr(\omega = 1|s_A = 1)e_1^*$. Thus, the probability of notice-and-comment is $\mu_C(\sigma_3^*)e_1^* = \mu_C(\sigma_3^*)^2$. Differentiating, we have:

$$\begin{aligned}\frac{\partial}{\partial p}\Big[\mu_C(\sigma_3^*)^2\Big] &= 2\frac{\partial \mu_C(\sigma_3^*)}{\partial p} \\ &= -2\frac{\delta_A b}{[b\mu_A(0)]^2}\frac{\partial \mu_A(0)}{\partial p}.\end{aligned}$$

Since $\frac{\partial \mu_A(0)}{\partial p} < 0$, we have $\frac{\partial}{\partial p}\Big[\mu_C(\sigma_3^*)^2\Big] > 0$. Thus, the probability that the active group comments is weakly increasing in p for $\delta_A < \frac{b}{2}\mu(0)$.

When $\delta_A \in [\frac{b}{2}(1+\mu(0)), \underline{\delta}_A]$ the probability G_0 comments is $(1-\mu(\sigma_1^*))^2$. Differentiating yields:

$$\begin{aligned}
\frac{\partial}{\partial p}\Big[(1-\mu_C(\sigma_1^*))^2\Big] &= -2\frac{\partial \mu_C(\sigma_1^*)}{\partial p} \\
&= \frac{-2}{(1-\mu(0))^2}\Big[-(1-\mu(0))\frac{\partial \mu_A(0)}{\partial p} + (\frac{\delta_A}{b} - \mu(0))\frac{\partial \mu_A(0)}{\partial p}\Big] \\
&= \frac{-2}{(1-\mu(0))^2}\frac{\partial \mu_A(0)}{\partial p}\Big(\frac{\delta_A}{b} - 1\Big) < 0,
\end{aligned}$$

since $\frac{\partial \mu_A(0)}{\partial p} < 0$ and $\delta_A < b$.

When $\delta_A \in [\underline{\delta}_A, \overline{\delta}_A]$ the probability G_0 comments is $(1-\mu(1))^2$, which is strictly decreasing in p by $\frac{\partial \mu(1)}{\partial p} > 0$.

A.3 Proofs of Welfare Implications

Before proceeding, we prove a lemma on how welfare changes as a function of δ_A for a given δ_C that is useful for proving Proposition 6. We also include some discussion of this result.

Lemma 4. *Welfare, societal costs, and agency costs.*

1. *Assume $\delta_C \geq 1-2q$. Welfare is not changing in δ_A.*
2. *Assume $\delta_C < 1-2q$.*
   (a) *If $\delta_A \in [0, \overline{\delta}_A]$ then welfare is continuous in δ_A. Welfare may be increasing, decreasing, or non-monotonic over this interval.*
   (b) *If $\delta_A > \overline{\delta}_A$ then welfare is not changing in δ_A.*
   (c) *When δ_C is low social welfare is maximized by $\delta_A < \delta_A^*$. When δ_C is moderate social welfare is maximized by $\delta_A \in [\underline{\delta}_A, \overline{\delta}_A]$. When δ_C is high social welfare is maximized by $\delta_A > \overline{\delta}_C$.*

As shown, a key factor is whether societal delay costs are above or below the cut-point associated with $\delta_C \geq 1-2q$. When above the agency always avoids and can implement its preferred policy. Welfare is pinned down by the prior q and the cost δ_C.

Below the cut-point, when $\delta_C < 1-2q$, welfare changes depending on agency costs. Higher agency costs may be beneficial or detrimental to social welfare. Increasing agency costs increases the informativeness of agency policmayking. However, somewhat unintuitively, more informative agency policy choices are not always better, as when the opposing group is active it responds by exerting less effort to comment. Additionally, the probability the agency avoids increases with its costs of delay. On the one hand, this is beneficial as society is less likely to incur the costs of delay. On the other, it is detrimental as the groups are less often able to provide new information.

Given these countervailing forces, the effect of δ_A on welfare depends on other model parameters. To see this, Figure 6 provides numerical examples demonstrating that varying social costs can result in welfare increasing, decreasing, or being non-monotonic in agency costs for $\delta_A \in [0, \overline{\delta}_A]$. Examining each example shows varied relationships and impacts on welfare and differences in comparison to a world without the avoidance option.

First, Figure 6a shows the case where δ_C is high relative to the other cases we examine. Here welfare is increasing in agency costs. As such, it is extremely beneficial to avoid notice-and-comment which, as seen by the contrast with the dashed horizon line, tips the scale in favor of having higher agency costs.

Second, Figure 6b, a case where social costs are somewhat lower, is similar to Figure 6a except that welfare is now non-monotonic in δ_A. While social welfare is maximized by high δ_A, as δ_C is still moderately high, increasing δ_A is not always beneficial. With moderately low agency costs, increasing δ_A results in only slightly more informative agency policymaking, but groups become much less likely to comment. However, eventually the agency's policy choices become informative enough that, together with saving on delay costs, the loss of group effort is outweighed and social welfare again begins increasing in δ_A.

Third, the pattern with moderately low social costs, shown in Figure 6c, is very different than those just discussed. Now welfare is maximized by low δ_A but is not always decreasing. There is a region of moderately high agency costs for which increasing δ_A increases welfare. Here the gains from more informative agency policymaking are sufficiently high that welfare begins increasing. However, these gains are insufficiently strong to raise welfare above that with low δ_A.

Fourth, Figure 6d shows a world of very low social costs. The parameters in this example are such that increased group participation is more important than informative agency policy choices. Furthermore avoiding delay costs is not an important component of social welfare when δ_C is this low. As such, welfare is always weakly decreasing in δ_A.

Finally, in the highest agency cost range, when $\delta_A > \overline{\delta}_A$ (not depicted in Figure 6), the agency's strategy is to always choose $x = 0$ and avoid notice-and-comment. This produces a discontinuity in welfare at $\delta_A = \overline{\delta}_A$, as the agency switches from a fully pooling to a fully separating strategy. If societal delay costs are high then welfare jumps up, otherwise, with low costs, welfare drops down. Such jumps can create an additional non-monotonicity of welfare as a function of δ_A.

Hence, countervailing strategic forces complicate the overall relationship between δ_A and welfare. In different instances, high, moderate, and low agency costs of delay can be welfare–enhancing. As noted in Lemma 4, social welfare is maximized when the value of agency costs correspond to that of societal costs. High δ_A maximizes social welfare when δ_C is high; moderate δ_A maximizes welfare when δ_C is moderate; and low δ_A maximizes welfare when δ_C is low. This relationship is potentially promising. If agency and social delay costs are correlated, e.g., if both are high in emergency situations and both are low for routine matters, then exemptions may be performing relatively well. This might suggest that the avoidance option is potentially socially desirable.

However, since exemptions have costs and benefits, this requires further analysis. It may be that removing the agency's option to take an exemption improves social welfare. As Lemma 4 characterizes social welfare with exemptions, we are now able to compare the world represented by our model to one without an exemption option

We now prove Lemma 4.

Proof of Lemma 4. Define $\gamma(p,q) = p + q - 2pq$.

1. Let $\delta_A \in [0, \delta_A^*)$. In this case, social welfare is given by

$$W^A = qe_1^* + (1-q) - \delta_C,$$

   which does not depend on δ_A, as $e_1^* = q$ in this case.

2. Let $\delta_A \in [\delta_A^*, \frac{b}{2}\mu(0))$. In this case, social welfare is given by

$$\begin{aligned} W^B &= Pr(s_A = 1)\Big(Pr(\omega = 1|s_A = 1)e_1^* + Pr(\omega = 0|s_A = 1) - \delta_C\Big) \\ &+ Pr(s_A = 0)\sigma_3^*\Big(Pr(\omega = 1|s_A = 0)e_1^*(+Pr(\omega = 0|s_A = 0) - \delta_C\Big) \\ &+ Pr(s_A = 0)(1-\sigma_3^*)Pr(\omega = 0|s_A = 0). \end{aligned}$$

   Note that, in this case, $e_1^* = \mu_C(\sigma_3^*) = \frac{\delta_A}{b\mu(0)}$. Differentiating, we get:

$$\frac{\partial W^B}{\partial \delta_A} = \frac{(2p-1)(1-q)\gamma(p,q)^2(-2b\delta_A(1-p)^2q^2 + b^2\delta_C(1-p)^2q^2 + \delta_A^2\gamma(p,q)^2)}{b(1-p)\Big(b(1-p)^2q^2 - \delta_A\gamma(p,q)^2\Big)^2}.$$

Given the parameter restrictions for this case, we have:

$$\frac{\partial W^B}{\partial \delta_A} < 0 \tag{24}$$

$$\Leftrightarrow \delta_A < \frac{b(1-p)q\Big((1-p)q + \sqrt{q^2(1-p)^2 - \delta_C(p+q-2pq)^2}\Big)}{(p+q-2pq)^2}. \tag{25}$$

Comparing to the boundary conditions yields:

$$\delta_A^* < RHS(24) < \frac{b}{2}\mu(0)$$
$$\Leftrightarrow \frac{3q-p-2pq}{4q+p(4-8q)} < \delta_C < \frac{q^2(2-q-p(3-2q))}{p+q-2pq}.$$

Clearly the RHS of (24) is decreasing in δ_C. Thus, for δ_C small W^B is decreasing in δ_A; for δ_C moderate W^B is decreasing in δ_A until δ_A =RHS(24) after which it is increasing; and for δ_C large W^B is increasing in δ_A.

3. Let $\delta_A \in [\frac{b}{2}\mu(0), \frac{b}{2}(1+\mu(0)))$. In this case, welfare is:

$$W^C = Pr(s_A=1)\Bigg(P(\delta_A)\Big(Pr(\omega=1|s_A=1)\frac{1}{2} + Pr(\omega=0|s_A=1)\Big)$$
$$+ (1-P(\delta_A))\Big(Pr(\omega=1|s_A=1) + Pr(\omega=0|s_A=1)\frac{1}{2}\Big) - \delta_C\Bigg)$$
$$+ Pr(s_A=0)\sigma_2^*\Bigg(P(\delta_A)\Big(Pr(\omega=1|s_A=0)\frac{1}{2} + Pr(\omega=0|s_A=0)\Big)$$
$$+ (1-P(\delta_A))\Big(Pr(\omega=1|s_A=0) + \frac{1}{2}Pr(\omega=0|s_A=0)\Big)$$
$$- \delta_C\Bigg) + Pr(s_A=0)(1-\sigma_2^*)Pr(\omega=0|s_A=0).$$

Differentiating yields $\frac{\partial W^C}{\partial \delta_A} = 0$, as required, i.e., W^C is not a function of δ_A.

4. Let $\delta_A \in [\frac{b}{2}(1+\mu(0)), \underline{\delta}_A)$. In this case, welfare is:

$$W^D = Pr(s_A=1)\Big(Pr(\omega=1|s_A=1) + Pr(\omega=0|s_A=1)e_0^* - \delta_C\Big)$$
$$+ Pr(s_A=0)\sigma_1^*\Big(Pr(\omega=1|s_A=0) + Pr(\omega=0|s_A=0)e_0^* - \delta_C\Big)$$
$$+ Pr(s_A=0)(1-\sigma_1^*)Pr(\omega=0|s_A=0).$$

Note, $e_0^* = 1 - \mu_C(\sigma_1^*) = 1 - \frac{\frac{\delta_A}{b} - \mu(0)}{1-\mu(0)}$. Differentiating with respect to δ_A yields:

$$\frac{\partial W^D}{\partial \delta_A} =$$

$$\frac{(2p-1)q}{bp\Big(\delta_A\gamma(p,q)^2 + b(1-p)q(p(3q-2)-q)\Big)^2}\Bigg(\delta_A^2\gamma(p,q)^4 + 2b\delta_A(1-p)q\gamma(p,q)^2((3q-2)p-q)$$

$$+ b^2(q+p(1-2q))(p^2\delta_C(1-q)^2\gamma(p,q) + (1-p)^2q^2(3p+q-4pq))\Bigg)$$

Given the parameter restrictions for this case, we have:

$$\frac{\partial W^D}{\partial \delta_A} < 0 \tag{26}$$

$$\Leftrightarrow \delta_A < \frac{b\Big(q(1-p)(q+p(2-3q)) + p(1-q)\sqrt{(1-p)^2q^2 - \delta_C(p+q-2pq)^2}\Big)}{(p+q-2pq)^2}. \tag{27}$$

Comparing to the boundary conditions yields:

$$\frac{b}{2}(1+\mu(0)) < RHS(26) < \underline{\delta}_A$$

$$\Leftrightarrow \frac{pq^2\Big(2(1-q) - p(4-5q-p(1-2q))\Big)}{(1-p-q+2pq)^2(q+p(1-2q))} < \delta_C < \frac{3q-p-2pq}{4q+p(4-8q)}.$$

Clearly the RHS of (26) is decreasing in δ_C. Thus, for δ_C small W^D is decreasing in δ_A; for δ_C moderate W^D is decreasing in δ_A until $\delta_A =$RHS(26) after which it is increasing; and for δ_C large W^D is increasing in δ_A.

Note, we cannot have that W^B and W^D are both non-monotonic over their respective regions at the same time as that would require $\delta_C < \frac{3q-p-2pq}{4q+p(4-8q)}$ and $\delta_C >< \frac{3q-p-2pq}{4q+p(4-8q)}$.

5. Next, let $\delta_A \in [\underline{\delta}_A, \overline{\delta}_A]$. In this case, welfare is given by:

$$W^E = Pr(s_A = 1)\Big(Pr(\omega = 1|s_A = 1) + Pr(\omega = 0|s_A = 1)e_0^* - \delta_C\Big)$$
$$+Pr(s_A = 0)Pr(\omega = 0|s_A = 0),$$

where $e_0^* = 1 - \mu(1)$. Thus, W^E is not a function of δ_A.

6. Finally, let $\delta_A > \overline{\delta}_A$. Welfare is:

$$W^F = 1 - q,$$

which is not a function of δ_A.

We have that for $\delta_A \in (\delta_A^*, \frac{b}{2}\mu(0))$ welfare is either strictly decreasing, strictly increasing, or decreasing then increasing in δ_A. Therefore, $W^B < \max\{W^A, W^C\}$. Similarly, for $\delta_A \in [\frac{b}{2}(1+\mu(0)), \underline{\delta}_A])$ welfare is given by W^D and we have $W^D < \max\{W^C, W^E\}$. Therefore, welfare is never maximized by $\delta_A \in (\delta_A^*, \frac{b}{2}\mu(0))$ or $\delta_A \in [\frac{b}{2}(1+\mu(0)), \underline{\delta}_A])$.

Next, it is straightforward, e.g., using Mathematica, to check that under the relevant parameter conditions it is always the case that $W^C < \max\{W^A, W^E, W^F\}$. Therefore, welfare is never maximized by $\delta_A \in [\frac{b}{2}\mu(0), \frac{b}{2}(1+\mu(0)))$.

Finally, comparing the remaining three cases, we have;

$$W^A \geq \max\{W^E, W^F\} \Leftrightarrow \delta_C \leq \frac{q^2(1-p-p^2-q+2pq)}{(1-p-q+2pq)(p+q-2pq)}$$
$$W^E \geq \max\{W^A, W^F\} \Leftrightarrow \frac{q^2(1-p-p^2-q+2pq)}{(1-p-q+2pq)(p+q-2pq)} \leq \delta_C \leq \frac{p^2q^2}{(1-q-p(1-2q))^2}$$
$$W^F \geq \max\{W^A, W^E\} \Leftrightarrow \frac{p^2q^2}{(1-q-p(1-2q))^2} \leq \delta_C.$$

Proof of Proposition 6. If the court removes exemptions then the agency must always go through notice-and-comment. In this case, there is never a separating equilibrium. Thus, unless G_1 comments with supporting information, the final outcome will be $\pi = 0$. Overall, this yields that the court's expected utility for removing exemptions is

$$W^N = q^2 + (1-q) - \delta_C.$$

On the other hand, if agencies are allowed to claim an exemption then the court's expected utility depends on δ_C. If $\delta_C \geq 1-2q$ then the agency pools on its preferred policy and avoids notice-and-comment, which the court upholds. This yields expected utility q to the court. Thus, the court allows exemptions if

$$q^2 + 1 - q - \delta_C \geq q$$
$$(1-q)^2 \leq \delta_C,$$

and removes exemptions if $\delta_C \in [1-2q, (1-q)^2]$.

Next, assume $\delta_C < 1 - 2q$. If $\delta_A \leq \delta_A^*$ then the agency always avoids and proposes $x = 1$, as such welfare is the same with or without exemptions. We now study how welfare changes in δ_C for each region of δ_A with $\delta_A > \delta_A^*$, relative to welfare under no exemptions. Differentiating the difference between welfare with exemptions and welfare without, for each region, with respect to δ_C yields:

$$\frac{\partial W^B}{\partial \delta_C} - \frac{\partial W^N}{\partial \delta_C} = 1 - Pr(s_A = 1) - Pr(s_A = 0)\sigma_3^* > 0$$
$$\frac{\partial W^C}{\partial \delta_C} - \frac{\partial W^N}{\partial \delta_C} = 1 - (1 - P(\cdot))\Big(Pr(s_A = 1) + Pr(s_A = 0)\sigma_2^*\Big) > 0$$
$$\frac{\partial W^D}{\partial \delta_C} - \frac{\partial W^N}{\partial \delta_C} = 1 - Pr(s_A = 1) - Pr(s_A = 0)\sigma_1^* > 0$$
$$\frac{\partial W^E}{\partial \delta_C} - \frac{\partial W^N}{\partial \delta_C} = 1 - Pr(s_A = 1) > 0$$
$$\frac{\partial W^F}{\partial \delta_C} - \frac{\partial W^N}{\partial \delta_C} = 1 > 0$$

Therefore, given δ_A there is at most one cut-point in δ_C such that for δ_C above this cut-point welfare is higher with exemptions and δ_C below welfare is higher without. Of course, it may be that this cut-point does not fall within $(0, 1 - 2q)$.

We now show that if p is sufficiently high then it is always better to allow exemptions for all $\delta_A \in [0, \overline{\delta}_A]$. A sufficient condition for this to hold is $\frac{\partial W^B}{\partial \delta_A} > 0$ and $\frac{\partial W^D}{\partial \delta_A} > 0$

From the proof of Lemma 4 we know that W^B is always increasing in δ_A if:

$$\delta_C > \frac{q^2(2 - q - p(3 - 2q))}{p + q - 2pq}.$$

Letting $p \to 1$, this condition becomes:

$$\delta_C > \frac{q^2(2 - q - 3 + 2q)}{1 + q - 2q}$$
$$\Leftrightarrow \delta_C > \frac{q^2(q - 1)}{1 - q} = -q^2.$$

Since $\delta_C > 0 > -q^2$ this always holds.

Next, we have that W^D is always increasing in δ_A if:

$$\delta_C > \frac{3q - p - 2pq}{4q + p(4 - 8q)}.$$

Letting $p \to 1$, this condition in the limit becomes:

$$\delta_C > \frac{3q - 1 - 2q}{4q + 4 - 8q}$$
$$\Leftrightarrow \delta_C > \frac{q-1}{4-4q} = -\frac{1}{4},$$

since $\delta_A > 0$, this always holds.

As $\frac{\partial W^B}{\partial \delta_A}$ and $\frac{\partial W^D}{\partial \delta_A}$ are continuous in p, there exists a cut-point in p such that for p above this cut-point welfare is weakly increasing for $\delta_A \in [0, \overline{\delta}_A]$, and this holds strictly for some regions.

Next, we show that always removing exemptions is better for all $\delta_A \in [0, \overline{\delta}_A]$ when p is sufficiently small and q sufficiently large. A sufficient condition for is for welfare to be decreasing over this range, which holds if $\frac{\partial W^B}{\partial \delta_A} < 0$ and $\frac{\partial W^D}{\partial \delta_A} < 0$.

From Lemma 4 we have that W^B is always decreasing if:

$$\delta_C < \frac{3q - p - 2pq}{4q + p(4 - 8q)}.$$

The largest δ_C can be is $1 - 2q$, thus, a sufficient condition for this to hold for all relevant δ_C is:

$$1 - 2q < \frac{3q - p - 2pq}{4q + p(4 - 8q)}.$$

Letting $p \to 1 - q$, this condition becomes:

$$1 - 2q < \frac{3q - (1-q) - 2(1-q)q}{4q + (1-q)(4 - 8q)}.$$

Solving, we get that the above inequality holds for $q > \overline{q}$, where $\overline{q}_1 \approx .437$.

Next, consider W^D. By Lemma 4 W^D is always decreasing in δ_A if:

$$\delta_C < \frac{pq^2\Big(2(1-q) - p(4 - 5q - p(1-2q))\Big)}{(1 - p - q + 2pq)^2(q + p(1-2q))}.$$

Again, the largest value δ_C can take is $1 - 2q$, so a sufficient condition is:

$$1 - 2q < \frac{pq^2\Big(2(1-q) - p(4 - 5q - p(1-2q))\Big)}{(1 - p - q + 2pq)^2(q + p(1-2q))}.$$

Letting $p \to 1-q$, in the limit this condition becomes:

$$1-2q < \frac{(1-q)q^2\Big(2(1-q)-(1-q)(4-5q-(1-q)(1-2q))\Big)}{(1-(1-q)-q+2(1-q)q)^2(q+(1-q)(1-2q))}.$$

Solving, we get that the above inequality holds if $q > \overline{q}$.

Hence, if $q > \overline{q}$ then there exists a cut-point in p strictly greater than $1-q$ such that if p is below this cut-point then welfare is weakly decreasing in δ_A for $\delta_A \in [0, \overline{\delta}_A]$, and this holds strictly in some regions.

A.4 Moderate Agency with State-dependent Preferences

In the main text we conceive of a moderate agency as being more indifferent than a biased agency between the two possible rules. Alternatively, a moderate agency could be, like the court, motivated to choose the policy matching the state of the world. Here we characterize equilibrium policymaking by such an agency and show that the probability of notice-and-comment is lower compared to a corresponding biased agency as defined by our original model.

Formally, assume that the agency's policy payoff is 1 if $\pi = \omega$ and a payoff of 0 if $\pi \neq \omega$. The other features of the model remain the same.

When the agency is moderate, in the sense that it wants to match the state, we show that there is always a separating equilibrium in which it proposes the policy corresponding to its information. Additionally, there exists $\overline{\delta}_A^M$ such that if $\delta_A > \overline{\delta}_A^M$ then the agency avoids notice-and-comment following either signals and if $\delta_A \leq \overline{\delta}_A^M$ then it uses notice-and-comment following either signal. Specifically, define $\overline{\delta}_A^M$ as

$$\overline{\delta}_A^M = 1 - \mu(1)(1-\mu(1)).$$

If the agency chooses to use notice-and-comment in this case, it does so to actually acquire more information to aid in its decisionmaking. Thus, it can be thought of as using notice-and-comment for its intended purpose, to make more informed decisions, rather than as a signaling device or a method to hopefully force through its preferred policy.

First, assume $\delta_A > \overline{\delta}_A^M$. We show that the agency does not want to deviate. As the agency separates based on its information and $p > 1-q$, the court upholds the agency's policy. Thus, the expected utility to the agency for not deviating if $s_A = 1$ is $\mu(s_A = 1)$. If it deviates to avoidance and $x = 0$ this yields expected utility $1 - \mu(s_A = 1)$ which is strictly less than $\mu(s_A = 1)$, as $\mu(s_A = 1) > 1/2$. If the agency deviates to notice-and-comment and

$x = 1$ then group G_0 exerts effort $1 - \mu(s_A = 1)$ trying to discover the state. Unlike with a biased agency, in this case the agency does better when the group is successful, as it simply wants policy to match the state. In this case, its expected utility is

$$\begin{aligned} &-\delta_A + (1 - \mu(s_A = 1)) + \mu(s_A = 1)\mu(s_A = 1) \\ &1 - \mu(s_A = 1)(1 - \mu(s_A = 1)) - \delta_A. \end{aligned}$$

Note, if there were no delay costs the agency would always prefer notice-and-comment as it improves the probability that the final policy matches the state. The agency will not deviate from avoidance and $x = 1$ and avoidance is selected if

$$1 - \mu(s_A = 1)(1 - \mu(s_A = 1)) - \delta_A \leq \mu(s_A = 1) \tag{28}$$

$$\Leftrightarrow 1 - \mu(s_A = 1)(1 - \mu(s_A = 1)) \leq \delta_A, \tag{29}$$

where inequality (29) holds by assumption $\delta_A > \overline{\delta}_A^M$. Next, consider a deviation to $x = 0$ and notice-and-comment. In this case, G_1 expends effort $\mu(s_A = 0)$. This yields expected utility $-\delta_A + \mu(s_A = 0) + (1 - \mu(s_A = 0))(1 - \mu(s_A = 1)$. Thus, the agency will not deviate if

$$-\delta_A + \mu(s_A = 0) + (1 - \mu(s_A = 0))(1 - \mu(s_A = 1) < \mu(s_A = 1) \tag{30}$$

$$\Leftrightarrow \mu(s_A = 0) - \mu(s_A = 1) + (1 - \mu(s_A = 0))(1 - \mu(s_A = 1) < \delta_A \tag{31}$$

$$\Leftrightarrow 1 - \mu(1)(\mu(1) - \mu(0)) < \delta_A, \tag{32}$$

where inequality (29) holds by assumption $\delta_A > \overline{\delta}_A^M$. Thus, after observing the signal $s_A = 1$ the agency does not deviate for $\delta_A > \overline{\delta}_A^M$.

Next, consider the agency's decision if $s_A = 0$. In this case, not deviating from avoidance and $x = 0$ yields payoff $1 - \mu(s_A = 0)$. If the agency instead chooses $x = 1$ this is upheld by the court, as it believes it came from the $s_A = 0$ type, and the agency's expected utility is $\mu(s_A = 0) < 1 - \mu(s_A = 0)$, as $\mu(s_A = 0) < 1/2$. Going through notice-and-comment and choosing $x = 0$ the G_1 group is active and expends effort $\mu(s_A = 0)$. This yields expected utility $-\delta_A + \mu(0) + (1 - \mu(0))(1 - \mu(0))$, thus, the agency does not deviate if

$$\begin{aligned} -\delta_A + \mu(0) + (1 - \mu(0))(1 - \mu(0)) &< 1 - \mu(s_A = 0) \\ \Leftrightarrow \mu(0) + (1 - \mu(0))(1 - \mu(0)) - (1 - \mu(0)) &< \delta_A \\ \Leftrightarrow \mu(0)^2 &< \delta_A, \end{aligned}$$

where the last inequality holds by assumption that $\delta_A > \overline{\delta}_A^M$. Choosing $x = 1$ and going through notice-and-comment the G_0 group is active and expends effort $1 - \mu(1)$. This yields expected utility to the agency of $-\delta_A + (1 - \mu(1)) + \mu(1)\mu(0)$. Therefore, the agency does not deviate if

$$\begin{aligned} -\delta_A + (1 - \mu(1)) + \mu(1)\mu(0) &< 1 - \mu(0) \\ \Leftrightarrow \mu(0) - \mu(1) + \mu(1)\mu(0) &< \delta_A, \end{aligned}$$

which holds by $\delta_A > \overline{\delta}_A^M$.

In the baseline model, Proposition 2 shows that the probability of notice-and-comment is increasing in agency bias. Furthermore, if $b \to \infty$ then $Pr(\text{notice-and-comment}) \to 1$ and if $b \to 0$ then $Pr(\text{notice-and-comment}) \to 0$. Thus, there exists $\overline{b}$ such that if $b > \overline{b}$ then the probability of notice-and-comment is higher with a biased agency than an unbiased agency with state-dependent preferences.

References

Balla, Steven J. 1998. "Administrative Procedures and Political Control of the Bureaucracy." *American Political Science Review* 92(3):663–673.

Balla, Steven J, Alexander R Beck, Elizabeth Meehan and Aryamala Prasad. 2020. "Lost in the Flood?: Agency Responsiveness to Mass Comment Campaigns in Administrative Rulemaking." *Regulation & Governance* .

Blake, Cheryl and Reeve T. Bull. 2017. *Negotiated Rulemaking*. Washington, D.C.: Administrative Conference of the United States.

Cuéllar, Mariano-Florentino. 2005. "Rethinking Regulatory Democracy." *Admin. L. Rev.* 57:411.

Davis, Kenneth Culp. 1970. "Supplement." Supplement to 1958 edition of *Administrative Law Treatise*.

Elliott, E. Donald. 1992. "Re-Inventing Rulemaking." *Duke Law Journal* 41(6):1490–1496.

Fox, Justin and Matthew C. Stephenson. 2011. "Judicial Review as a Response to Political Posturing." *American Political Science Review* 105(2):397–414.

Gailmard, Sean and John W. Patty. 2017. "Participation, Process, and Policy: The Informational Value of Politicized Judicial Review." *Journal of Public Policy* 37(3):233–260.

Golinghorst, Kelli M. 2018. "Meet Me in the Middle: The Search for the Appropriate Standard of Review for the APA's Good Cause Exception." *Iowa Law Review* 72(3):1277–1300.

Harris, Christopher, Philip Reny and Arthur Robson. 1995. "The Existence of Subgame-perfect Equilibrium in Continuous Games with Almost Perfect Information: A Case for Public Randomization." *Econometrica* 63(3):507–544.

Kerwin, Cornelius M. and Scott R Furlong. 1992. "Time and Rulemaking: An Empirical Test of Theory." *Journal of Public Administration Research and Theory* 2(2):113–136.

Kerwin, Cornelius M. and Scott R. Furlong. 2018. *Rulemaking: How Government Agencies Write Law and Make Policy*. 5th ed. Washington, D.C.: CQ Press.

Libgober, Brian. 2020*a*. "Meetings, Comments, and the Distributive Politics of Rulemaking." *Quarterly Journal of Political Science* 15(4):449–481.

Libgober, Brian D. 2020*b*. "Strategic Proposals, Endogenous Comments, and Bias in Rulemaking." *Journal of Politics* 82(2):642–656.

McCubbins, Mathew, Roger Noll and Barry Weingast. 1987. "Administrative Procedures as Instruments of Political Control." *Journal of Law, Economics, and Organization* 3(2):243–277.

McGarity, Thomas O. 1992. "Some Thoughts on 'Deossifying' the Rulemaking Process." *Duke Law Journal* 41(6):1385–1462.

McKay, Amy and Susan Webb Yackee. 2007. "Interest Group Competition on Federal Agency Rules." *American Politics Research* 35(3):336–357.

Moore, Emily H. 2018. The Impact of Contextual Political Factors on Personnel, Rulemaking, and Partisanship. PhD thesis Washington University, St. Louis.

O'Connell, Anne Joseph. 2008. "Political Cycles of Rulemaking: An Empirical Portrait of the Modern Administrative State." *Virginia Law Review* 94(4):889–986.

Pierce Jr., Richard J. 2012. "Rulemaking Ossification Is Real: A Response to Testing the Ossification Thesis." *George Washington University Law Review* 80(5):1493–1503.

Potter, Rachel Augustine. 2019. *Bending the rules: Procedural politicking in the bureaucracy.* University of Chicago Press.

Raso, Connor. 2015. "Agency Avoidance of Rulemaking Procedures." *Administrative Law Review* 67(1):101–167.

Reiss, Dorit Rubinstein. 2009. "Tailored Participation: Modernizing the APA Rulemaking Procedures." *New York University Journal of Legistion and Public Policy* 12(1):321–377.

Richardson, Mark D., Joshua D. Clinton and David E. Lewis. 2018. "Elite Perceptions of Agency Ideology and Workforce Skill." *Journal of Politics* 80(1):303–308.

Scalia, Antonin. 1981. "Back to Basics: Making Law without Making Politics." *Regulation* 5(3):25–28.

Stephenson, Matthew C. 2006. "A Costly Signaling Theory of Hard Look Review." Harvard Law and Economics Discussion Paper No. 539.

Stephenson, Matthew C. 2008. "Evidentiary Standards and Information Acquisition in Public Law." *American Law and Economics Review* 10(2):351–387.

Turner, Ian R. 2017. "Working Smart and Hard? Agency Effort, Judicial Review, and Policy Precision." *Journal of Theoretical Politics* 29(1):69–96.

Yackee, Jason Webb and Susan Webb Yackee. 2006. "A Bias towards Business? Assessing Interest Group Influence on the U.S. Bureaucracy." *The Journal of Politics* 68(1):128–139.

Yackee, Jason Webb and Susan Webb Yackee. 2012*a*. Delay in Notice and Comment Rulemaking. In *Regulatory Breakdown: The Crisis of Confidence in U.S. Regulation*, ed. Cary Coglianese. Philadelphia, PA: University of Pennsylvania Press.

Yackee, Jason Webb and Susan Webb Yackee. 2012*b*. "Testing the Ossification Thesis: An Empirical Examination of Federal Regulatory Volume and Speed, 1950-1990." *George Washington University Law Review* 80(5):1414–1492.

Yackee, Susan Webb. 2006. "Sweet-talking the Fourth Branch: The Influence of Interest Group Comments on Federal Agency Rulemaking." *Journal of Public Administration Research and Theory* 16(1):103–124.

You, Hye Young. 2017. "Ex–post Lobbying." *The Journal of Politics* 79(4):1162–1176.