Ex Post Review and Expert Policymaking: When Does Oversight Reduce Accountability?

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Abstract

Ex post review is a common feature of policymaking institutions. We consider a simple environment in which an expert agent makes a policy recommendation, which can then be accepted or rejected by a principal whose policy goals differ from those of the agent. The theory offers testable predictions about policy recommendations and the principal's acceptance or rejection of these recommendations. The theory suggests that behavior and institutional design incentives are sensitive to both actors' preference alignment and the importance of and uncertainty inherent to the policy area in multiple ways, some expected and some less obvious. We characterize the types of situations in which ex post review creates incentives for the agent to make pathological policy choices. In these situations, ex post review can reduce the accountability of the agent to the wishes of the principal and ultimately create an incentive for the principal to forego review entirely.

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1 Introduction

Delegation of policymaking authority to bureaucratic agencies is often justified by appealing to the bureaucracy's issue-specific expertise relative to one or more political principals, such as the president and Congress.[1] Delegation, however, introduces the potential for the agent to subvert the goals of the political principal in pursuit of their own. That is, agencies are sometimes able to exploit their superior expertise in order to pursue their own goals that may be at odds with political principals and overseers. A ubiquitous, though partial, remedy for this "agency problem" is ex post review of the agent's decisions. In the United States federal government, this type of review can be, and is, carried out by various actors, including the federal judiciary and the executive branch (*e.g.*, the Office of Information and Regulatory Affairs (OIRA)).[2]

Regardless of who is reviewing the agent's decisions, these forms of oversight are thought to mitigate the ability of an agent to subvert the principal's wishes by inducing the agent to use his or her discretion for the public good. In other words, ex post review enforces accountability.[3] In this article we show that such review can ironically subvert the agent's incentives to make informed policy decisions in realistic environments.[4] In the context of bureaucratic politics, the theory laid out in this article provides an understanding of both why courts tend to defer to agency determinations of both fact and statutory interpretation,[5] and why Congress sometimes limits and even precludes judicial review.[6]

[1] Miller (2005), Gailmard and Patty (2012).

[2] Of course, Congress also carries out ex post review and auditing of agencies through both its committees and the day-to-day operations of legislative agencies such as the Government Accountability Office (GAO). However, these review activities are not well-described by the theory developed in this article, because both separation of powers and due process considerations generally limit the authority (or at least ability) of Congress to reverse a specific agency decision, especially following the Supreme Court's invalidation of the "legislative veto" in *INS v. Chadha*, 462 U.S. 919 (1983). Though Congress has been given a role in such review by the Congressional Review Act of 1996 (Pub.L. 104-121), the procedure is essentially the same as enacting a law and has been used successfully only once in twenty years, reversing the Clinton Administration's ergonomics standard in 2001 (Pub.L. 107-5).

[3] Within the canonical context of judicial review, a seminal presentation of this view is offered by Jaffe (1965).

[4] For two related, but separate, arguments about the possible costs of judicial review, see Shapiro and Levy (1995) and Wagner (2011).

[5] Among many others, see Eskridge and Baer (2007), Zaring (2010), Hammond (2011), Meazell (2011), and Pierce Jr (2011).

[6] For example, see Shipan (1997), Smith (2005, 2006), Clark (2009*b*, 2011), and McCann, Shipan and Wang (2016).

2 Ex Post Review & Accountability

Ex post political review comes in many forms, including elections[7] presidential vetoes,[8] bureaucratic policymaking,[9] and, of course, judicial review.[10] Much of this work highlights how review can lead to policymaking pathologies, such as how elections can create perverse "pandering" incentives for reelection-seeking politicians.[11] Specifically, if politicians are motivated by reelection (in particular, more than policy) then they may be induced to discard useful private information and instead choose policies they know are favored by the public independent of their private information (pandering), enact bold policies that their private information suggests are unlikely to yield positive benefits (posturing), or even continue on with policies that they know have failed or are failing (persistence). In all of these instances politicians disregard their (superior) private information and instead make choices that maximize the probability that they will remain in office (i.e., that voters will favor them in an election).

In line with these, a common thread through the modern institutional theories of accountability is the finding that increased transparency can reduce accountability.[12] We extend this thread and focuses attention more squarely on a standard spatial model of policymaking, as opposed to the classical model of adverse selection in which the accountability mechanism is meant to sanction "bad types" of agents and reward "good types." The main question in this article, then, is under what circumstances a principal would prefer to observe the policy proposed by an agent whose expertise, ability, and policy preferences are all known by the principal. Specifically, in a spatial model of policymaking, when might a principal be harmed by possessing greater control over his or her agent's policy decision?

The effects of transparency in this environment are interesting because, on the one hand, the

[7] Seminal citations include Barro (1973) and Ferejohn (1986), Fearon (1999). For a recent review of work on electoral accountability, see Ashworth (2012).

[8] For example, Cameron (2000), Groseclose and McCarty (2001), and Crombez, Groseclose and Krehbiel (2006).

[9] McCubbins and Schwartz (1984), Lupia and McCubbins (1994), Epstein and O'Halloran (1995), Bueno de Mesquita and Stephenson (2007), Gailmard (2009*b*), and Clinton, Lewis and Selin (2013).

[10] The literature on analytical models of judicial review is large and growing. Among others, see Shipan (2000), Rogers (2001), Vanberg (2001), Clark (2009*a*), Lax (2011), Beim, Hirsch and Kastellec (2014), Fox and Vanberg (2014), Fox and Stephenson (2015), Callander and Clark (2016), Clark (2016), and Turner (2016).

[11] On pandering, among others, see Canes-Wrone, Herron and Shotts (2001) and Gersen and Stephenson (2014).

[12] For example, Fox and Stephenson (2011) and Fox and Van Weelden (2012, 2015).

principal learns nothing about the agent from the agent's decisions (the principal knows that the agent is an expert) but, at the same time, the principal and agent have different preferences over policy. Transparency provides the principal the ability to block policies that he or she does not like, but we presume that the agent is both motivated by the final policy outcome and does not like having his or her policy reversed by the principal. Thus, transparency can have two effects on the principal's welfare.

First, transparency provides the principal the opportunity to veto undesirable proposed policies, which has an unambiguously positive impact on the principal's welfare, *holding fixed the proposed policy*. However, and second, this ability to reject proposed policies can alter the agent's incentives and change the types of policies that the agent ultimately proposes to the principal. This second effect has ambiguous effects on the principal's welfare. We show that, in a standard unidimensional spatial setting, transparency can harm the principal by inducing the agent to essentially "cry wolf" and propose more extreme policies than are warranted by the situation. Before presenting our formal model of expertise, policymaking, and ex post review, we briefly lay out the intuition behind why and how ex post review can induce the agent to cry wolf.

Ex Post Review and "Crying Wolf." Our setting is one in which the principal can reject the agent's policy decision if the decision is observed by the principal. In substantive terms, we consider a setting in which the agent can propose a large policy change, a moderate policy change, or no policy change at all. The principal can reject either policy change, but if he or she does so, the result is no policy change at all. *"Crying wolf" occurs in this setting when the agent proposes a large policy change when the agent would actually choose the moderate policy change if the principal could not reverse the decision, but the principal would reject a moderate policy change.*

In line with this, we show that this crying wolf phenomenon is more likely to occur when the principal and agent have moderately divergent policy preferences. When the principal and agent have very similar preferences, then the principal will never want to reject the agent's most preferred policy and, when they have very divergent preferences, the principal will reject any policy change. When the principal and agent have moderately divergent preferences in our setting, then they agree

that significant policy change is better than no policy change when it is called for, but they disagree about policy when only moderate policy change is "called for" from the agent's perspective: the principal would prefer no policy change in that case.

Crying wolf is more likely to occur when the difference between the impacts of large and moderate policy changes is smaller. This is because the agent is not motivated only to avoid reversal: he or she is also motivated by policy and, accordingly, considers the degree of policy mismatch incurred by implementing a large policy change when only a moderate change is called for. While crying wolf becomes more likely as this difference shrinks, the cost this behavior imposes on the principal declines as this difference gets smaller. Thus, the worst case from the principal's perspective is when the difference between the two degrees of policy change is just small enough to induce the agent to cry wolf.

Before reaching the question of the principal's preferences about ex post review as an institutional feature, we must formally define the preferences and equilibrium behaviors of the agent and principal in the presence of ex post review. We do so in the next section. In addition to grounding our institutional analysis, this derivation also provides several testable empirical predictions for behavior in sequential or hierarchical policymaking institutions.

3 The Model

We analyze a two player, non-cooperative game between a principal, P, and an agent, A.[13] The agent is endowed with policy-relevant information and is directed by statute to make policy. The principal is authorized to review and invalidate (or, block) the agent's policy choice and return policy to an exogenous status quo.

Informational Structure. The agent has an informational advantage in that he knows the true *state of the world*, denoted by $\theta \in \Theta = \{\delta, -1, 0\}$, where $\delta < -1$, and the *ex ante* probability that the true state is θ is given by $p(\theta)$. These three possible states of the world represent whether the facts on the ground justify extreme policy change ($\theta = \delta$), moderate policy change ($\theta = -1$), or maintenance

[13] Throughout we will refer to the principal and agent with feminine and masculine pronouns, respectively.

of the status quo policy ($\theta = 0$). In other words, the magnitude of θ represents the agent's sincere opinion about how much policy change is warranted when making its policy decision.

Once the agent observes θ, he chooses policy, denoted by $x_A \in X = \mathbb{R}$. Following this choice, the principal observes x_A and then chooses to either uphold or reverse the agent's policy decision. This choice is denoted by $r \in \{0, 1\}$ where $r = 0$ means the principal upholds agent-made policy and $r = 1$ means she rejects the agent's choice. If the principal reverses the agent, then the final policy is set at $x = 0$.[14] If the principal upholds the agent's decision, then the final policy is $x = x_A$. The game form is pictured in Figure 1.

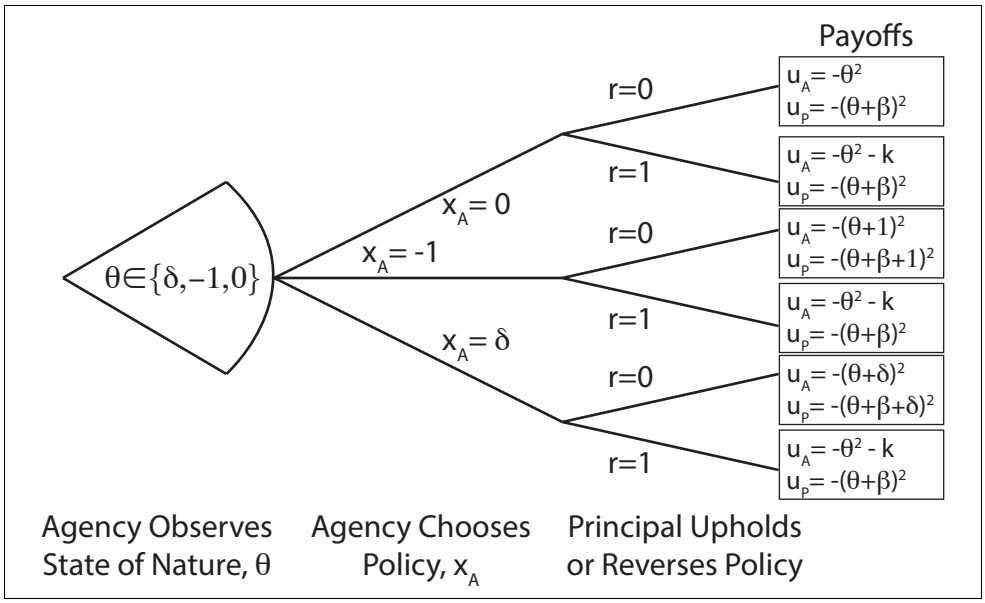

Figure 1: Sequence of Decisions

Preferences. The agent is motivated by two main factors: (1) he wants policy to match the true state ($x(\theta) = \theta$), and (2) he wants to have his policy choice upheld by the principal ($r(x) = 0$). If the agent is reversed by the principal, he internalizes a cost $k > 0$. This cost is exogenous and common knowledge. This could be a reputational cost, an opportunity cost, or direct costs such as a fine or demotion. This represents a situation in which the agent is "faithful" in the sense that he wants policy

[14]For simplicity, we do not allow the principal to directly set policy. This is an accurate portrait of ex post review of many decisions, such as tenure and hiring recommendations, presidential vetoes of legislation, and review of proposed regulations (rules) within OIRA. For an empirical justification of this assumption in the context of judicial review in the US, see Wagner (2011). We consider a modified version of this setting in which the principal can request justification of the policy prior to making an up-or-down decision in Section 6.2.

to match the state with no distortions due to preference or ideology. Substantively, this proxies an environment in which the agent is motivated by the policy area in the purest sense. That is, the agent could represent, for instance, a bureaucrat that opted into the bureaucracy to "make a difference." The key point is the agent wants policy to be dictated by the current state of the policy environment, which is captured by θ. In contrast, the principal may differ in where it would like policy to be realized. This could represent a political or ideological agenda or, more generally, simply an *ex ante* "bias" as to what policy is most desirable given the current policy environment (θ). This bias is captured by the exogenous and common knowledge parameter $\beta \geq 0$. Taken together, this implies that the payoffs for the principal and agent are given by the following expressions:

$$\begin{aligned} u_P(x, r) &= -(\theta + \beta - (1 - r)x)^2, \\ u_A(x, r) &= -(\theta - (1 - r)x)^2 - rk. \end{aligned}$$

These utility functions formalize the discussion above and imply that the principal wants policy to be as close as possible to her ideal point ($x = \theta + \beta$) and the agent wants the final policy x to match the state ($x = \theta$) *and* be upheld by the principal to avoid paying reversal cost k.[15] The players' policy preferences, given the state of nature θ, are illustrated in Figure 2.

Strategies and Beliefs. We denote the agent's *policy strategy* as $s_A(\theta) : \Theta \to \Delta(X)$. The principal's review strategy is a mapping from policy choices into a probability of reversal, $s_P(x) : X \to [0, 1]$, where $s_P(x_A)$ denotes the probability that the principal reverses policy x_A. The principal's beliefs are denoted by $b_P(x) : X \to \Delta(\Theta)$ where $\Delta(\Theta)$ represents the set of probability distributions over Θ.[16] With this in hand, we can now turn to characterizing the equilibria of the model.

[15] We assume that the policy payoffs are represented by a quadratic loss utility function. Because this is strictly concave, it implies that both players dislike policy uncertainty. This plays an important role when we do welfare comparisons of equilibria (particularly for the principal). It does not play a substantive role in the equilibria themselves, however, because of the sequential nature of the game. From a welfare standpoint, risk aversion on the part of the principal is reasonable, given the fact that the principal could have simply set policy on its own.

[16] Given the sequential nature of the game and the informational structure, the agent's beliefs are trivial and omitted.

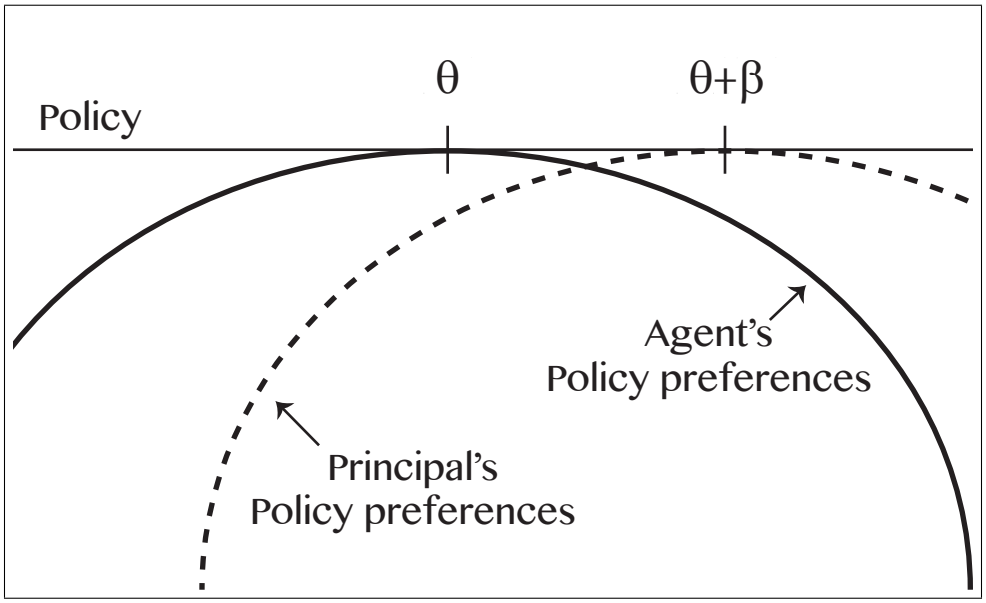

Figure 2: Policy Preferences

4 Equilibrium

Our equilibrium notion is perfect Bayesian equilibrium, which requires (1) that the principal have correct beliefs about the state after observing the agent's policy choice, and (2) that the agent and principal each act so as to maximize their subjective expected payoffs.

The first question we address is how the principal should respond if the agent sets policy "truthfully." In formal terms, the agent's truthful strategy is represented as follows:

$$s_A^{\text{truthful}}(\theta) = \theta.$$

Truthful policymaking by the agent is a normative benchmark, especially insofar as the agent has been delegated authority to make policy decisions because of his information or expertise. Given that the principal believes that the agent is setting policy truthfully as described by s_A^{truthful}, her best response, given β, is summarized in Table 1.

Table 1 illustrates that, as the principal's and agent's preferences diverge (*i.e.*, as the bias, β, grows), it becomes more difficult for the agent to be upheld following truthful policymaking. Based on the regions identified in Table 1, and to ease the presentation, we refer to the principal as having *aligned preferences* if $\beta \leq \frac{1}{2}$, *moderate preferences* if $\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$, and *extreme preferences* if $\beta > -\frac{\delta}{2}$.

x, θ	$\beta \leq 1/2$	$\beta \in \left(1/2, -\frac{\delta}{2}\right]$	$\beta > -\frac{\delta}{2}$
$x = \theta = 0$	$r = 0$	$r = 0$	$r = 0$
$x = \theta = -1$	$r = 0$	$r = 1$	$r = 1$
$x = \theta = \delta$	$r = 0$	$r = 0$	$r = 1$

Table 1: Principal's Best Response to Truthful Policymaking, Conditional on β.

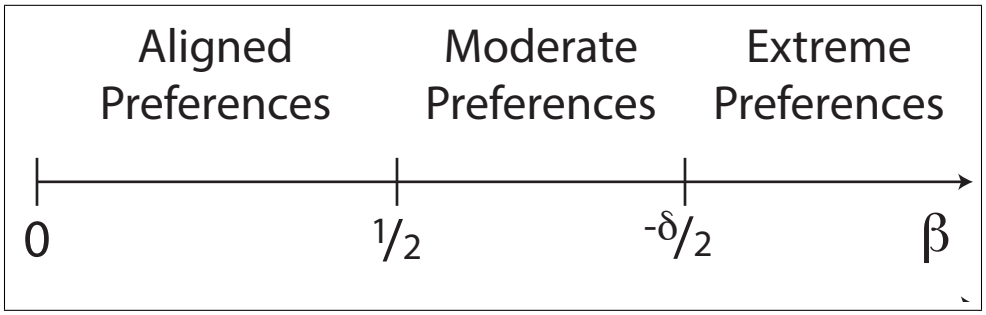

Figure 3: Alignment of Preferences

This is depicted in Figure 3.

Given the principal's best response to truthful policymaking when she has either moderate or extreme preferences (*i.e.*, $\beta > 1/2$), the agent will not set policy truthfully in equilibrium. Specifically, when $\theta = -1$, truthful policymaking will lead to reversal. When $\theta = -1$, choosing $x_A = 0$ necessarily increases the agent's expected payoff by k. This is because reversal leads to the same policy outcome as if the agent had chosen $x_A = 0$. This immediately leads to the following proposition, which is the starting point of the institutional analysis.

Proposition 1 *If the reversal cost is positive ($k > 0$), then there is a truthful equilibrium in which the agent always matches policy to the state ($s_A^*(\theta) = \theta$) if and only if the principal has aligned preferences (*i.e., $\beta \leq 1/2$*).*

Proof: Proofs for all propositions are presented in the appendix. ∎

The sufficiency conclusion of Proposition 1 (*i.e.*, that a truthful equilibrium exists when the principal has aligned preferences) implies that the principal can get completely responsive policymaking when her preferences are sufficiently close to those of the agent's. As with many signaling models, there are multiple equilibria if the cost of reversal, k, is sufficiently large. In order to keep our analysis as

tight as possible, however, we will presume that the agent plays the truthful strategy whenever it is supportable in equilibrium.

We do not have this issue when the principal has extreme preferences. The next proposition establishes that, in this case, the agent sets policy equal to zero in each state (*i.e.*, $x_A^*(\theta) = 0$ for all θ). That is, when the principal has extreme preferences, the agent is completely unresponsive to his information.

Proposition 2 *If the principal has extreme preferences ($\beta > -\frac{\delta}{2}$) then, in any equilibrium, the agent chooses $x = 0$ for all values of θ.*

Propositions 1 and 2 imply that the principal can be harmed by ex post review only if she has moderate preferences. Accordingly, we will focus on the case of moderate preferences in the next section. After that, we turn to the question of when the principal benefits from ex post review.

4.1 Moderate Preference Divergence: Two Cases

In deriving the equilibrium behaviors of the principal and agent, there are two regions of the parameter space, depending on the value of the extreme state, $\delta \in (-\infty, -1)$. The first region is that in which δ is relatively moderate: $-2 \leq \delta < -1$. We refer to this case as that of a *low urgency issue*: in this region, the difference between the extreme and moderate states of nature is relatively small. The second, complementary, region is that in which δ is large in absolute value: $\delta < -2$. We refer to this region as that of a *high urgency issue*. In this region, the difference between extreme and moderate states of nature is larger: it is more important to *both* players that the agent's policymaking distinguish between these two situations. We refer to this distinction as the urgency of the "issue" because the absolute value of δ is proportional to how much disutility both the agent and the principal will incur from not changing the status quo policy of $x = 0$ when $\theta = \delta$. The two cases are illustrated in Figure 4. The high urgency issue case is the simpler of the two cases, so we consider it first and then move on to the more interesting case of a low urgency issue.

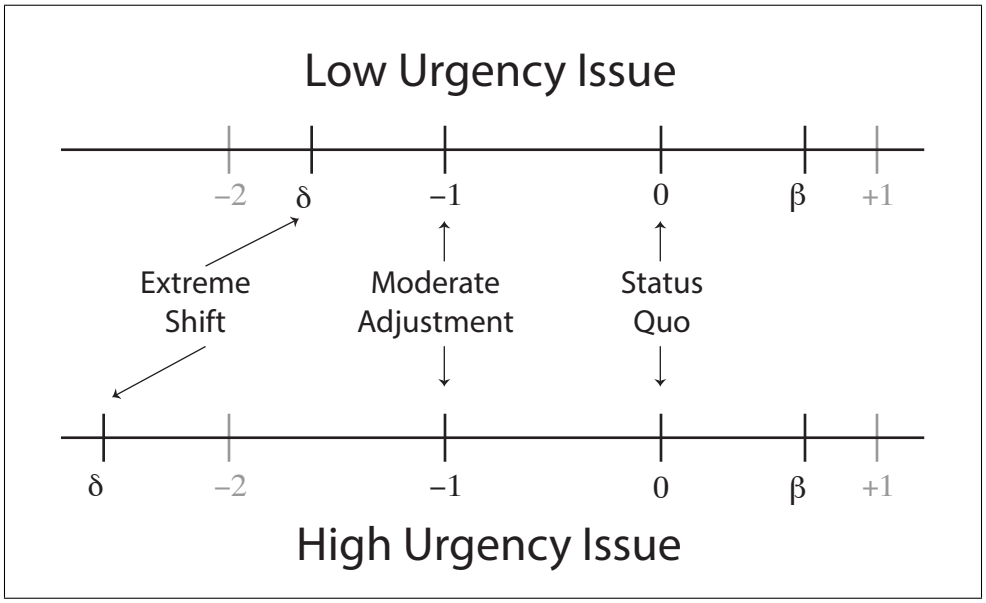

Figure 4: Two Cases of Policy Urgency

4.2 High Urgency Issue

In the high urgency issue case ($\delta < -2$), the agent would prefer to obfuscate after observing $\theta = -1$ by choosing $x = 0$. This is because the extreme policy is *too* extreme for the agent to find it profitable to impose it (even knowing that it will be upheld by the principal) when the true state calls for moderate policy change. The following proposition characterizes all efficient equilibria in this case.

Proposition 3 *If the principal has moderate preferences ($\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$), and $\delta < -2$, then, there is an equilibrium $s^* = (s_A^*, s_P^*)$, in which the agent chooses $x = 0$ whenever $\theta \in \{-1, 0\}$:*

$$s_A^*(0) = s_A^*(-1) = 0,$$

chooses $x = \delta$ when $\theta = \delta$:

$$s_A^*(\delta) = \delta,$$

and the principal upholds $x \in \{\delta, 0\}$ and reverses $x = -1$:

$$s_P(x) = \begin{cases} 1 & \text{if } x = -1, \\ 0 & \text{if } x \in \{0, \delta\}. \end{cases}$$

We will see below that, when facing a high urgency issue, the principal always benefits from ex post review. This is because the equilibrium described in Proposition 3 involves the agent choosing the principal's preferred policy in all states. We now turn to the case of a low urgency issue.

4.3 Low Urgency Issue

In a low urgency issue ($\delta \in [-2, -1)$), the agent strictly prefers $x = \delta$ to $x = 0$ when $\theta = -1$, so that, for any $k \geq 0$, the agent strictly prefers obfuscating when $\theta = -1$ by choosing $x = \delta$. In contrast with the high urgency case, the agent prefers to incur the policy disutility of $(\delta + 1)^2$ rather than -1 in order to avoid reversal. However, this type of obfuscation by the agent can be upheld with certainty (*i.e.*, "deferred to") by the principal in equilibrium only if the probability of an extreme state ($\theta = \delta$) is sufficiently high relative to the probability of the moderate state ($\theta = -1$). This is described in the following proposition.

Proposition 4 *If the issue is low urgency ($\delta \in [-2, -1)$), the principal has moderate preferences ($\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$), and*

$$\frac{p_{-1}}{p_\delta + p_{-1}} \quad \leq \quad \frac{\delta + 2\beta}{2(1+\delta)}, \tag{1}$$

then there is an equilibrium in which the agent chooses $x = \delta$ for both $\theta \in \{\delta, -1\}$ and $x = 0$ for $\theta = 0$:

$$s_A^{\textit{pure semi-pool}}(\theta) = \begin{cases} 0 & \textit{if } \theta = 0, \\ \delta & \textit{if } \theta \in \{-1, \delta\}, \end{cases}$$

and the principal upholds $x \in \{\delta, 0\}$ and reverses $x = -1$:

$$s_P(x) = \begin{cases} 1 & \textit{if } x = -1, \\ 0 & \textit{if } x \in \{0, \delta\}. \end{cases}$$

As described above, the threshold for p_{-1} in inequality (5) constrains the probability of the moderate state of nature (p_{-1}) relative to that of the extreme state of nature (p_δ). Inequality (5) is

based upon the sequential rationality of the principal: if the probability of the moderate state is too high relative to that of the extreme state, then the principal can not rationally defer to the extreme policy, because it is too likely that such a policy indicates that the true state is that demanding a moderate policy change—which the presumption that the principal has moderate preferences implies that the principal wants to reverse. If the probability of a moderate state of nature, p_{-1}, is too large relative to that of an extreme state of nature, p_δ, then this type of equilibrium must involve mixing by the principal and agent. This is described in the following proposition.

Proposition 5 *If the principal has moderate preferences ($\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$), and inequality* (5) *does not hold:*

$$\frac{p_{-1}}{p_\delta + p_{-1}} > \frac{\delta + 2\beta}{2(1+\delta)},$$

then there is an equilibrium in which the agent mixes between $x = \delta$ and $x = 0$ when $\theta = -1$, and chooses $x = \theta$ for $\theta \in \{0, \delta\}$:

$$s_A^{\textit{mixed semi-pool}}(\theta) = \begin{cases} \delta & \text{with probability } \frac{p_\delta(2\beta+\delta)}{p_{-1}(\delta-2\beta+2)} \textit{ if } \theta = -1, \\ 0 & \text{with probability } 1 - \frac{p_\delta(2\beta+\delta)}{p_{-1}(\delta-2\beta+2)} \textit{ if } \theta = -1, \\ \theta & \textit{if } \theta \in \{0, \delta\}, \end{cases}$$

and the principal reverses x as follows:

$$s_P(x) = \begin{cases} 0 & \textit{if } x = 0, \\ 1 & \textit{if } x = -1, \\ 0 & \text{with probability } \frac{k}{-(2\delta+\delta^2)+k} \textit{ if } x = \delta, \\ 1 & \text{with probability } \frac{-(2\delta+\delta^2)}{-(2\delta+\delta^2)+k} \textit{ if } x = \delta. \end{cases} \tag{2}$$

As we will see below, Proposition 5 is key to the empirical implications of our theory. However, Proposition 4 is also central to our welfare analysis of ex post review. Before reaching that, though,

we first discuss the theory's empirical predictions.

5 Empirical Predictions: Policy Change and Reversals

Our theory offers empirical predictions about the frequency and nature of both policy changes and reversals. The predictions depend upon both the nature of preferences (aligned, moderate, or extreme) and, in the moderate preference case, on the nature of the issue area (low urgency or high urgency). In this section, we deal with each of these cases in the context of bureaucratic politics. Specifically, we will at times refer to a bureaucratic agency (rather than 'agent') and a reviewing court (rather than 'principal') to focus on a particular substantive environment: bureaucratic policymaking in the shadow of judicial review. While the insights apply to many other political oversight situations, focusing on a ubiquitous environment like bureaucratic-judicial relations adds to explication of the empirical implications. We now turn to analysis of each case.

Aligned Preferences. If the principal has aligned preferences, there will be policy change, but no reversals. Empirically, then, the theory is consistent with intuition in this case: if one thinks that the principal and agent have similar preferences, then the agent will exercise significant discretion in practice and the principal will defer to this behavior. While this is not a surprising prediction, it should be taken as a part of the empirical implications *in toto*. For example, in the context of judicial review of government agencies' decisions, the theory is consonant with the fact that most agency decisions—even conditional upon being challenged in court—are left undisturbed.[17] That is, judicial deference is the norm and we submit that analogous norms of deference prevail in many, if not most, hierarchical policymaking processes. Accordingly, while many theories are consistent with such a regularity, it is nonetheless relevant that our theory is also consistent with it. With that, we turn to the case of extreme preferences.

Extreme Preferences. If the principal has extreme preferences, there will be no policy change and no reversals. If (out of equilibrium) policy change occurs, these policy changes will be uniformly

[17] For example, see Eskridge and Baer (2007).

reversed. If behavior were perfectly described by our theory, then this parameter region would not appear in a typical empirical analysis of agency decision-making. Specifically, if one collected, say, all of the judicial challenges to policy decisions that changed the existing policy, then agencies in this parameter region would be naturally excluded from the data, leading to potentially biased estimates of the effect(s) of the various parameters.

Moderate Preferences. If the principal has moderate preferences, there are two cases to consider, depending on whether the issue is low urgency or high urgency. We consider the high urgency case first.

- *High Urgency Issues.* If the issue is high urgency, then Proposition 3 implies that policy change will occur only in extreme situations and that, on the equilibrium path, there will be no reversals. Arguably harder to ferret out of the data will be the fact that policy change is less common than it "should be" from the agent's perspective. Evidence for this behavior within a bureaucratic agency would include reports within the agency that policy change would be desirable, but that the facts do not warrant a policy change that would survive judicial review, while also observing occasional (significant) policy changes that receive judicial deference.

- *Low Urgency Issues.* If the issue is low urgency, then there are two further sub-cases, depending on the likelihood that significant policy change is called for relative to the likelihood that only moderate policy change is warranted.

  - *Significant Policy Change Commonly Warranted.* Proposition 4 implies that, when significant policy change is relatively frequently called for from the agent's perspective, the agent will recommend significant policy change whenever he believes any policy change is called for. That is, moderation will never be recommended by an agency in this region and, more importantly, the agency will always receive judicial deference when it recommends a change in policy.

  - *Significant Policy Change Rarely Warranted.* If significant policy change is infrequently called for (relative to moderate policy change), then Proposition 5 implies that there is a

positive probability that an agency's policy decision will be reversed.

When the principal has moderate preferences and significant policy change is rarely warranted represents the most interesting case for empirical testing, because the agent's and principal's behaviors vary with the parameters of the policymaking process. As an empirical matter, a government agency's decision will be reviewed by a court only if a litigant challenges the decision and, furthermore, that such challenges are costly. This recognition makes the empirical implications of the theoretical prediction concrete because, in this case, the agent is reversed on the equilibrium path only if it recommends the significant policy change ($x_A = \delta$). Thus, in equilibrium, the principal engages in meaningful review only when $x \neq 0$. Or put another way, a (unmodeled) potential litigant/petitioner of the principal would seek relief only when $x = \delta$ or $x = -1$. The probability of a challenge to the agent's decision, $C(p, \beta, \delta)$, is defined by the following:

$$C(p, \beta, \delta) \equiv p_\delta + p_{-1}\frac{p_\delta(2\beta + \delta)}{p_{-1}(\delta - 2\beta + 2)} = p_\delta\left(\frac{2(1+\delta)}{\delta - 2\beta + 2}\right). \tag{3}$$

Combining this with the principal's review strategy (from equation (6)):

$$\rho(\delta, k) = \frac{2\delta + \delta^2}{2\delta + \delta^2 - k},$$

we obtain the *ex ante* probability of a reversal, which we denote by $R(p, \beta, \delta, k)$:

$$R(p, \beta, \delta, k) \equiv C(p, \beta, \delta) \cdot \rho(\delta, k) = p_\delta\left(\frac{2(1+\delta)}{\delta - 2\beta + 2}\right)\frac{2\delta + \delta^2}{2\delta + \delta^2 - k}.$$

The Effect of the Principal's Preferences, β. We first consider how the principal's preferences affect both policy choices and both the *ex ante* and conditional probabilities of the agent being reversed. Notice that the ex ante probability of observing a reversal, $R(p, \beta, \delta, k)$ is decreasing in β:

$$\frac{\partial R(p, \beta, \delta, k)}{\partial \beta} = 2p_\delta\left(\frac{2(1+\delta)}{(\delta - 2\beta + 2)^2}\right)\frac{2\delta + \delta^2}{2\delta + \delta^2 - k} < 0,$$

but the conditional probability of being reversed, $\rho(\delta, k)$, is invariant to β: $\frac{\partial \rho(\delta,k)}{\partial \beta} = 0$. Thus, the *ex ante* probability of the agent being reversed decreases as the principal's preferences become more extreme, but the agent's success when challenged is unaffected by changes in the principal's preferences. These points are summarized in the following prediction.

Prediction 1 *If reversals occur with positive probability, then the agent will choose the extreme policy and face challenge less frequently when the principal's preferences become more extreme (*i.e. *for larger values of β). However, the conditional probability that the agent is reversed will be independent of the principal's preferences.*

The logic behind Prediction 1 is fairly intuitive: as the principal's preferences become more extreme, the principal remains indifferent about reversing the extreme policy only if the conditional probability that the agent is truthful when it chooses the extreme policy increases. Put another way, as the principal's preferences become more extreme, the principal is willing to incur a larger probability of "incorrectly" reversing the agent (*i.e.*, $r = 1$ when $\theta = \delta$) in pursuit of "correctly" reversing it (*i.e.*, $r = 1$ when $\theta = -1$).

The Effect of the Agent's Aversion to Reversal, k. As already discussed regarding Prediction 1, the agent's conditional probability of reversal after choosing $x = \delta$, ρ, is a function of his reversal aversion, k. Furthermore, inspection of equation (3) reveals that the agent's own behavior (*i.e.*, the probability that he chooses the extreme policy and provokes challenge/review) is independent of his aversion to reversal. Because $\rho(\delta, k)$ is a decreasing function of k, we obtain the following prediction.

Prediction 2 *If reversals occur with positive probability, then agents that find reversal less punitive (k closer to zero) will be reversed more often. However, the frequency with which the agent is challenged will be independent of k.*

In terms of bureaucratic policymaking, if one supposes that the cost of reversal is inversely proportional to an agency's legal staff (or, generally, resources designed to deal with judicial review), then Prediction 2 implies that agencies with larger legal staffs will tend to be more frequently re-

versed in court. Analogously, in political terms, if one conceives of the cost of reversal as being inversely proportional to the degree that an agency is insulated from political backlash, Prediction 2 implies that more insulated agencies will be overturned more often. At the same time, Prediction 2 indicates that features such as legal resources and insulation from backlash will be *uncorrelated with* the frequency of review of/challenge to the agency's decisions.[18]

The Effect of the Urgency of the Policy Area, δ. Changing δ is equivalent to altering the importance of the "extreme state": when δ is larger in absolute value, both the agent and the principal have a stronger preference for truthful policymaking. In other words, both the principal and the agent incur a larger cost from reversal and obfuscation by the agent when he chooses $x = \delta$ when $\theta = -1$.[19] The conditional probability of reversal, $\rho(\delta, k)$, is a decreasing function of the urgency of the policy change (*i.e.*, $|\delta|$). This leads to the following prediction.

Prediction 3 *If reversals occur with positive probability then, conditional on proposing a policy change (*i.e.*, $x \neq 0$), agents will be reversed more often on lower urgency issues (δ closer to -1).*

Viewed broadly from an empirical standpoint, Prediction 3 suggests that, conditional upon reviewing an agent's decision, the principal will appear to be more deferential both to decisions regarding policies with greater uncertainty and to more extreme policy changes. We will see below that this correlation can generate an incentive for the principal to abandon ex post review, particularly once paired with the following fact: the probability the agent proposes a policy change is increasing in the urgency of the extreme state, δ, as stated in the following prediction.

[18]Note that the behavior in this equilibrium is observationally equivalent to several other (simplistic) intuitive theories of the agent's and principal's decision-making. For example, it is consistent with a theory in which the principal internalizes the agent's cost of reversal in the sense that the principal's desire to reverse the agent is negatively correlated with the agent's cost from reversal. In terms of bureaucracy, to the degree that the cost of reversal is inversely correlated with agency-specific features such as the size of its legal staff, Prediction 2 is also consistent with a model in which these resources are endogenously procured/developed in expectation of agency reversal.

[19]These two effects are actually separate: the first cost (from reversal) is a function of the underlying *state* $\theta = \delta$ becoming more extreme, implying that reversal of the agent's policy in that state results in both players bearing a larger policy cost. On the other hand, the second cost (from obfuscation) increases because the *policy* that the agent chooses to avoid reversal when $\theta = -1$ is more extreme. The fact that these effects are aligned is an artifact of the "additive shock" model of policymaking. Space precludes consideration of a more general model of policymaking. See Callander (2008, 2011) and Hirsch and Shotts (2012) for models that consider more general specifications of policymaking in incomplete information environments.

Prediction 4 *If reversals occur with positive probability, then the probability that the agent proposes a policy change (*i.e.*, $x \neq 0$) is higher for higher urgency issues (δ closer to -2β).*

Prediction 4 implies that more significant policy changes will be reviewed/challenged more frequently. Putting Predictions 3 and 4 together suggests that the effect of δ on the *ex ante* probability of reversal will be ambiguous. Predictions 3 and 4, and the potential non-montonicity of the *ex ante* probability of reversal with respect to δ, are illustrated visually in Figure 5.

The point to be drawn from Figure 5 and Predictions 3 and 4 is that the relationship between the importance/urgency of an agent's policy decision can be complicated. The reason for this complication is that, when the principal believes that the agent might be obfuscating with an extreme proposal, the extremity of the proposal has two effects on the principal's incentives: on the one hand, the principal gains more from reversing the agent's decision when the agent *is* obfuscating but, on the other hand, she pays a larger cost for reversing when the agent is *not* obfuscating.

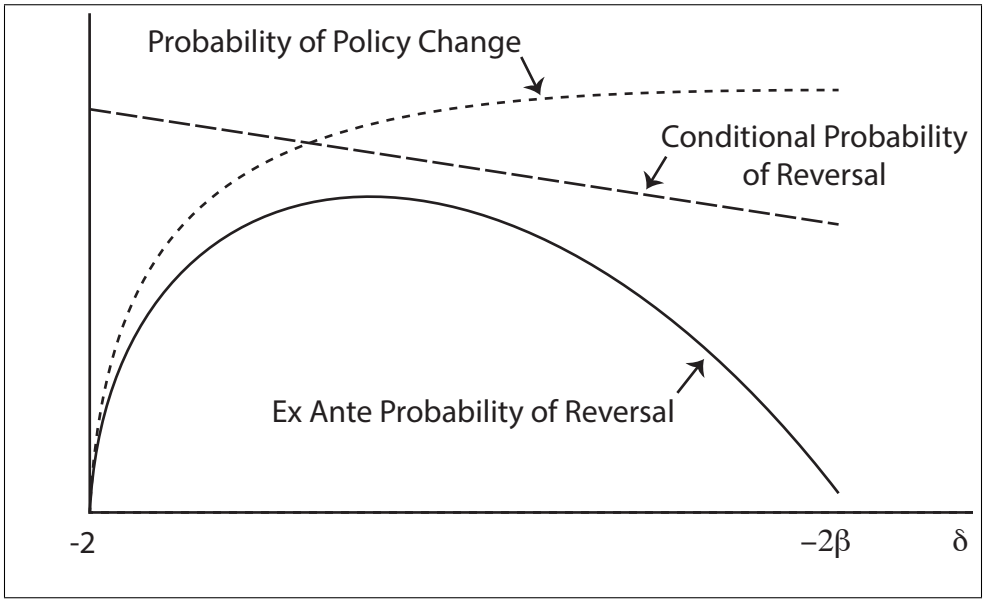

Figure 5: The Effects of Issue Urgency on Frequencies of Policy Change & Reversal

Having discussed the empirical predictions of the equilibrium described in Proposition 5,[20] we now move to consider the incentives for an institutional designer (and/or principal) in both classes of equilibria.

[20]There are no interesting comparative statics for the behavior in the equilibrium described in Proposition 4.

6 Incentives for Institutional Design

With the two types of obfuscatory equilibria described (Propositions 4 and 5), we now move to consider the incentives facing an institutional designer. The first question, and the one at the heart of the article, is when the principal would prefer to set aside ex post review entirely. We then consider the impact of allowing the principal to request justification of a policy prior to choosing whether to reverse it. Combining these two considerations yields a nuanced picture of the impact of institutional features of ex post review. Specifically, they jointly imply that ex post review should be set aside when an extended review process is not feasible, the principal's preferences are similar to those of the agent, and the relative probability of the extreme state of nature is high.

6.1 When Does The Principal Benefit from Ex Post Review?

If we suppose that the principal could commit *ex ante* to not reviewing the agent's policy decision (and the agent was aware of this commitment), then it follows from our assumptions that the agent's optimal strategy would be truthful policy making ($s_A^{\text{truthful}}(\theta) = \theta$). The principal's expected payoff from committing to *not* review the agent's decision is accordingly

$$V_P^{\text{No Review}} = -\beta^2.$$

We now consider whether the principal would prefer this to the best payoff she can obtain in equilibrium.[21] We begin with the case in which the principal has extreme preferences.

Extreme Preferences: Ex Post Review Is Beneficial. The principal always benefits from ex post review if his or her preferences are extreme ($\beta > -\frac{\delta}{2}$). This is simple to see: without ex post review, the principal's expected equilibrium payoff is $-\beta^2$. With ex post review, Proposition 2 implies that

[21] In line with our analysis throughout the article, we do not consider every possible equilibrium. For example, there is always an equilibrium in which the principal reverses every policy decision except $x = 0$, and the agent always chooses $x = 0$ (of course, this is the only equilibrium outcome when $\beta > -\frac{\delta}{2}$).

$x = 0$ with certainty, so that the principal's expected payoff in this case is,

$$V_P^{\text{Review}} = -\left(p_0\beta^2 + p_{-1}(\beta - 1)^2 + p_\delta(\beta + \delta)^2\right),$$

so that the net difference in the principal's expected payoff from ex post review is,

$$V_P^{\text{Review}} - V_P^{\text{No Review}} = \beta^2 - \left(p_0\beta^2 + p_{-1}(\beta - 1)^2 + p_\delta(\beta + \delta)^2\right) = 2\beta - 1 - 2\beta\delta - \delta^2 > 0.$$

Thus, the principal strictly benefits in expectation from retaining ex post review when her preferences are extreme.

Aligned Preferences: Ex Post Review is Irrelevant. For completeness, we note that when the principal's preferences are aligned with the agent's ($\beta \leq 1/2$), the principal will always approve the agent's state-conditioned most preferred policy, so that there is a perfectly separating equilibrium. Ex post review yields the principal an equal equilibrium payoff to what she would receive in the absence of ex post review: such review is irrelevant from the principal's perspective when her preferences are aligned with those of the agent. Accordingly, the principal can have a strict preference to set aside ex post review only if her preferences are moderate.

Moderate Preferences

When the principal has moderate preferences ($\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$), the impact of ex post review on the principal's welfare depends on the urgency of the issue, δ. We begin with the case of high urgency issues.

High Urgency Issues: Ex Post Review Is Beneficial. When the issue is high urgency ($\delta < -2$), Proposition 3 implies that, even if the principal has moderate preferences, he or she will prefer to retain ex post review. This is because the agent's obfuscation in this case (namely, choosing $x = 0$ when $\theta = -1$) is what the principal would prefer the agent do. Formally, the principal's expected

payoff in the best equilibrium with ex post review is

$$V_P^{\text{Review}} = -\left(p_0\beta^2 + p_{-1}(\beta-1)^2 + p_\delta\beta^2\right).$$

This reflects a situation in which the agent's interests are sufficiently aligned with the principal so that the prospect of ex post review induces the agent to choose the policy that the principal wants chosen in the first place. In other words, *the agent is unwilling to subvert the principal's intentions by choosing the "wrong" policy because that policy is too extreme.*

From an empirical standpoint, this implication of the model can be interpreted as follows: the principal will seek to retain ex post review whenever the urgent policy change is sufficiently extreme. Examples of policy areas in which this is the case would include issues involving individual liberties. For example, a court might uphold quarantining citizens without due process during a massive, life-threatening public health crisis, but not uphold mandatory vaccinations against a significant, but not extreme health threat. So long as the health authorities prefer the status quo policy to ordering a quarantine against the moderate public health threats, the court can defer to the government when a quarantine is ordered.[22]

Again, the key characteristic of policies in this scenario are those in which the policy change called for by the significant threat is "too extreme a remedy," relative to doing nothing, when the state of nature calls for a moderate policy response. Policy areas in which this is reversed—low urgency issues in which the agent would prefer to implement the extreme response to doing nothing when moderate policy change is the called for—fall within the analysis presented above in Section 4.3.

Low Urgency Issues. When the issue is low urgency, the principal's preferences about review depend on the relative likelihoods of the moderate and extreme states of nature.

Extreme State Relatively Likely. If the extreme state is sufficiently likely (*i.e.*, inequality (5) holds), then the principal would prefer to set aside ex post review. This is because, if the agent sets policy in

[22] Similar examples would include upholding curfew orders during periods of public disorder but rejecting attempts to preempt public demonstrations during periods of political or social unrest.

an insincere fashion, he is setting policy farther away from the principal's (state-conditional) ideal point than he would have in the absence of ex post review. This is intuitive once one interprets p_{-1} as "the state that the principal would like to control policy in" and notes that, when inequality (5) is satisfied, the principal is getting a strictly worse policy outcome in the presence of ex post review than she would get if she sets ex post review aside. Thus, *if the agent is crying wolf and being upheld with certainty by the principal, then the principal would strictly benefit from setting aside ex post review*.

This conclusion is robust in the sense that it is generally invariant to small changes in the parameters of the situation (β, p, and δ). As mentioned in the introduction, ex post review can hurt the principal through inducing the agent to set extreme policy so as to avoid reversal. When the extreme state is sufficiently likely, the agent can do this without fear of reversal because the principal can not credibly commit to reversing the extreme policy.[23]

Extreme State Relatively Unlikely. If the extreme state is sufficiently unlikely (inequality (5) is not satisfied), the principal's expected payoff is from the mixed strategy equilibrium described in Proposition 5 is equal to

$$V_P^{\text{Review}} = -p_0\beta^2 - p_{-1}\big(\omega(1-\rho)(\beta-1-\delta)^2 + (1-\omega+\omega\rho)(\beta-1)^2\big) - p_\delta\big((1-\rho)\beta^2 + \rho(\beta+\delta)^2\big),$$

where $\omega \equiv Pr[x = \delta|\theta = -1]$ and $\rho \equiv Pr[r = 1|x = \delta]$.[24] Analogously, her expected payoff from sincere policymaking (*i.e.*, avoiding ex post review) is

$$V_P^{\text{No Review}} = -\beta^2.$$

Setting aside ex post review is beneficial to the principal only if

$$V_P^{\text{No Review}} - V_P^{\text{Review}} \geq 0 \quad \Rightarrow \quad \delta p_\delta(2\beta+\delta) + p_{-1}(1-2\beta) \quad \geq \quad 0. \tag{4}$$

[23] This suggests that, if the principal lacks the ability to set aside ex post review, he or she might benefit from bounding the size of the largest policy change that the agent can propose. See Gailmard (2009*a*) for a comparison of various *ex ante* limits on discretion.

[24] Formal definitions for ω and ρ can be found in the proof of Proposition 5 in the appendix.

First, note that inequality (4) is always satisfied for $\beta = {}^{1}/_{2}$:

$$\delta p_{\delta}(1+\delta) > 0.$$

This implies that, for sufficiently small $\beta > {}^{1}/_{2}$, the principal would strictly prefer to abstain from ex post review. Conversely, for $\beta = -\frac{\delta}{2}$,

$$p_{-1}(\delta+1) < 0,$$

so that, for sufficiently large $\beta < \frac{-\delta}{2}$, the principal would strictly prefer to retain ex post review. Thus, if the principal has preferences that are similar enough to those of the agent, the principal would prefer to rule out ex post review of the agent's decision (*i.e.*, not see x), but will gain from maintaining ex post review when β is large enough (*i.e.*, when the principal's preferences diverge sufficiently from those of the agent). This leads to the following intuitive prediction.

Prediction 5 *Ex post review is more likely to be set aside when the principal has preferences aligned with the agent.*

Now, holding δ and β constant, inequality (4) is less likely to be satisfied for larger values of p_{-1} (and more likely to be satisfied for larger values of p_{δ}), because (in the relevant parameter region)

$$\delta(2\beta+\delta) > 0 > 1 - 2\beta.$$

This leads to the following prediction.

Prediction 6 *Ex post review is more likely to be set aside when the probability of the extreme state (*i.e.*, $\theta = \delta$) increases and/or the probability of the moderate state (*i.e.*, $\delta = -1$) decreases.*

Finally, because $\delta(2\beta+\delta) > 0$ in this parameter region, it follows that inequality (4) is more likely to be satisfied for larger absolute values of δ. This comparative static only holds for low urgency issues. This is stated in the following prediction.

Prediction 7 *Among low urgency issues, ex post review is more likely to be set aside for issues of relatively higher urgency (larger absolute values of δ)*

Note that this comparative static is "strict" only when the extreme state is relatively unlikely. That is, from a qualitative perspective, Prediction 7 is relevant for situations in which, in the presence of ex post review, the agent will be reversed with positive probability. In this region, ex post review imposes two costs on the principal. The first cost occurs when the principal does not reverse the agent but he cried wolf and set overly extreme policy. The second occurs when the principal does reverse the extreme policy but the state actually called for the extreme policy (*i.e.*, the agent was not crying wolf).

The Principal's institutional Incentives. The analysis in this section is summarized in Figure 6. The figure illustrates the conclusion from this section's analysis that the institutional incentives identified are at their most "binding" in one region: when the principal's preferences are moderately divergent from those of the agent *and* the issue is of moderate urgency. Thinking for a moment about the delegation problem from an empirical standpoint, this is more restrictive in appearance than in reality. When the principal's policy preferences are extremely divergent from those of the agent, ex post review is beneficial because it neuters the agent: the agent never proposes policy change. In such a case, one would never see review of the agent's decisions (indeed, one might never observe the agent making any decisions at all). In such a case, it is arguable that delegation has not really occurred (in equilibrium, that is). Similarly, when preferences are aligned, ex post review is irrelevant, because the principal and agent know that no review is necessary: the principal might as well simply hand absolute authority to the agent.

Thus, the interesting distinction in Figure 6 is that of issue urgency when preferences are moderately divergent. Our theory indicates that ex post review is harmful to the principal when the extreme state is more likely to be warranted, and this is because the agent is more likely to cry wolf in such situations.

Having considered the principal's equilibrium expected benefits and costs from ex post review, we now turn to briefly consider a different institutional design angle: allowing the principal to "remand" agent decisions, or a two-stage review process.

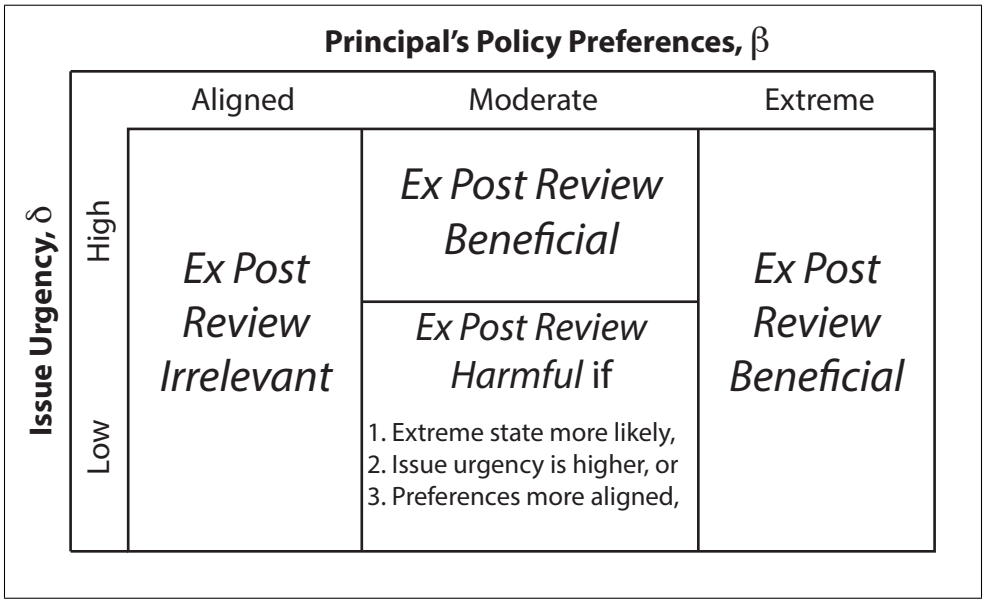

Figure 6: Principal's Induced Preferences over Ex Post Review

6.2 Remanding and Demanding Further Explanation

Throughout the article we have assumed that the principal must decide once and for all whether to approve the agent's choice upon first being presented with it. In the real world, of course, the principal might "send the decision back" to the agent and ask that it be reconsidered, justified, or altered. For example, when federal courts disapprove of a decision of a government agency, they tend to "remand" the decision to the agency for further review, explanation, and/or refinement.[25]

While a full model of such review processes is beyond the scope of the current article, it is possible to quickly see why such institutions might emerge and be sustained. When responding to being remanded is itself additionally costly above and beyond simple reversal, the principal can essentially use remands to induce the agent to choose $x = 0$ rather than $x = \delta$ when the state of nature is $\theta = -1$. For example, suppose that the principal can, upon observing a policy choice x_A, remand the decision to the agent and request "further justification." We model the provision of further justification in a simple fashion: the agent must incur a cost $J > 0$ in order to provide the justification, after which the principal then considers the policy again, or demur and accept that the policy will remain unchanged ($x = 0$). We assume that the agent pays the cost k if the principal

[25]This is the typical course when a court engages in what is known as "substantial evidence review." This is also analogous to executive review of agency decision-making conducted by the Office of Information and Regulatory Affairs (OIRA).

remands, regardless of whether the agent provides further justification or not.

If the principal has moderate preferences, the principal will always remand upon observing $x_A = \delta$ and foreseeing this, if $J > 1 - k$, the agent will strictly prefer choosing $x_A = 0$ after observing $\theta = -1$. If $J < \delta^2 - k$, then the agent will still prefer choosing $x_A = \delta$ when $\theta = \delta$. Thus, if $J \in (1 - k, \delta^2 - k)$, then the possibility of costly remand will restore the principal's preference for review when she has moderate preferences.

That the principal will find review more appealing when given this power is not surprising: this is an unambiguously more flexible version of oversight. If the principal can choose J, the fact that $1 < \delta^2$ implies that there is always a choice of J such that the principal always prefers retaining review with the possibility of remanding and demanding further justification.

Note that allowing remand in this setting increases the principal's welfare only because we have assumed that remanding (and hence delaying) policy is not in and of itself costly to the principal. However, when remand successfully induces the agent to choose $x = 0$ when $\theta = -1$ in equilibrium, the principal must infer that $\theta = \delta$ when $x = \delta$. Thus, remand would not be credible if it were at all costly to the principal. A full characterization of the mixed strategy, semi-pooling equilibrium that would emerge in this model when remand is costly, *per se*, to the principal is beyond the scope of this article. However, such an equilibrium would have an appealing property: the agent would probabilistically choose $x = \delta$ or $x = 0$ when $\theta = -1$, the reviewer would probabilistically remand the agent upon observing $x = \delta$, and the agent would demur when remanded if and only if $\theta = -1$.[26] Noting that the qualitative features of such decision-making mimics the patterns observed by Wagner (2011) in the judicial review of EPA clean air decisions, we leave this topic for fuller treatment in the future.

[26] Whether this equilibrium would improve the principal's welfare relative to the analogous equilibrium (Propositions 4 and 5) would depend upon various factors, including of course the principal's direct cost of remanding the agent's decision.

7 Conclusions

We have presented a theory of how ex post review by a principal can affect the incentives of her agent charged with making policy decisions. Our theory indicates that the agent's expertise might not be fully expressed in her decision-making when the principal's policy preferences diverge from the agent's. When this divergence is extreme, the agent has an incentive to never use his or her policy-relevant information. In those cases, the delegation of authority to the agent was superfluous, but the principal benefits from the neutering effect of ex post review. When the preference divergence is moderate, there are situations in which the principal would gain if she could set aside ex post review. This benefit emerges when the agent sometimes attempts to subvert the principal's review by "crying wolf" and choosing a policy that is more extreme than actually warranted. A simple extension of our theory also indicates that, setting aside the direct costs of imposing a lengthier review process, the principal would benefit from implementing a two-tiered "remand for further explanation" style oversight system.

In addition to identifying the institutional design incentives of the principal, our theory also offers predictions regarding the dynamics of policy recommendations in hierarchical systems with ex post review. For example, the theory indicates that reversals will occur only if the agent is actually "crying wolf" with some probability. Furthermore, if reversals occur in equilibrium, their frequency will be a decreasing function of the divergence between the principal's and agent's preferences. Thus, the theory predicts that, conditional on conflict occurring, it will occur more frequently when the principal and agent disagree *less* about policy and that such an increase will emerge solely through the agent attempting to cry wolf more frequently.

The theory also speaks to the probability of reversal conditional upon the agent proposing policy change. Conditional upon proposing a policy change, the probability that the principal defers to the recommendation decreases as the agent's aversion to reversal increases. Thus, agents who are better insulated or resilient in the face of reversal will be reversed more often. This conditional probability of reversal decreases as the urgency of the issue increases. That is, when the importance of changing policy *in the most important situations* increases, the principal will be more deferential. At the same

time, as this urgency increases, the agent cries wolf with increasingly high frequency.

While our theory excludes much of reality (as any useful theory necessarily must), we argue that it captures some key features of policymaking, expertise, and deference. Specifically, the theory suggests that behavior and institutional design incentives are sensitive to the preference alignment of both actors and the importance of, and uncertainty inherent to, the policy area in multiple ways, some expected and some less obvious. The key contribution of the theory is to qualitatively characterize the types of situations in which ex post review will create incentives for policy-motivated and reversal-averse (or, perhaps, "career motivated") agents to make pathological policy choices, ironically leading to the possibility that ex post review actually reduces the accountability of the agent to the wishes of the principal.

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A Appendix

A.1 Derivation of Best Response to Truthful Policymaking

To investigate best responses for the principal given truthful policymaking there are three cases: $x = \theta = 0$; $x = \theta = -1$; $x = \theta = \delta$. We consider each in turn; first considering the principal's payoff for upholding the agent relative to overturning the agent.

Case 1. $x = \theta = 0$**.** Consider the principal's payoff for upholding a truthful agent following $x = 0$,

$$\begin{aligned} U_P(r = 0 | x = \theta = 0) &= -(\theta + \beta - (1 - r)x)^2, \\ &= -\beta^2. \end{aligned}$$

Now consider the principal's payoff for reversing the agent following $x = 0$,

$$\begin{aligned} U_P(r = 1|x = \theta = 0) &= -(\theta + \beta - (1 - r)x)^2, \\ &= -\beta^2. \end{aligned}$$

Thus, in a truthful equilibrium following $x = 0$ the principal is indifferent between upholding or reversing the agent. For simplicity, we suppose that the principal breaks her indifference by upholding. So, when $x = 0$ and the agent is setting policy truthfully the principal upholds the agent (this, obviously, holds for any value of $\beta \geq 0$).

Case 2. $x = \theta = -1$**.** Now consider the principal's payoff from upholding a truthful agent when $x = -1$,

$$\begin{aligned} U_P(r = 0|x = \theta = -1) &= -(\theta + \beta - (1 - r)x)^2, \\ &= -\beta^2. \end{aligned}$$

Now consider the principal's payoff from reversing a truthful agent following $x = -1$,

$$\begin{aligned} U_P(r = 1|x = \theta = -1) &= -(\theta + \beta - (1 - r)x)^2, \\ &= -(\beta - 1)^2. \end{aligned}$$

In this case the principal will reverse the agent if and only if $U_P(r = 1|x = \theta = -1) > U_P(r = 0|x = \theta = -1)$ (and of course will uphold if the reverse is true). So, the principal will reverse the agent whenever:

$$\begin{aligned} U_P(r = 1|x = \theta = -1) &> U_P(r = 0|x = \theta = -1), \\ \beta &> 1/2. \end{aligned}$$

Thus, the principal will uphold a faithful agent following $x = -1$ if and only if $\beta \leq 1/2$, and will reverse the agent following $x = -1$ if $\beta > 1/2$.

Case 3. $x = \theta = \delta$**.** Finally, consider the principal's payoff for upholding a truthful agent following $x = \delta$,

$$\begin{aligned} U_P(r = 0|x = \theta = \delta) &= -(\theta + \beta - (1 - r)x)^2, \\ &= -\beta^2. \end{aligned}$$

Now consider the principal's payoff for reversing a truthful agent following $x = \delta$,

$$\begin{aligned} U_P(r = 1|x = \theta = \delta) &= -(\theta + \beta - (1 - r)x)^2, \\ &= -(\delta + \beta)^2. \end{aligned}$$

In this case the principal will reverse the agent if and only if $U_P(r = 1|x = \theta = \delta) > U_P(r = 0|x = \theta = \delta)$. So the principal will reverse the agent if,

$$\begin{aligned} U_P(r = 1|x = \theta = \delta) &> U_P(r = 0|x = \theta = \delta), \\ \beta &> -\frac{\delta}{2}. \end{aligned}$$

Thus, the principal will uphold the agent, given truthful policymaking, following $x = \delta$ if and only if $\beta \leq -\frac{\delta}{2} > 1/2$. If $\beta > -\frac{\delta}{2}$, the principal will reverse the agent following $x = \delta$.

Taking these three cases together yields the best response function as displayed in Table 1.

A.2 Proofs of Results

Proposition 1 *If the reversal cost is positive ($k > 0$), then there is a "truthful equilibrium" in which the agent always matches policy to the state if and only if the principal has aligned preferences ($\beta \leq 1/2$).*

Proof: *Sufficiency.* If $\beta \leq 1/2$, the principal always weakly prefers $x = \theta$ to $x = 0$ and so will not

reverse a truthful agent. The agent always prefers $x = \theta$ if $x = \theta$ will not be reversed.

Necessity. For the purpose of obtaining a contradiction, suppose that $s^* = (s_A^*, s_P^*)$ is an equilibrium and that $s_A^* = s_A^{\text{truthful}}(\theta) = \theta$. Then, the principal must infer that $\theta = -1$ when $x = -1$, so that, if s_P^* is sequentially rational, the fact that $\beta > 1/2$ implies that $s_P^*(-1) = 1$. The agent can strictly increase his or her expected payoff by choosing $x = 0$ conditional on observing $\theta = -1$, contradicting the supposition that s^* is an equilibrium. ∎

Proposition 2 *If $\beta > -\frac{\delta}{2}$ then, in any equilibrium, the agent chooses $x = 0$ for all values of θ.*

Proof: For the principal, $r = 1$ is a strictly dominant action whenever $x \neq 0$. Iterated elimination of dominated strategies yields $s_A^*(\theta) = 0$ as the iteratively dominant strategy for the agent. ∎

Proposition 3 *If the principal has moderate preferences ($\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$), and $\delta < -2$, then, there is an equilibrium $s^* = (s_A^*, s_P^*)$, in which the agent chooses $x = 0$ whenever $\theta \in \{-1, 0\}$:*

$$s_A^*(0) = s_A^*(-1) = 0,$$

chooses $x = \delta$ when $\theta = \delta$:

$$s_A^*(\delta) = \delta,$$

and the principal upholds $x \in \{\delta, 0\}$ and reverses $x = -1$:

$$s_P^*(x) = \begin{cases} 1 & \text{if } x = -1, \\ 0 & \text{if } x \in \{0, \delta\}. \end{cases}$$

Proof: If the agent employs s_A^* and the principal's beliefs are consistent with this strategy, the principal will uphold the agent upon observing $x = \delta$ because $\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$. Similarly, the principal will uphold the agent upon observing $x = 0$ because he or she is indifferent about reversing this policy. To complete the sequential rationality of s_P^*, define the principal's off-the-equilibrium-path beliefs upon observing $x = -1$ as $\Pr[\theta = -1 | x = -1] = 1$ (*i.e.*, presuming "sincerity" by the agent).

To check that s_A^* is a best response to s_P^*, note it is necessary only to consider $s_A^*(-1)$. Proposing $x = -1$ will result in a strictly lower payoff than proposing $s_A^*(-1) = 0$ (*i.e.*, $-(1 + k)$ versus -1).

Proposing $x = \delta$ will also result in a lower payoff by the assumption that $\delta < -2$ (*i.e.*, $-(\delta+1)^2 < -1$). The agent is clearly best responding under s_A^* when $\theta \in \{0, \delta\}$. Accordingly, s_A^* is a best response to s_P^*, implying that (s_A^*, s_P^*) (along with appropriate and consistent beliefs by the principal) is a perfect Bayesian equilibrium, as was to be shown. ∎

Proposition 4 *If the issue is low urgency ($\delta \in [-2, -1)$), the principal has moderate preferences ($\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$), and*

$$\frac{p_{-1}}{p_\delta + p_{-1}} \leq \frac{\delta + 2\beta}{2(1+\delta)}, \tag{5}$$

then there is an equilibrium in which the agent chooses $x = \delta$ for both $\theta \in \{\delta, -1\}$ and $x = 0$ for $\theta = 0$:

$$s_A^{\textit{pure semi-pool}}(\theta) = \begin{cases} 0 & \textit{if } \theta = 0, \\ \delta & \textit{if } \theta \in \{-1, \delta\}, \end{cases}$$

and the principal upholds $x \in \{\delta, 0\}$ and reverses $x = -1$:

$$s_P(x) = \begin{cases} 1 & \textit{if } x = -1, \\ 0 & \textit{if } x \in \{0, \delta\}. \end{cases}$$

Proof: Consider the following "pure" semi-pooling strategy for the agent:

$$s_A^{\text{pure semi-pool}}(\theta) = \begin{cases} 0 & \text{if } \theta = 0, \\ \delta & \text{if } \theta \in \{-1, \delta\}. \end{cases}$$

If the agent employs $s_A^{\text{pure semi-pool}}$, the principal will uphold the agent upon observing $x = \delta$ only if the following inequality holds:

$$-\left(\frac{p_{-1}}{p_\delta + p_{-1}}(\beta - 1)^2 + \frac{p_\delta}{p_\delta + p_{-1}}(\beta + \delta)^2\right) \leq -\left(\frac{p_{-1}}{p_\delta + p_{-1}}(\beta - 1 - \delta)^2 + \frac{p_\delta}{p_\delta + p_{-1}}\beta^2\right),$$

or if the following is satisfied:

$$\frac{p_{-1}}{p_\delta + p_{-1}} \quad \leq \quad \frac{\delta + 2\beta}{2(1+\delta)}.$$

Thus, given that the principal has beliefs consistent with $s_A^{\text{pure semi-pool}}$, s_P is a best response to $s_A^{\text{pure semi-pool}}$. To see that $s_A^{\text{pure semi-pool}}$ is a best response to s_P, one need consider only the agent's incentives when confronted with $\theta = -1$, because the agent's (state-conditioned) most-preferred policy is being upheld under this profile in the other two states. When $\theta = -1$, the agent prefers $x = \delta$ to $x = 0$ (each of which would be upheld) because the issue is low urgency ($\delta \in [-2, -1)$. Finally, choosing $x = -1$ results in the agent being reversed and the final policy outcome being set back to $x = 0$. Accordingly, $s_A^{\text{pure semi-pool}}$ is a best response to s_P, implying that $(s_A^{\text{pure semi-pool}}, s_P)$ (along with consistent beliefs by the principal) is a perfect Bayesian equilibrium, as was to be shown. ∎

Proposition 5 *If the principal has moderate preferences ($\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$), and inequality* (5) *does not hold:*

$$\frac{p_{-1}}{p_\delta + p_{-1}} \quad > \quad \frac{\delta + 2\beta}{2(1+\delta)},$$

then there is an equilibrium in which the agent mixes between $x = \delta$ and $x = 0$ when $\theta = -1$, and chooses $x = \theta$ for $\theta \in \{0, \delta\}$:

$$s_A^{\textit{mixed semi-pool}}(\theta) = \begin{cases} \delta & \text{with probability } \frac{p_\delta(2\beta+\delta)}{p_{-1}(\delta-2\beta+2)} \textit{ if } \theta = -1, \\ 0 & \text{with probability } 1 - \frac{p_\delta(2\beta+\delta)}{p_{-1}(\delta-2\beta+2)} \textit{ if } \theta = -1, \\ \theta & \textit{if } \theta \in \{0, \delta\}, \end{cases}$$

and the principal reverses x as follows:

$$s_P(x) = \begin{cases} 0 & \textit{if } x = 0, \\ 1 & \textit{if } x = -1, \\ 0 & \text{with probability } \frac{k}{-(2\delta+\delta^2)+k} \textit{ if } x = \delta, \\ 1 & \text{with probability } \frac{-(2\delta+\delta^2)}{-(2\delta+\delta^2)+k} \textit{ if } x = \delta. \end{cases} \tag{6}$$

Proof: Suppose that the principal has moderate preferences ($\beta \in \left(\frac{1}{2}, -\frac{\delta}{2}\right]$), and inequality (5) is satisfied. It is simple to show that, given the principal's strategy, the agent's best response is $x = 0$ when $\theta = 0$ and, supposing that the agent is best responding by mixing when $\theta = -1$, that the agent's best response when $\theta = \delta$ is $x = \delta$. The principal's response to $x = 0$ is also clearly a best response. Thus, the only questions that remain regard whether the agent is best-responding when $\theta = -1$ and whether principal is best-responding when $x = \delta$. The answers to these two questions boil down to deriving when the two players are indifferent between the two actions prescribed by each of their strategies in those situations.

If the agent chooses $x = -1$, his or her payoff is $-(1 + k)$. If the agent chooses $x = 0$, his or her payoff is -1, so the mixing by the agent upon observing $\theta = -1$ would be between $x = 0$ and $x = \delta$. Letting $\omega \equiv \Pr[x = \delta | \theta = -1]$ denote the conditional probability that the agent chooses δ after observing $\theta = -1$, the principal can mix between $r = 0$ and $r = 1$ upon observing $x = \delta$ only if equation (7) is satisfied with equality.

$$\frac{p_{-1}\omega}{p_\delta + p_{-1}\omega} = \frac{\delta + 2\beta}{2(1+\delta)}, \tag{7}$$

which implies that

$$\omega = \frac{p_\delta(2\beta + \delta)}{p_{-1}(\delta - 2\beta + 2)}. \tag{8}$$

Note that (1) $\delta < 0$ and $2\beta < -\delta$, so that $2\beta + \delta < 0$ and (2) $\delta - 2\beta < -2$, so that $\delta - 2\beta + 2 < 0$, implying that ω as defined in equation (8) is positive. Furthermore, ω as defined in equation (8) is less than one whenever $\frac{p_{-1}}{p_\delta + p_{-1}} > \frac{\delta+2\beta}{2(1+\delta)}$ (*i.e.*, whenever inequality (5) does not hold.

The agent's expected payoff from choosing $x = \delta$, letting $\rho \equiv \Pr[r = 1|x = \delta]$ denote the probability of reversal, is

$$EU_A(x = \delta|\theta = -1, \rho) = -(1-\delta)^2(1-\rho) - \rho(1+k),$$

and its expected payoff from choosing $x = 0$ in the same situation is

$$EU_A(x = 0|\theta = -1, \rho) = -1,$$

so that, in order to choose $\omega \in (0, 1)$, it must be the case that

$$\begin{aligned} EU_A(x = \delta|\theta = -1, \rho) &= EU_A(x = 0|\theta = -1, \rho), \\ \rho &= \frac{-(2\delta + \delta^2)}{-(2\delta + \delta^2) + k}, \end{aligned}$$

Note that $\delta \in (1, 2]$ and $k \geq 0$ implies that $\rho \in [0, 1]$. If $s_P(\delta) = \rho$, then the agent is indifferent between choosing $x = \delta$ and $x = 0$ when $\theta = -1$, and can choose $x = \delta$ with probability ω and $x = 0$ with probability $1 - \omega$. Doing so and choosing $x = \theta$ with probability one for $\theta \in \{0, \delta\}$, consistency of the principal's beliefs implies that the principal is indifferent between $r = 0$ and $r = 1$ upon observing $x = \delta$, so that he or she can choose $r = 1$ with probability ρ and $r = 0$ with probability $1 - \rho$. To complete the derivation, set the principal's (off-path) beliefs after observing $x = -1$ equal to $\Pr[\theta = -1|x = -1] = 1$. ∎