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Transparency and Media Scrutiny in the Regulatory Process

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Abstract

Transparency is thought to improve accountability in executive branch policymaking, but bureaucrats are also known to worry about negative publicity. This paper develops a model of the regulatory process in which media scrutiny can combat agency capture. An agent proposes a regulation with input from an interest group seeking the lowest possible level. Some agents incorporate this information in a way that mirrors the public interest, but others may accept transfers from the group in exchange for lower regulation. Greater transparency is modeled as an increase in the likelihood of media reports alleging that the evidence supports a higher level of regulation than proposed. More transparency unambiguously benefits the public only if it causes no increase in incorrect reports; otherwise, it can lower the public's payoff by reducing the information coming from the media reporting process or by inducing agents to propose policies that provide the public less information about the optimal regulation. These results hold even though a principal aligned with the public interest sets the final policy. Among the policy implications is that transparency rules should be tailored to individual agencies rather than implemented in general terms.

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Introduction

Regulatory agencies are supposed to act according to some notion of the public interest as they administer the nation's laws; however, scholars generally believe that agents are susceptible to capture by special interests (Levine and Forrence 1990). Specifically, the information that agencies gain from parties that they regulate, but which they can withhold from the public, is hypothesized to enable this kind of influence (Dal Bó 2006). Given these two premises, it seems to follow logically that greater transparency, in the form of making more of regulators' information publicly accessible, may mitigate the potential for favoritism (Coglianese, Kilmartin, and Mendelson 2009). Transparency in this and other forms has become a major theme in discussions about good governance and accountability in the regulatory state (Hood 2006, Lodge 2004). Political leaders have created initiatives for executive branch transparency in both the United States and the European Union (Coglianese 2009, Cini 2008). The rhetoric in leaders' announcements promotes the concept with largely unqualified praise (see Obama 2009, Kallas 2005). Some scholarship appears similarly to support greater transparency with limited exceptions (Rose-Ackerman 2009, pp. 164-65; Stiglitz 2002).

A growing body of work has challenged the intuitive appeal of increasing the degree to which government information is made public. Possible problems with transparency are that too much of it deprives regulators of the space they need for private discussions (Heald 2006, p. 68-69; Coglianese 2009, p. 536); that greater information disclosure, such as under the Freedom of Information Act (FOIA), carries significant administrative costs (Wichmann 1998); that regulators will resist compliance requirements (Roberts 2006); and that they may release information, but in a way that is unhelpful to the public (Weil et al. 2006, O'Neill 2006). For the most part, these challenges seem to suggest a need to carefully design transparency laws so that meaningful information disclosure actually occurs in a way that is cost-effective, while not being overinclusive.

Greater difficulties arise from the potential of increased information disclosure to induce undesirable policy distortions. For example, parties that would have provided information to an agency under secrecy may not if they expect that the agency must release it to the public (Coglianese, Zeckhauser, and Parson 2004). In a seminal work, transparency can induce undesirable conformance in behavior among agents (Prat 2005). To be effective, greater transparency should induce different policy outcomes, but its logic may undercut if those different outcomes are worse.

Whether supportive or skeptical about transparency in regulatory policymaking, these studies appear not to have addressed how exactly making more information accessible to the public will result in changed policies. The media is supposed to play a significant role in alerting citizens (Rose-Ackerman 1999, pp. 165-67; Stiglitz 2002). However, there is an additional complication associated with relying on the media to bring about the benefits of more information disclosure: the media may not always report on the agency's policymaking correctly or objectively. The media tend to report on most agencies infrequently but tend to portray them in a negative light when they do so, causing many bureaucrats to have a fearful attitude toward the media (Lee 1999). There is anecdotal evidence that bureaucrats strive to avoid adverse publicity (Nownes 2006, p. 72), and, more generally, bureaucrats are thought to have a mentality of blame-avoidance (Hood 2007). In practice, agencies need to devote significant attention and resources to public relations (Graber 2003). This function is a specialized one performed by public information officers who speak for them (Morgan 1986). In general, media investigative reports sometimes make factual errors (Greenwald and Bernt 2000). Thus, even agents who are not susceptible to capture and have nothing to hide may have reason to be concerned about negative reporting on their policy decisions. The media may report on more than just actual capture.

The possibility of media misreporting suggests that increasing transparency can carry two additional costs that appear not to have been accounted for in the literature on transparency. First, compared to a world with only accurate media reports, a world with media errors implies that political leaders will gain less information about the optimal policy when a report occurs. Second, if media reports occur frequently enough or are costly enough to agents, they may propose different policies in a way that provides less information to political principals about the optimal policy. This paper develops a model capturing these two intuitions in a regulatory setting to suggest that the impacts of transparency are more ambiguous than generally acknowledged.

The Model

Players and Policies

There are three strategic players in the game: a political principal (P), an agent (A), and an interest group (G). The policy in question is a regulation $r \in \mathbb{R}_+$. Mechanically, the political principal can be understood as a unitary leader who perfectly represents her electorate's preferences, or at least the part of the public that is interested in the issue at hand.[1] The relevant public has well-defined preferences over the regulation, and, depending on the circumstances, may prefer a higher or lower level of it. The group, however, always prefers as low a value of regulation as possible. For a concrete example, one can consider a regulation as to how much to reduce emissions of some pollutant (so greater r corresponds to less pollution), where the group is some industry that will have to bear costs under the regulation and thus would like the smallest r that it can secure from the policymaking process.

This model need not be restricted to regulations per se or to corporate interests. Instead, one could imagine a permitting decision related to land use in a municipality, with a preservationist group wanting a parcel of land to stay as close to its original condition as possible. Then the level of

[1] Female pronouns will be used for the principal, male pronouns for the agent, and neuter pronouns for the group.

policy would reflect the degree to which the land is allowed to be developed, and the preservationist group would incur some net cost taking into account how much they value the natural features of the land compared to the lost opportunity of future jobs and property tax collections resulting from development. However, because business interests, rather than other kinds of interests, are generally thought to be in a position to capture regulators (see Ayres and Braithwaite 1991, Laffont and Tirole 1991), the leading example will be about an industry group aiming for as little regulation as possible.

Whatever type of group is envisioned, it may prefer lower regulation with high or low intensity, and the intensity is relevant to the principal's preferred policy. To continue with the example, the regulation may be very costly or only somewhat costly for any level of r. The level of cost would be relevant to the principal because very strict regulation when its cost would be very high would lead to higher prices and/or lost jobs in the industry that the principal and the public do not want. Thus, the group has two types, high (H) and low (L), reflecting the intensity with which it wants the lowest level of regulation possible. At the beginning of the game, only the group knows what type it is. The probability of each group type i is p_i, and this distribution is common knowledge.

The preferences for the principal and for the group are motivated by the following policy payoff functions: First, the group incurs a cost $\gamma^i c(r)$, where $c(\cdot)$ is a twice continuously differentiable function with $c(0) = c'(0) = 0$, $c''(0) > 0$, and where γ^i is a scalar parameter, with $\gamma^H > \gamma^L > 0$. In contrast, the principal and the public balance the benefits and costs of the regulation according to $b_P(r) - \gamma_P^i c_P(r)$, where $\gamma_P^H > \gamma_P^L > 0$, $c_P(\cdot)$ has the same properties as $c(\cdot)$, and $b_P(\cdot)$ is a twice continuously differential function with $b_P'(0) > b_P(0) = 0$, $b_P''(0) < 0$, and $\lim_{r\to\infty} b_P'(r) = 0$.[2] Since the principal does not know the group's type, its preferred policy depends on its beliefs about how costly it is to the group. It is worth noting that with different cost functions,

[2] The group may also have modest benefits, but these can be assumed to be negligible and subsumed in the costs.

it is immaterial whether the public actually incurs the group's costs, or whether the higher costs for the group correspond perfectly to higher costs for the public.

The agent, who works in the executive branch for the public involved in this game (federal state, or local), is the initial policy proposer, and, like the group, he can be one of two types. First, there is an upright agent (U), who, given the same information as the public or political principal, prefers the same level of regulation. Thus, his policy preferences are motivated by the function $\alpha(b_P(r) - \gamma_P^i c_P(r))$, where $\alpha > 0$ is a scalar parameter. Second, there is a venal agent (V), subject to capture, who does not care about policy but seeks to extract rents from the group in exchange for policy more favorable to the group. The mechanism and payoffs related to the venal agent's rent-seeking activities will be described below. The probabilities of the agent types j, p_j, are common knowledge. Besides the agent himself, the group knows the agent's type. Mechanically, this scenario can be thought of as occurring when a representative of the group tests, perhaps through conversation, whether the agent is susceptible to influence before he proposes a policy.[3] In contrast, the public and the principal can never observe the group's type directly.

In describing the model in terms of the agent, susceptibility to capture is treated as an individual characteristic. Even if the individual does not directly have concerns negative media reports, this concern may be considered to be induced by leaders within the agency who can discipline their subordinates for adverse publicity. Such a formulation suggests that some agents are fully honest, while others are subject to influence. However, nothing is lost in the model if the player is a whole agency that can or cannot be captured, with some probability of being in each state.

There is a fourth, non-strategic player in this game: the media. There are studies of how media outlets consciously choose what to cover (e.g., Hamilton 2004), but the stylized fact that they cover most agencies only once in a while for their real or apparent failings seems consistent enough

[3] Discovering the agent's type at this point will turn out to be as effective for the group as knowing it from the start. Having the group know the agent's type prevents the high-cost group from distinguishing itself in front of the upright agent by offering a different kind of benefit to the venal agent from the low-cost group.

that the media can be modeled as a producer of reports, depending on the agency's policy and the information it has access to. Thus, transparency has the potential to affect the kinds of reports that emanate from the media. In addition to regular media outlets, the media may be thought of as any watchdog group that produces reports that sometimes successfully direct negative attention to an agency.

The two players involved in making policy, however, are the agent and the principal. First, the agent proposes a level of regulation r_A. Then the principal selects the final policy, r_P. In this costless decision-making structure, the public, through its principal, is given the maximum amount of formal authority possible. This level of power is perhaps greater than political principals have in some actual policymaking settings, given the relatively small number of regulations that principals end up overturning, but it illustrative of the case in which she can act fully upon the information she receives.

Types of Information

Transparency in the context of regulatory capture is about making information publicly available during the policymaking process so that other actors can potentially influence the final outcome. The two important types of information in the game are the information about the agent's policy decision and the information that the agent gains about the group's type.

The agent policy proposal, r_A, is verifiably observed by all players. Not only does this simplify the question about the benefits and costs of transparency, but it also reflects empirically how U.S. federal agencies actually operate. Agencies must announce their policy decisions before they take effect in the Federal Register, making it very difficult for them to hide the content of their policy (Gersen and O'Connell 2009, pp. 1161-62). It is illegal to deliberately choose not to enforce a regulation, and the explanatory materials that accompany a policy announcement are usually detailed enough to make the meaning of the policy clear. It might be possible for the agency or one of its staffers to hide the true intention of a policy in documents that would be disclosed under greater transparency, but doing so requires extremely careful crafting such that the content seems unambiguous but is actually vague enough to allow an agent to implement a different policy. In any case, the nature of the second type of information provides a much easier path for an agent aiming to obfuscate.

The second type of information surrounds the group's type. The agent receives a random signal, $S \in \{H, L\}$, pointing to the group's type. This gain in information can be motivated by the group's communications with the agent, for instance, by submitting evidence that it believes indicates the high costs of the regulation.[4] The signal is properly understood as the agent's impression of the group's claims and works as follows: the signal is $s = L$ only if the group is actually of the low-cost type, and then only with probability $q < 1$. With the remaining probability $p_H + p_L(1 - q)$, the signal is $s = H$.[5] The interpretation of this kind of signal is that the agent may be able to determine conclusively that the interest group can easily afford the regulation's implementation costs, but it cannot definitively find that the industry cannot afford the costs.

Like the group's type, the agent's signal is private information. Importantly, he cannot credibly communicate the signal to the principal or public. Instead, they learn imperfectly about the agent's signal through the media (or other reporter). This imperfection is represented by the media's producing a media report, M, that the agent's signal was L ($m = 1$) with some positive probability if and only if the agent selects a policy below some threshold $\tilde{r}$. Otherwise, it produces no media report ($m = 0$). If the proposal is below the threshold, then the probability of the presence or absence of negative media coverage is p_m^s, with $p_1^L \geq p_1^H$. This ordering can be rationalized by noting that, if the agent signal is low, either the media is more likely to interpret the agent's infor-

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[4] The possibility that the group might not communicate with the agent will be considered in an extension of the model.

[5] The reason for this asymmetric signal is that, to correspond with what one expects to occur after a negative media report (described in the next paragraph), a media report should always indicate a greater likelihood of the group's costs being low. The equilibrium solutions are more complicated, but the qualitative result that increasing transparency is not always beneficial remains when the agent can misread high-cost type as a low-cost group.

mation as indicating a low-cost group or it can more easily and convincingly create a negative report against the agency.

The effect of the media report is to impose a cost on the agent $k_A > 0$ (assumed to be the same for both types of agents). This cost can represent the embarrassment an agent faces from being named in a news piece, the disapproval from a leader who sees the agency mentioned in the news, or if the player is a full agency, it can represent the extra resources that it must devote to damage control.[6] The group also incurs a similar kind of cost $k_G > 0$ from the negative publicity. The public clearly cannot compensate for embarrassment and disapproval costs, and it is difficult to imagine that it would pay to support additional public relations expenditures. Also, as a simplifying assumption, there are no positive media reports, to follow the general conclusion that such reports are extremely rare compared to negative ones (Lee 2008). The costs and the threshold for avoiding a media report are common knowledge, and they make the agent's proposal less like cheap talk.

The Role of Transparency

Greater transparency means more information disclosure. Transparency is represented as a real variable $t \in \mathbb{R}_+$, which could represent the number of documents or number of categories of documents that the agency must release to the public. There may be a maximum value for t. Since information about the agency's signal is communicated through the media, transparency has an impact when it changes values of m_S. With $\mathbf{p}_1 \equiv (p_1^L, p_1^H)$, the probability of a negative media report can be expressed as $\mathbf{p}_1(t)$, where $\mathbf{p}_1(\bar{t}) \geq \mathbf{p}_1(\underline{t})$ when $\bar{t} > \underline{t}$, with the constraint that $p_1^L \geq p_1^H$ for any value of t. Note that this leaves the possibility that the media might perfectly report instances in which a

[6] The need for damage control can be reconciled with a fully rational political principal. One can suppose that, even though the average (or median) voter treats the media report simply as information, there are other voters who express their outrage, which produces costs for the agent and group. In the alternative construction of the media as a watchdog organization, such an organization may be able to bring shame to the agent or agency. Spontaneous reactions like disappointment and outrage, along with bureaucrats' perception of them, cannot easily be suppressed. Even the narrower policymaking public might not be able to refrain from reacting in these ways and imposing costs on regulators.

low policy was based on a low cost signal without reporting any instances in which it was based on a high cost signal, even as transparency increases.

On the other hand, p_1^H may increase with t if the media is not quite objective or is susceptible to incorrectly reporting on capture. It may be digging to find anything that it can report to the public, even though the agent's conscience about his role in the policy process may be perfectly clear. Alternatively, the media may simply be mistaken (at least from the agent's view) about the interpretation of the documents it receives. In the leading example, the agent may be fully convicted, based on his reading of the evidence, that regulation may be too costly, but the media may nonetheless declare him to have "sold out to industry." The possibility of media misreporting begins to suggest that there may be some costs to heightened transparency.

Thus, it is the imperfect chain of information transmission from the agent to the public, mediated by news reports, that is the focus of this model and at least some questions about the instrumental value of transparency. Notably, it departs from other models of capture and information transmission (e.g., Tirole 1986, Laffont and Tirole 1991), by denying the group and the agent the ability to credibly signal its type or information. The high-cost group has no independent way of definitively indicating to the agent (or the media or the public) that its costs are high, although its communications with the agent will always hold up at least as well under scrutiny as the low-cost type's. Similarly, the agent has no way of conveying to the media or the public what its signal was. In these ways, the model, while portraying information in signals, still reflect the reality that information consists of documents that need to be interpreted rather than just signals.[7]

Influence (Capture)

The final elements of the game relate to the undue influence that greater transparency is designed to prevent and the public's response. Influence will take the form of a transfer payment that takes

[7] Fenster (2006) observes, "[T]he subset of government texts that are ultimately disclosed does not appear to the public as raw information that is ready, in its capacity as the carrier of the stuff of government and politics, to enable democracy and produce the consequences anticipated by transparency advocates" (p. 927).

some form that is legal. In the U.S., at least, outright bribery of bureaucrats is rare. Instead, industry influence of regulators tends to take more subtle forms, like the implicit promise of employment within the industry after the regulator leaves his or her agency (Quirk 1981). As long as there is no explicit, verbal agreement to exchange more favorable policy for a concrete benefit, it is not punishable by law. Furthermore, since the group identifies the agent's type before making he proposes the policy, it can attempt to influence only the venal agent.

Despite the implicit nature of the bargain, capture is treated as if the group makes a take-it-or-leave offer to the venal agent.[8] It offers a benefit d, which can be made contingent on any observable features of the game. Thus, it can offer different values d for different policies that result in the end, and it can offer some benefit to the venal agent merely for proposing a policy, regardless of any media reports or policy changes. When the "contract" executes, the group loses d from its utility and the agent receives d toward his utility. Since he does not care about policy, the venal agent's utility is simply any transfer it receives from the firm minus any media penalty (k_A) it receives.

Because the venal agent is not doing anything illicit, the public does not have any recourse to legal sanctions. Its only defense against undue agency influence is to have the principal change the policy from what the agent has proposed to something else.

Stages of the Game

The various components in this model are organized as follows:

0. Nature selects types for the group and the agent.
1. The agent receives signal about the group's type.
2. The group presents an offer to the venal type of transfer payments based on observable variables.

[8] Reversing the bargaining power in favor of the venal agent would allow him to screen the agents, in which case the possibility of capture would appear to be beneficial. The idea that a group with high costs might pay compensation to demonstrate its high costs is intriguing but is beyond the scope of this paper and conventional regulatory policy. In any case, the goal is to have transparency, rather than the venal agent, to improve upon regulatory outcomes, possibly through screening.

3. The agent publicly proposes a policy.
4. The media reviews any information about the agency's signal that it has and produces a negative report with probability conditioned on the agency's actual signal and the policy that the agent has selected.
5. The public, through the political principal, decides whether to change the policy from what the agent has proposed. Then policy payoffs are realized.

Interpretation of Results

The goal is to determine the impact of increased transparency, which means an increase in p_1^L, p_1^H, or both. Since this is a signaling game, there will be multiple equilibria and thus a question of equilibrium selection. Increased transparency is always beneficial only if, for any $\mathbf{p}_1(t)$, the public's payoff increases with t. Otherwise, it is not clear whether an increase in transparency is beneficial unless the value of t is calibrated to maximize the public's payoff. Such ambiguity would imply that transparency policies need to be tailored to different agencies and possibly to different decisions. Whether or not such specificity is feasible, it contrasts with the simpler call in President Obama's (2009) memorandum on FOIA for agencies to "adopt a presumption in favor of disclosure," and does not directly specify cases in which some intermediate level might be more appropriate.

The selection criterion for the next section is the equilibrium that yields the public its highest expected payoff. This criterion is useful because many of the equilibria that follow given a set of parameters can be ranked, and because it allows for the derivations of comparative statics on the media report probabilities. Focusing on the public's best equilibrium provides a starting point for alternative selection criteria, which are discussed in the following section. Then the question will be whether there is any equilibrium selection criterion under which more transparency is preferred for any function $\mathbf{p}_1(t)$.

Equilibria

The equilibrium concept for this game is perfect Bayesian equilibrium: players' have the correct beliefs about player types on the path of play, and their strategies are optimal given their beliefs on and off the equilibrium path.

Bayesian Updating

Both the upright agent and the political principal engage in Bayesian updating in equilibrium; at the end of the game, each of these players has a posterior probability λ that the group has lower costs for any level of regulation. For the agent, the L signal implies $\lambda = 1$ since only the low-type generates that signal. Meanwhile, the H signal implies a posterior probability of

$$\lambda_{U_H} \equiv \lambda_{V_H} \equiv \frac{p_L(1-q)}{p_H + p_L(1-q)}. \quad (1)$$

Then the principal updates her probability of the low type based on the proposal and, if the proposal is below the threshold $\tilde{r}$, whether there is a media report. Just after the proposal, her value of λ is determined by the circumstances under which the agent would propose that value. For the upright agent, the relevant scenario is simply whether he saw $s = H$ or $s = L$. We can denote these situations as U_H and U_L. Because the venal agent is susceptible to influence from the group, the relevant scenarios for him involve both the group's type and the agent's signal. These situations, which constitute the sample space Ω, can be denoted as V_s^i, with $V_H \equiv V_H^H \cup V_H^L$, $V^L \equiv V_H^L \cup V_L^L$, $V_L \equiv V_L^L$, and $V \equiv V_H^H \cup V^L$. We can further define $A_s \equiv U_s \cup V_s$. Since an agent in a particular setting may choose to mix among different strategies, it is also useful to place a fraction in front of any of these scenarios to denote the probability with which the agent proposes a particular level of regulation. Then the posterior probability after a proposal can be presented with a subscript for the set of events under which the proposal occurs. For example, if the agent proposes the same policy under settings U_H, V_H^H, V_H^L, and some fraction of V_L^L, θV_L^L, the public and principal's revised probability of the low type becomes

$$\lambda_{A_H \cup \theta V_L^L} = \frac{p_L(1-q) + \theta p_V p_L q}{p_H + p_L(1-q) + \theta p_V p_L q}. \tag{2}$$

Other posterior probabilities can be calculated placing the sum of the probability masses associated with a proposal in the denominator and sum of those masses containing p_L in the numerator.

If the proposal falls below $\tilde{r}$, then at the media report stage, the public and principal can update their probability. Then symbols $\bar{\lambda}$ and $\underline{\lambda}$ can be used to represent, respectively, the updated probabilities with and without a media report. Continuing with the example including all the agents other than U_L and $(1-\theta)V_L^L$, the probabilities after the media reporting stage are

$$\bar{\lambda}_{A_H \cup \theta V_L^L} = \frac{p_L(1-q)p_1^H + \theta p_V p_L q p_1^L}{\big(p_H + p_L(1-q)\big)p_1^H + \theta p_V p_L q p_1^L} \tag{3}$$

$$\text{and } \underline{\lambda}_{A_H \cup \theta V_L^L} = \frac{p_L(1-q)p_0^H + \theta p_V p_L q p_0^L}{\big(p_H + p_L(1-q)\big)p_0^H + \theta p_V p_L q p_0^L}. \tag{4}$$

The Principal's Decision Rule

Based on this updating, the political principal's decision rule can be derived. Her overall utility is

$$f(r,\lambda) \equiv b_P(r) - (\lambda \gamma_P^L + (1-\lambda)\gamma_P^H)c_P(r). \tag{5}$$

The assumptions on $b_P(\cdot)$ and $c_P(\cdot)$ guarantee a uniquely optimal policy, $\hat{r}(\lambda)$, for any posterior probability.[9] Since she can set policy freely after the agent's proposal and any media report, her decision rule becomes

$$r_P^* = \hat{r}(\lambda). \tag{6}$$

Because a strategic political principal will always set the level of regulation based on the posterior probability that the group is of the low cost type, her payoff can be more simply notated as

[9] The quantity $\hat{r}(\lambda)$ satisfies $b_P'\big(\hat{r}(\lambda)\big) = (\lambda\gamma_P^L + (1-\lambda)\gamma_P^H)c_P'\big(\hat{r}(\lambda)\big)$.

$$\hat{f}(\lambda) \equiv f(\hat{r}(\lambda), \lambda). \tag{7}$$

Since the principal always follows this decision rule, the group's cost function in equilibrium can analogously be notated as

$$\hat{c}(\lambda) \equiv c\big(\hat{r}(\lambda)\big). \tag{8}$$

This decision rule is not only optimal for the principal, but it also matches what one expects from a media report: the final policy is weakly higher with a media report than without one if the proposal was below the threshold. This fact is implied by the following lemma:

Lemma 1: The principal's choice of regulation increases with her posterior probability on the low-cost type. When the proposal is below the media threshold, $\bar{\lambda} \geq \underline{\lambda}$. □

Mechanism of Regulatory Capture

The group is able to identify the venal agent after the first stage and influence him. Since it presents an offer to the agent, it has all the bargaining power. The agent's costs come from adverse media reports, so the group only has to compensate for the costs associated with negative reports. Thus, it need not offer anything to have the agent propose a policy $\bar{r}$ or above. For policies below this threshold, the likelihood of bad publicity depends on the signal the agent (if any) received. Because news is intrinsically publicly observable information, the group can ensure that the venal agent receives no surplus by paying $d = k_A$ only in the event of a media report. If $p_1^L > p_1^H$, it is cheaper for the low-cost group to influence the agent under V_H^L than under V_L^L, and it can choose to influence only the venal agent with the high signal. The mechanism is to offer $d = p_1^H k_A$ to the venal agent for proposing a policy or one of set of policies below $\tilde{r}$, regardless of whether a media report occurs.

Then the venal agent under V_H^L receives zero in expectation, while under V_L^L, he receives $(p_1^H - p_1^L)k_A < 0$.[10]

Equilibrium Viability and Selection

With various types and a continuous policy space, an infinite number of perfect Bayesian equilibria are possible. These can be reduced into a smaller set of equivalence classes based on the payoffs to the three strategic players. Then the equilibria in an equivalence class share the following characteristics: (a) the same pooling among the agent settings described above on proposals, and (b) the same side of the media reporting threshold for each setting. There will often be more than one possible equivalence class, so one more refinement is that only equilibria in which U_L (always) proposes a policy above the media threshold will be considered. While this restriction is not necessary to prove most of the propositions that follow, it is sensible because agreement between the upright agent and the principal implies that U_L should propose relatively high policies.[11]

The Default Equilibrium

The agent can always avoid a media report by proposing a policy that is at least the threshold and thus always engage in cheap talk through its proposals. One type of equilibria in which the agent always proposes above $\tilde{r}$ are as follows: The venal agent and upright agent with the high-cost signal propose one level of regulation that avoids a media report, and the upright agent with the low-cost signal proposes a different regulation, also at least $\tilde{r}$. Then there are no transfer payments to the venal agents, and the public chooses the final regulation according to its decision rule. The first proposition effectively makes this equilibrium the default for the public and the principal:

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[10] This option makes unnecessary the need to have V_H and V_L choose different policies based on their indifference among a large number of policies because it is less arbitrary when V_L can be induced not to choose a policy to which V_H is amenable.
[11] The level of the threshold does not matter for the results in the basic model, but, for realism, one may imagine that $\tilde{r} \in (\hat{r}(0), \hat{r}(1))$, or even that $\tilde{r} \in \left(\hat{r}\left(\lambda_{U_H}\right), 1\right)$.

Proposition 1: As long as $p_1^L < 1$, the default equilibrium can always be sustained. The default equilibrium yields a higher payoff to the public and the principal than any fully pooling one. □

While, in many signaling games with interests opposed, only a fully pooling equilibrium obtains, this game provides the public with a better default payoff because the upright agent is able to help by obtain information about the group. Thus, it is always possible to achieve an equilibrium that yields the public at least $\Pr(\Omega \setminus U_L)\, \hat{f}\big(\lambda_{\Omega\setminus U_L}\big) + \Pr(U_L)\, \hat{f}(1) \; > \hat{f}(p_L)$.

Equilibria with No Media Reports

A setting without media reports provides a baseline from which to consider the effects of increasing transparency. The transparency variable t can be scaled arbitrarily. Suppose there is a value t such that $p_1^L = p_1^H = 0$. This setting would represent a world in which FOIA does not exist and government agencies can operate without disclosing any relevant documents until they announce their proposed policies. Then the threshold for media reporting is irrelevant, and all agency proposals become cheap talk as costly signaling becomes impossible. In this case, the low-cost group can always induce the venal agent to imitate the proposals from U_H and/or V_H^H. As a result, the best the principal can do is to have U_L separated from the other agent scenarios, which is what she is always able to do:

Proposition 2: When $p_1^L = 0$, there exists no equilibrium that yields the public a greater payoff than the default equilibrium. □

Thus, the no transparency case leaves the public with only the default payoff, suggesting that some media scrutiny would be beneficial. Even though there may be drawbacks to having too much transparency, neither critics of over-transparent government nor this model promotes the opposite extreme of having no transparency.

Equilibria with Media Reports Only after the Low-cost Signal

With additional transparency, the media can potentially have the information necessary to create a report on an agency policymaking decision. If, with a higher value of t, p_1^L increases but there remains no risk of a media report after a high signal, that means that every media report indicates perfectly that the agent observed $S = L$, and thus that the group is of the low-cost type. Lack of a media report does not point to the agent's having seen $S = H$ unless $p_1^L = 1$, but it does point to a greater likelihood that the proposal is supported by a high-type signal, provided that any agent seeing the high-type signal has proposed that policy.

The public benefits because, while agents having seen the high signal can still freely choose to propose policies below $\tilde{r}$, the group will need to pay the venal agents who have seen the low-cost signal to induce them to propose under the threshold. Additionally, the group incurs k_G if a news report occurs. Thus, the media report serves two related functions: First, its presence or absence provides information to the political principal that allows her optimize the policy selection further. Even if all the agents besides U_L still pool on the same proposal, the public benefits from media reporting if that proposal is below the media threshold. Then there is a chance of a negative publicity that allows the principal to adjust the final policy upward to $r_P = \hat{r}(1)$.

Second, the low-cost group facing the venal agent with $s = L$ must consider whether it is worth risking a media report to induce a proposal below the threshold. If there is no media report, such a proposal yields $r_P = \hat{r}(\underline{\lambda}_x)$, where $\underline{\lambda}_x$ is the principal's lowest value of $\underline{\lambda}$ for a proposal less than $\tilde{r}$. With a media report, the low-cost group receives $r_P = \hat{r}(1)$ because the principal is aware that only the low-cost group produces a media report. Furthermore, it loses k_G after a media report and in expectation, pays $p_1^L k_A$ to compensate the venal agent in the event of a report. On the other hand, the low-cost group can induce a proposal at least the threshold for a safe $r_P = \hat{r}(\lambda_y)$, where λ_y is the principal's lowest value of λ for any $r_A \geq \tilde{r}$. Therefore, to decide whether to propose at least $\tilde{r}$, both at least and less than $\tilde{r}$, or only below the threshold, the low-cost group's incentive compatibility test facing V_L^L is

$$p_0^L \gamma^L \hat{c}(\underline{\lambda}_x) + p_1^L(\gamma^L \hat{c}(1) + k_A + k_G) \gtreqless \gamma^L \hat{c}(\lambda_y). \tag{9}$$

The cost to the low-cost group on the right-hand side of the constraint is independent of the probabilities of media reports, but the cost on the left-hand side does depend on p_1^L. Intuitively, it seems as though increasing p_1^L would make it less attractive to propose below the threshold. The additional likelihood of receiving a media report and the weakly higher policy that goes with it should outweigh the fact that the policy without a media report is lower.[12] A general set of circumstances in which increasing p_1^L makes proposing below $\tilde{r}$ more costly can be articulated:

Lemma 2: Suppose some fraction η_U of U_H and some fraction η_V each of V_H^H and V_H^L (at least one of them strictly positive) are fully pooled with some $\theta > 0$ of V_L^L proposals below the threshold in equilibrium. Then the cost to the low-cost group of inducing a proposal below $\tilde{r}$ increases with p_1^L whenever $1 > p_1^L \geq p_1^H$ and $\hat{c}(\lambda)$ is convex with respect to λ. □

Convexity of $\hat{c}(\lambda)$ with respect to λ is a fairly weak condition, since $c(r)$ is already assumed to be strictly convex with respect to r. From Lemma 1, $\frac{\partial \hat{r}}{\partial \lambda} > 0$. If the third derivatives of $b_P(r)$ and $c_P(r)$ exist, then

$$\frac{\partial^2 \hat{r}}{\partial \lambda^2} = \frac{\partial \hat{r}}{\partial \alpha}\left(\frac{\partial \hat{r}}{\partial \alpha} + \frac{\left((\lambda \gamma_P^L + (1-\lambda)\gamma_P^H)c_P'''(\hat{r}) - b_P'''(\hat{r})\right)\frac{\partial \hat{r}}{\partial \alpha} + (\gamma_P^L - \gamma_P^H)c_P''(\hat{r})}{(\lambda \gamma_P^L + (1-\lambda)\gamma_P^H)c_P''(\hat{r}) - b_P''(\hat{r})}\right). \tag{10}$$

As long as $\left((\lambda \gamma_P^L + (1-\lambda)\gamma_P^H)c_P'''(\hat{r}) - b_P'''(\hat{r})\right)$ is not negative and too large in magnitude compared to $(\lambda \gamma_P^L + (1-\lambda)\gamma_P^H)c_P''(\hat{r}) - b_P''(\hat{r})$, $\frac{\partial^2 \hat{r}}{\partial \lambda^2} \geq 0$, so that $\hat{c}(\lambda)$ is convex with respect to λ. Since $c(r)$ is convex with respect to r, $\hat{c}(\lambda)$ can be convex even if $\frac{\partial^2 \hat{r}}{\partial \lambda^2}$ is somewhat negative. The third de-

[12] The policy is strictly higher when $p_1^H = 0$.

rivatives of the public's benefit and cost functions may not exist, but Equation (10) indicates that the conditions under which $\hat{c}(\lambda)$ is convex are broader than the conditions under which it is not.

Following Lemma 2, one natural possibility for equilibria in this setting is to have one proposal below $\tilde{r}$ after A_H and some fraction $\theta \in [0,1]$ of V_L^L and a second proposal of at least $\tilde{r}$ after the remaining $1-\theta$ of V_L^L and all of U_L. For the first proposal, the absence of a media report implies $\lambda = \underline{\lambda}_{A_H \cup \theta V_L^L}$, while a media report and the second proposal imply $\lambda = 1$. Thus, the low-cost group facing V_L^L applies the incentive compatibility test in (9) with $\underline{\lambda}_x = \underline{\lambda}_{A_H \cup \theta V_L^L}$ and $\lambda_y = 1$. Because $\underline{\lambda}_x$ increases with θ and all the other quantities stay constant with θ, the V_L^L incentive compatibility constraint is satisfied for exactly one value of θ. With the proper beliefs, there is no deviation in the other situations. While there are other equilibria, it turns out that these natural ones are the ones that yield the principal the highest possible payoff. Thus, equilibria with $p_1^L > p_1^H = 0$ can be formally characterized as follows:

Proposition 3: Suppose $p_1^H = 0$ for any t. When $p_1^L > 0$, equilibria exist with some $r_A < \tilde{r}$ after A_H and fraction $\theta \in [0,1]$ of V_L^L, and a second $r_A \geq \tilde{r}$ that appears after U_L and the other $1-\theta$ of V_L^L.

(a) For given values of p_1^L, k_A, k_G, and γ^L, one sustainable equilibrium is among of the following three mutually exclusive types of equilibria:

i. If $p_1^L(k_A + k_G) \leq p_0^L \gamma^L \left(\hat{c}(1) - \hat{c}\left(\underline{\lambda}_{A_H \cup V_L^L}\right)\right)$, V_L^L pools fully with A_H.

ii. If $p_1^L(k_A + k_G) = p_0^L \gamma^L \left(\hat{c}(1) - \hat{c}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right)\right)$, for some $\theta \in (0,1)$, then V_L^L pools with A_H with probability θ and with U_L with probability $1-\theta$.

iii. If $p_1^L(k_A + k_G) \geq p_0^L \gamma^L \left(\hat{c}(1) - \hat{c}(\lambda_{A_H})\right)$, V_L^L pools fully with U_L.

(b) Each of the equilibria in (a) yields the principal more than the default payoff. The lower the fraction of V_L^L pooled with A_H in the equilibrium, the higher her expected utility.

(c) For each of the incentive compatibility scenarios in (a), the equilibrium that can obtain yields the principal her highest possible payoff.

(d) Suppose that the principal achieves her highest payoff given p_1^L, k_A, k_G, and γ^L. If raising the level of transparency sufficiently high allows $p_1^L = 1$, then the principal prefers to increase t so as high as possible.

(e) Even if $p_1^L = 1$ is not achievable, the principal strictly prefers that t increase as much as possible until V_L^L proposals are all at least $\tilde{r}$, provided that $\hat{c}(\lambda)$ is convex. □

Since, as noted above, it is relatively easy for $\hat{c}(\lambda)$ to be convex, it is fair to say that increased transparency is beneficial to the principal and the public when media reports never misidentify the signal. If $p_1^L = 1$ is achievable, then the media report is a perfect indicator of the signal, and the public can achieve the same payoff as it would achieve if there were only upright agents.

Equilibria with Media Reports after Both Signals

If there are media reports after high-cost signals as well as low-cost signals, the optimal level of transparency becomes more complicated. To begin with, it is not the case that increasing p_1^H always makes the principal worse off. Instead, false positives can benefit the principal if they discourage the low-cost group from compensating the venal agent with that signal for a negative media report. In fact, if $k_A + k_G$ is large enough and p_1^L and p_1^H are at the right levels, the principal can achieve her highest payoff:

Proposition 4: An equilibrium in which different policies follow from V_H^H, U_H, and the other agent scenarios exists only when p_1^H is greater than zero and $k_A + k_G$ is sufficiently high. It yields the principal her highest possible payoff in the game, but it may not exist for any values of p_1^L and p_1^H. □

Qualitatively, this equilibrium requires three incentive compatibilities: (1) the low-cost group must find it too costly to compensate the venal agent for a media report and incur its own costs for negative publicity, (2) the high-cost group must find it not too costly to compensate the venal agent, and (3) the upright agent with $s = H$ must be prefer to incur the costs of a media report rather than propose at least $\tilde{r}$. The first condition requires a sufficiently high p_1^H, while the third requires a sufficiently low p_1^H, and there may not be a value that satisfies both, even if $k_A + k_G$ is high enough to allow for screening the low-cost group from the high-cost group when they face the venal agent. Still, if this equilibrium can exist, then the greater payoff from this equilibrium constitutes and improvement from when $p_1^H = 0$.

As the maximum payoff possible, the principal's expected utility from the equilibrium in Proposition 4 is also greater than it could be if there were only upright agents in the game: $\left(p_H + p_L(1-q)\right)\hat{f}\left(\lambda_{U_H}\right) + p_L q\hat{f}(1) = p_U\left(p_H + p_L(1-q)\right)\hat{f}\left(\lambda_{U_H}\right) + p_V p_H f\left(\lambda_{U_H}, 0\right) + p_V p_L(1 -$ *qfλUH,1+pLqf1<pUpH+pL1−qfλUH+pVpHf0+pVpL1−qf1+pLqf1*. Thus, this payoff requires venal agents, and it requires the venal agent to accept compensation from the high-cost agent. If even this compensation is successfully deterred, the principal may end up not being able to achieve more than her default payoff.

Proposition 5: For sufficiently large k_A and k_G, there always exists some value of p_1^H such that the principal can receive no more than her default equilibrium payoff. □

The situation described in Proposition 5 requires not only the low-cost agent to be deterred from inducing the venal agent to propose below the media threshold, but also the high-cost agent to be deterred from doing so, as well as U_H to be deterred from proposing less than $\tilde{r}$. The scenarios in Propositions 4 and 5 entail high media costs. Since a group may have more at stake than what they would need to compensate a venal agent, these situations seem to necessitate substantial direct costs to the group from negative publicity.[13] For smaller media costs, it is more likely that the two

[13] However, if, following Laffont and Tirole (1991), one supposes that a transfer d to the agent costs more than d to the group, the cost of compensation to the venal agent may also become high enough to deter it.

benefits from increasing p_1^L while keeping $p_1^H = 0$ will be reversed. First, the information that the principal gains from the media report becomes less valuable, since, with $p_1^H > 0$, it is possible that $s = H$ preceding negative publicity.[14] Second, in certain circumstances, inducing a proposal below the media threshold will become at least weakly more attractive for the low-cost group facing V_L^L as p_1^H increases:

Lemma 3: Suppose some fraction η_U of U_H and some fraction η_V each of V_H^H and V_H^L (at least one of them strictly positive) are fully pooled with some $\theta > 0$ of V_L^L proposals below the threshold in equilibrium. Then the cost to the low-cost group of inducing a proposal below $\tilde{r}$ decreases with p_1^H whenever $p_1^L > p_1^H$ and $\hat{c}(\lambda)$ is convex with respect to λ. □

Lemma 3 is the converse of Lemma 2. In this case the reductions in costs due to $\bar{\lambda}$ decreasing for the low-cost group in the event of a media report outweigh the increase in cost from $\underline{\lambda}$ rising when there is no media report. If U_H is not discouraged below $\tilde{r}$ when $p_1^H = 0$, then many of the equilibria analogous to those in Proposition 3 are worse:

Proposition 6: Suppose it remains incentive-compatible for U_H to propose below the media threshold, $p_1^H(k_A + k_G) < \min\left\{\gamma^L\left(\hat{c}(1) - \hat{c}(\lambda_{A_H})\right), \gamma^H\left(\hat{c}(p_L) - \hat{c}(\lambda_{A_H})\right)\right\}$, and $0 < p_1^H < p_1^L$.

(a) For given values of p_1^L, p_1^H, k_A, k_G, and γ^L, one sustainable equilibrium is among of the following three mutually exclusive types of equilibria:

   i. If $p_1^L(k_A + k_G) \leq \gamma^L\left(p_0^L\left(\hat{c}(1) - \hat{c}\left(\underline{\lambda}_{A_H \cup V_L^L}\right)\right) + p_1^L\left(\hat{c}(1) - \gamma^L\hat{c}\left(\bar{\lambda}_{A_H \cup V_L^L}\right)\right)\right)$, then V_L^L pools fully with A_H.

[14] If $p_H^1 = p_L^1$, the principal and public are able to do no Bayesian updating based on the presence or absence of a media report. However, the possibility of a media report still allows for the possibility of screening the low-cost group from the high-cost group.

ii. If $p_1^L(k_A+k_G)=\gamma^L\left(p_0^L\left(\hat{c}(1)-\hat{c}\left(\underline{\lambda}_{A_H\cup\theta V_L^L}\right)\right)+p_1^L\left(\hat{c}(1)-\hat{c}\left(\bar{\lambda}_{A_H\cup\theta V_L^L}\right)\right)\right)$ for some $\theta\in(0,1)$, then V_L^L pools with A_H with probability θ and with U_L with probability $1-\theta$.

iii. If $p_1^L(k_A+k_G)\geq\gamma^L\left(\hat{c}(1)-\hat{c}\left(\lambda_{A_H}\right)\right)$, V_L^L pools fully with U_L.

(b) Holding p_1^L constant, equilibrium (i) and equilibrium (ii) (for a given θ) in (a) yield a lower payoff for the principal for any given $p_1^H>0$ compared to when $p_1^H=0$, while the payoff for type (iii) is the same as for type (iii) in Proposition 3(b). Holding p_1^L and p_1^H constant, the lower the fraction of V_L^L pooled with A_H in the equilibrium, the higher her expected utility.

(c) The equilibria in (a) achieve the principal's highest payoff.

(d) If $p_1^L(k_A+k_G)<\gamma^L\left(\hat{c}(1)-\hat{c}\left(\lambda_{A_H}\right)\right)$, convexity of $\hat{c}(\lambda)$ implies that the principal's maximum payoff in (a) increases with p_1^L while p_1^H is held constant and decreases with p_1^H when p_1^L is held constant.

(e) If $p_1^L(k_A+k_G)\leq\gamma^L\left(\hat{c}(1)-\hat{c}\left(\lambda_{A_H\cup V_L^L}\right)\right)$ and $\hat{c}(\lambda)$ is convex, then as p_1^H approaches p_1^L, the principal's payoff approaches the default payoff. □

Proposition 6 focuses on conditions under which media reports after the high-cost signal do not serve to screen the agents with the high-cost signal from each other. In that case, increasing p_1^H only results in information loss, which, under weak conditions, makes the principal worse off. Part (e) indicates that, if p_1^L does not sufficiently serve to induce some V_L^L proposals to at least $\tilde{r}$, that the principal's expected utility falls all the way to the default payoff. This can occur even when V_L^L proposals were partially or fully separated from A_H proposals with $p_1^H=0$. The reason is that $p_1^L(k_A+k_G)\geq p_0^L\gamma^L\left(\hat{c}(1)-\hat{c}\left(\lambda_{A_H}\right)\right)$ from Proposition 3(a)(iii) does not imply that $p_1^L(k_A+k_G)>$

$\gamma^L\left(\hat{c}(1)-\hat{c}\left(\lambda_{A_H\cup V_L^L}\right)\right)$. Thus, if increasing transparency causes an increase in both p_1^L and p_1^H, the overall effect is ambiguous.

The remaining set of circumstances to consider is U_H's proposing at least the threshold, which is possible since the upright agent incurs k_A for a media report when $p_1^H > 0$. The upright agent could then conceivably make a different proposal after each signal.[15] It would be appealing if these proposals were distinct the venal agents' proposals below $\tilde{r}$. However, it is not incentive compatible for the low-cost agent facing V_L^L to continue proposing below the threshold when it can pool with U_H instead. Instead, if U_H sets $r_A \geq \tilde{r}$, his proposals must be pooled with venal agent proposals, with proposals from U_L, or with both. Because U_H proposals are never by themselves, cannot produce equilibria as good for the principal as the one in Proposition 4. On the other hand, the low-cost agent has more of an incentive to induce V_L^L to pool with U_H than with U_L. Equilibria with the upright proposing different value of $r_A \geq \tilde{r}$ for each signal that can be more formally characterized as follows:

Proposition 7: Consider equilibria in which U_H proposes $r_A \geq \tilde{r}$, but always separately from U_L.

(a) U_H proposals cannot be separated from venal agent proposals. If $\hat{c}(\lambda)$ is convex, then a fraction of V_L^L proposals exceeding p_U must be pooled with U_H, so that $\lambda > \lambda_{A_H\cup V_L^L}$ for proposals involving U_H.

(b) If $\hat{c}(\lambda)$ is convex and some fraction of V_L^L proposals are originally below $\tilde{r}$, the fraction of V_L^L proposals pooled with U_H proposals will increase if p_1^L increases and decrease if p_1^H increases (provided that $p_1^H < p_1^L$).

(c) For a given p_1^L and p_1^H, this type of equilibrium may or may not exist.

[15] U_H pooling with U_L below the threshold results in an additional loss of information for the principal, and the resulting equilibrium would almost certainly not be the best one available to her.

(d) Suppose the best equilibrium payoff for the principal in which U_H proposes below $\tilde{r}$ (if any) involves some V_L^L proposals below the threshold. Then there will be fewer venal agent proposals below $\tilde{r}$ in any equilibrium in which U_H proposes $r_A > \tilde{r}$ (and separately from U_L).

(e) Suppose the best equilibrium payoff for the principal in which U_H proposes below $\tilde{r}$ (if any) is achievable with V_L^L proposals all at least $\tilde{r}$ and venal agent proposals separate from upright agent proposals below $\tilde{r}$. Then there will be weakly fewer venal agent proposals below $\tilde{r}$ in any equilibrium in which U_H proposes $r_A > \tilde{r}$ (and separately from U_L). □

Thus, there will tend to be more venal agents no longer proposing below the threshold in an equilibrium in which U_H sets $r_A \geq \tilde{r}$. However, they will be pooled with U_H rather than receive $r_P = \hat{r}(1)$, and these agents will generate no more information for the principal during the media reporting stage. Overall, net effect of these two changes is unclear, and they may not even occur since the equilibrium may not be sustainable. Since the principal does have some information from this equilibrium among the non-U_L agent scenarios, it may be better off if p_1^H is very close to p_1^L when the alternative is to have almost no information among these agents. On the other hand, if p_1^H is near zero, then the fact that no information will be gained from U_H proposals and whatever venal agent proposals are pooled with them will most likely dominate the fact that fewer venal agents are proposing below the threshold. In general, the possibility of an equilibrium of the type described in Proposition 7 appears to reduce the losses due to increases in p_1^H described in Proposition 6 while still making losses possible from increases in transparency.

Propositions 4 to 7 show that the principal gains from increases in p_1^H only when the resulting best equilibrium is one that splits from each other some of the proposals resulting from the high-cost signal, i.e., one in which V_H^H, V_H^L, and U_H proposals are not all on the same side of the threshold. Essentially, p_1^H needs to be high enough to screen apart these agent scenarios, but it also needs to be not so high as to always deter the agent from proposing below the threshold. Otherwise, the false positives only make the principal worse off via loss of information about the agent's signal. More generally, Propositions 5 and 6 show that there exist functions $\mathbf{p}_1(t)$ under which more transparency does not make the principal better off. Thus, there exists a non-trivial set of cases in which increasing transparency need not improve outcomes for the public.

Alternative Equilibrium Selection Criteria

Given that the public receives its highest payoff, the preceding discussion characterizes circumstances under which its expected payoff increases. However, the game does not intrinsically require that the public receive its greatest payoff. The question is whether any other reasonable criterion would make increasing transparency unambiguously beneficial for any $\mathbf{p}_1(t)$.

Criteria Based on Other Players' Payoffs

Instead of the public's payoff, one might suppose that some other player's payoff is maximized, like the high-cost group or the upright agent. For the high-cost group, the rationale is that the high-cost group will decide whether it prefers to distinguish itself from the low-cost group or finds it too costly to do so, and that it has the political savvy to minimize its cost. By Proposition 1, the default equilibrium, which yields the high-cost group $\gamma^H \hat{c}\left(\lambda_{A_H \cup V_L^L}\right)$, is always achievable. If the high-cost group achieves its highest payoff, then some of the highly informative equilibria that occur with relatively large values of p_1^H might no longer be selected. For example, an equilibrium of the type described in Proposition 4 might be sustainable, with $\gamma^H \hat{c}(0) + p_1^H(k_A + k_G) \leq \gamma^H \hat{c}(1)$. Even when this condition holds, it is possible that its overall payoff, $p_1^H k_G + p_U \gamma^H \hat{c}(\lambda_{U_H}) + p_V(\gamma^H \hat{c}(0) + p_1^H k_A)$, is not as good for it as the default payoff since $\gamma^H \hat{c}\left(\lambda_{A_H \cup V_L^L}\right) < \gamma^H \hat{c}(1)$. If $\hat{c}(\cdot)$ is convex, it is also possible that the high-cost group's cost from an equilibrium in Proposition 6 will exceed the default equilibrium cost, since $p_0^H \gamma^H \hat{c}(\bar{\lambda}_{(\cdot)}) + p_1^H(\gamma^H \hat{c}(\underline{\lambda}_{(\cdot)} + k_G + p_V k_A) > \gamma^H \hat{c}\left(\lambda_{A_H \cup V_L^L}\right)$ is consistent with $p_0^H \gamma^H \hat{c}(\bar{\lambda}_{(\cdot)}) + p_1^H(\gamma^H \hat{c}(\underline{\lambda}_{(\cdot)} + k_G + k_A) < \gamma^H \hat{c}(1)$. Since there are values of p_1^H small enough for the high-cost group to propose below the threshold, there are also paths $\mathbf{p}_1(t)$ for which increasing transparency would not increase the public's payoff. With this criterion, even paths in which p_1^H sometimes increases, but less quickly than p_1^L, could yield this effect.

A similar challenge arises the upright agent is assumed to achieve his greatest payoff. His incentive compatibility constraint in an equilibrium will often entail avoiding $\alpha f(1, \lambda_{U_H})$, but the default equilibrium yields $\alpha f\left(\lambda_{A_H \cup V_L^L}, \lambda_{U_H}\right) > \alpha f(1, \lambda_{U_H})$. A third possibility is to eliminate equilibria in which both the upright agent and the high-cost group do worse than in the default equilibrium, since the public cannot expect both the high-cost group and the upright agent to incur large costs solely for its benefit. However, this criterion still leaves functions $\mathbf{p}_1(t)$ where the public's expected utility does not increase with t, because increasing p_1^H slightly yields losses as described in Proposition 6, and increasing it more may yield the default equilibrium even when better equilibria for the public could be sustained. Overall, it seems difficult to construct a criterion in which the public improves its payoff with p_1^H as with p_1^L based on comparable payoffs for one or more players.

Criteria Based on Proposal Content

Another method of selecting equilibria is to have the proposals correspond to the posterior probabilities to some extent. In the current form of the game, the principal has full authority to adjust policy, so the only features of an agent proposal are whether it is below the threshold and which agent scenarios produce that proposal. The value of the threshold has been entirely irrelevant due to the principal's power. However, it might be supposed that the agent's proposal has some connection to the final policy in the equilibrium that actually obtains. For example, the upright agent would propose $\hat{r}(1)$ after the low-cost signal if $\tilde{r} \leq \hat{r}(1)$, even though any proposal of at least the threshold distinct from all the others would also result in the same policy.

More generally, the value of the threshold might influence equilibrium selection. For example, if $\tilde{r} > \hat{r}(\lambda_{U_H})$, one might expect the upright agent to propose $r_A = \hat{r}(\lambda_{U_H})$ as long as at least one equilibrium with that proposal can be sustained. However, this still leaves the possibility of losses according to Propositions 5 and 6. On the other hand, if $\tilde{r} \leq \hat{r}(\lambda_{U_H})$, the upright agent might be expected to propose $r_A = \hat{r}(\lambda_{U_H})$, in which case the default equilibrium would always obtain since the venal agent proposals would pool with the upright agent's.

Overall, it appears difficult to construct a selection criterion in which the public's expected payoff increases both with p_1^L and p_1^H that is not identical to deliberately selecting equilibria to yield this outcome. In particular, with some pairs of these probabilities yielding only the default payoff at most (e.g., $p_1^L = p_1^H = \varepsilon > 0$ for sufficiently small ε), other pairs of these probabilities would need to be adjusted downward toward the default equilibrium or even worse. Thus, the challenge of calibrating the level of transparency generally remains.

Extensions

The principal's role in this game modeled on regulation has been idealized and simplified in a few ways. First, it was assumed that the group would automatically communicate, but this need not necessarily be the case. Second, the principal might have additional sanctions available for certain mechanisms of regulatory capture, or she might opt to criminalize some forms of influence. Third, the principal might not be able to intervene as often, leaving the courts to limit regulatory capture. With the basic equilibrium results above providing a framework, these extensions can be considered separately. The ambiguities in transparency's impact will remain.

The Group Can Choose not to Communicate

The standard game assumes that the group will generate a signal about its cost level and leaves as the main strategic questions how the group will influence the venal agents and whether the upright agent will propose a policy below the threshold. Suppose, in the first stage, that the firm has the option of not providing any information to the agent from which he can derive a signal. Since this is a signaling game, there will exist an equilibrium in which the group does not communicate with the agent, and the principal always assigns $r_P = \hat{r}(p_L)$. If, as in the standard game, the group discovers the agent's type before deciding what kind of transfers to offer, then it will generally be the case that $r_P = \hat{r}(p_L)$ in all agent situations in any equilibrium.[16] Such equilibria yield the public $\hat{f}(p_L)$, which is less than its default expected utility by Proposition 1. They also yield a lower payoff to both the high-cost group and the upright agent, which means that this equilibrium would not occur under any of the criteria listed above.

However, a fully pooling equilibrium may be appropriate, depending on the equilibrium that is selected when the group provides information. If it is expected, according to any rule that does not leave the high-cost group as well off as possible, that the high-cost group will end up paying more than $\gamma^H \hat{c}(p_L)$ if the group communicates, then the high-cost group might try to have the pooling equilibrium occur. For example, suppose $\hat{r}(p_L) \geq \tilde{r}$. If the principal sees $r_A = \hat{r}(p_L)$ after the agent sees no signal from the group, the principal and the upright could realize that $\lambda = p_L$ because the high-cost group and low-cost group both prefer a pooling equilibrium.[17] In contrast, if the high-cost group pays less than $\gamma^H \hat{c}(p_L)$ in a communicating equilibrium, it would not try to induce $r_A = \hat{r}(p_L)$. Then the low-cost group would not deny information and try to claim that the principal and agent should believe $\lambda = p_L$, because then its claim that the high-cost group would also want to be in a pooling equilibrium would not be credible.

[16] The group might be able to determine the agent's type by talking, but not formally submitting (as much) evidence pointing to its high costs. An alternative equilibrium may occur if a media report can occur even with no communication and a proposal $r_A < \tilde{r}$, and if the low-cost group finds it too costly to compensate the venal agent for that risk. However, this probability, which might be denoted as $p_1^{\emptyset}$, would most likely be less than p_1^L, since it is easier to generate a media report with substantive information than without. Thus, it is unlikely that the high-cost group would separate itself from the low-cost group.

[17] The venal agent who has not seen any information does not care about the group's type and only cares about being compensated if it proposes a policy that can trigger a media report.

The plausibility of a fully pooling equilibrium applies even though the informative equilibrium it replaces is perfectly sustainable with proper beliefs. In general, the high-cost group will compare its equilibrium payoff to $\gamma^H \hat{c}(1)$ to decide whether to deviate, but a comparison to $\gamma^H \hat{c}(p_L)$ implies a stricter test for equilibrium selection, akin to the intuitive criterion. Like other results of the model, the possibility that the final policy might always be $r_P = \hat{r}(p_L)$ does not arise if $p_1^H = 0$. Thus, this extension adds to the complications that occur if there are false positives in media reporting.

Punishing Influence

In the standard model, the principal's power is limited to adjusting policy to her posterior belief. However, it might be thought that the principal has additional powers to punish influence. The availability of additional sanctions is not obvious. Among the forms of influence listed in Laffont and Tirole (1991, p. 1090-91), bribery is already a crime, and the others are difficult to detect: implicit promises for future employment, smoothness of relationships between agents and interest group representatives, and indirect interest groups contributions to elected officials with legally-recognized influence over the agency. Still, one might suppose that an ethical code is partially definable, and that, media reports might help the principal discipline ethics violations by agents. Then greater transparency could be helpful because in the increase in the probability of a media report.

If the punishment automatically occurs after the media report, then this is like k_A increasing. If there are false positives, this means that upright agents will be sanctioned, along with venal agents who actually committed the actions worthy of punishment. If the principal is unconcerned with incorrect judgments (a doubtful assumption), then the net effect could be positive, leading to an equilibrium like the type in Proposition 4. On the other hand, if not carefully calibrated, the punishment could yield the default equilibrium, which would be worse than many of the equilibria in which influence occurs. Unless the form of influence is in monetary bribes, calibrating punishment to effective level of the transfer is very difficult.

The difficulty can possibly be mitigated, but not necessarily adequately resolved, by investigating further into whether undue influence has occurred, given that there has been a media report, even if investigation is costless (given a media report) and principal is perfect at distinguishing between upright and venal agents after the investigation. If upright agents incur a cost merely due to the fact of an investigation (e.g., time lost to other administrative pursuits, pain and suffering), these costs are not likely to be compensated. The venal agent likely incurs investigational costs, as well. The levels of these costs, unlike the level of punishment, are definitely not under the control of the principal. If the investigational costs are sufficient or nearly sufficient to deter both types of agents from proposing below the media threshold, even carefully calibrated punishments will not deter influence in a way that increases the principal's payoff.

Overall, if the effectiveness of punishment and investigation depend on greater transparency, then having the options of increasing punishments and investigating suspected wrongdoing does not eliminate the essential ambiguities involved in increasing transparency.

Less Principal Power and Judicial Review

The baseline model assumes that the principal has the full power to determine the final policy, regardless of what the agent proposes. In reality, the principal's power to adjust policy may depend on media reports. Specifically, media reports might be necessary to alert elected officials to the salience of a particular rulemaking process, given the large number of issues a principal must deal with. Suppose that the principal can only change the policy when an agent or agency receives negative publicity, and that, without a media report, the agency's proposal becomes the final policy. Then the level of the media threshold, which is immaterial in the standard model (unless equilibrium selection follows proposal content), becomes important. If the principal can only change the policy after a media report, the agent can guarantee a particular policy by selecting a policy that of at least $\tilde{r}$.

Greater transparency is most helpful if the threshold is above zero and the agent may freely choose any nonnegative level of regulation. Then the group will consider inducing $r_A = 0$ from the venal agent, in which case increases in p_1^H would generally increase the principal's payoff, since even the venal agent with the low-cost signal should be selecting $\hat{r}(\lambda_{V_H})$ instead of 0. Whether the agent is freely able to select any policy in an environment in which increased transparency would lead to more frequent media reports is an open question, but two of the cases in which the agency's proposal would be effectively zero do not fit the model very neatly. First, $r_A = 0$ for a venal agent that does not initiate a rulemaking in a new area. In this case, though, the agent has not solicited any information specific to the issue upon which a media report might be based. With many possible regulations given the information that an agency has, it would be difficult to make a case that an agent or agency has been captured by not pursuing a particular avenue of regulation. Second, $r_A = 0$ for a rulemaking that has started, but in which a captured agency is engaged in delay. However, delay, by definition, means that the media will not report for a while on the lack of progress, which again limits the benefits to the principal of greater transparency until later in the rulemaking process. Furthermore, with a variety of other institutions that can cause delay in regulations (Yackee and Yackee 2010), media reporting would be more difficult and might have other targets. In terms of the model, these cases would represent situations in which the media threshold is zero, and transparency would make no difference.

The scenario in which greater transparency is most likely to be relevant and in which the agency's proposal might be effectively zero is when the agency has completed the rulemaking and has decided not to issue a rule. However, because the agency has compiled a record in these cases, judicial review is available to compel agency action just as in cases in which the regulation is alleged to be too lax (Lubbers 2006). Judicial review operates independently of media reports. Under judicial review of agency rulemakings, agencies are allowed a good deal of discretion, but they can be overruled for "arbitrary and capricious" rulemaking. Here, the media threshold would be above zero. Applying judicial review to extend the baseline model, a weak form of judicial review would imply that the agency would have to set the level of regulation to at least $\hat{r}(0)$, since no matter how high the costs are, the agency could not justify a lower policy than this. A stronger form would require the agency to set the level of regulation to at least $\hat{r}(\lambda_{A_H})$, since, no matter what the evidence states, the agency basing its decision on the signal could not justify any lower level of regulation.

Suppose the media threshold is greater than the minimum allowable policy for the respective forms of judicial review. In the weaker version, increases in p_1^L would increase the principal's payoff as before, but increasing p_1^H could may be better or worse for the principal because (1) the policy after V_L^L, $\hat{r}(\bar{\lambda}_{V_L})$, would be lower than before, and (2) for the venal agent with the high-cost signal $\hat{r}(\bar{\lambda}_{V_L})$ might be farther from $\hat{r}(\lambda_{V_H})$ than $\hat{r}(0)$. In the second form, an increase in p_1^H would result in a lower payoff for the principal because more of the agents with the high-cost signal would be moved away from $\hat{r}(\lambda_{A_H})$. In both cases, increases in p_1^H result in informational loss and the possibility of screening agents from each other. The result, in the weaker form of judicial review, might be an equilibrium like the one in Proposition 4. At the other extreme, if all agents are deterred from proposing below the threshold, the principal will end up with less than the default equilibrium unless $\tilde{r} = \hat{r}\left(\lambda_{A_H \cup V_L^L}\right)$.[18]

Overall, these three extensions add realism to the policymaking setting. However, they do not remove the ambiguities involved in increasing transparency in the most likely scenarios.

Policy Implications

The discussion of the impacts of greater transparency is motivated significantly by recent efforts in both the U.S. and the European Union to increase transparency generally. The model presented in this paper points to some suggestions for how to think about and design transparency policies. This

[18] If $\tilde{r} < \hat{r}\left(\lambda_{A_H \cup V_L^L}\right)$, then U_H selects $\hat{r}\left(\lambda_{A_H \cup V_L^L}\right)$ while the group induces $\tilde{r}$ from the venal agent, which is further away from $\hat{r}(p_L)$ than $\hat{r}\left(\lambda_{A_H \cup V_L^L}\right)$ in the default equilibrium. If $\tilde{r} > \hat{r}\left(\lambda_{A_H \cup V_L^L}\right)$, then all agents except U_L always selects $\tilde{r}$, yielding $f\left(\tilde{r}, \lambda_{A_H \cup V_L^L}\right) < \hat{f}\left(\lambda_{A_H \cup V_L^L}\right)$ from those agents.

is true even when there is no mechanical cost to making documents available and when the political principal has full control over the final policy.

Accounting for Policy Losses

The political principal in the model is perfectly rational and uses Bayesian updating in determining the level of regulation. However, there remains plenty of room for executive agencies or agents and an interest group to incur costs due to public opprobrium. If an agent cannot directly communicate the substance of his information via the documents that are released, there is a risk that they will be misinterpreted. Thus, the potential gains from transparency will be limited to the extent that the media makes errors in interpreting which policies should follow from the documents that it would have access to. If, between a lower level of transparency and a higher level of transparency, the increase in false positives is sufficiently high compared to increase in cases in which a lenient policy is correctly seen as not supported by the evidence, increasing transparency can result in worse policy outcomes for the principal due to the loss of information at the media reporting stage. Therefore, scholars and practitioners weighing the benefits and costs of transparency need to consider the possibility that released documents will be misinterpreted among the costs.

Another distinct possibility from increased transparency is that agents and agencies with documents that actually support a lower level of regulation may propose higher levels of regulation to avoid media scrutiny. In the baseline case, in which the principal can readjust policy from whatever is proposed, policy losses result from the fact that proposals are less distinct from one another. In the extension in which the agency's proposal can be binding, these proposals can result in higher levels of regulation than the principal desires. Undesirable policy distortions might also take the form of interest groups not providing information to agencies. Thus, an increase in transparency can have two chilling effects: one on agency's willingness to propose low levels of regulation and one on groups' willingness to provide information in the first place. These also need to be considered when weighing proposals about increasing transparency. Even if the possibility for losses of information and policy distortions will not appear in politicians' official rhetoric, they should at least appear in more private discussions about transparency policy.

General Transparency Policies

The policy implications for a general transparency policy, one that broadly encourages greater transparency in every agency, depend on how much more likely media reports will become and how costly those reports will be for agents and the group. If the probability or costs of media reports with greater transparency are thought to be relatively low, then if false positives do not increase much compared to true reports that more stringent regulation is justified given the evidence, then increasing transparency is most likely to be beneficial. However, if there are enough false positives and agents are strongly averse to negative publicity, then some intermediate level of transparency is more likely to be warranted. Similarly, if it is thought, that, in general, that, increasing transparency from its current level would produce a high proportion of additional false positives, the intermediate transparency may also be advisable.

Tailored Transparency Policies

In general, however, different levels of transparency may produce better policy outcomes from some agencies and worse in others, making it difficult to optimize transparency across agencies. In this case, the model suggests an approach tailored to different agencies. Rather than assign one level of transparency, increasing transparency as much as possible across all agencies, a more tailored approach would increase transparency only to the extent that it is beneficial in each agency. Following the logic above, agencies for which greater transparency leads to mostly accurate media reports in the event of lax regulation not supported by the evidence should be pressed to release more documents, whereas a more moderate level of transparency would be better for agencies for which greater transparency would produce a large number of false positives or deter agents who have evidence that low regulation is proper from proposing such regulation.

Predicting what would happen to an agency requires empirical analysis. One dimension, how large costs from media reporting are should be measurable, based on agency perceptions of media reports. It should also be quite possible to determine how often agencies appear in the news. The most difficult challenge would be determining how often the reports are accurate. While the media will change its story, most likely the agent who was the subject of a report and the media will disagree about who is correct. Here, a researcher would need some independent criterion for discerning whether a report is a true or false positive so as to determine the amount of information gained from the media reporting stage.[19] In contrast to report accuracy, it should be easier to determine the extent to which agents might be deterred from proposing their preferred policies by media reports based on insider accounts.

If one supposes that most gains in predicting the impacts of transparency accurately arise from the first efforts in research, then, while perfect calibration may be impossible, it should be possible to be more discerning among agencies. Since the government already exempts some information from disclosure for different agencies and counts this exemption as one of the reasons not to release a document under FOIA, the idea of at least partial tailoring of transparency to different agencies may not be so foreign.

Agency Resistance to Transparency

As noted above, agencies have been observed to respond to transparency initiatives by resisting information disclosure requirements rather than by changing its proposals (Roberts 2006). The model has implications for this kind of resistance, as well. First, the possibility of incorrect reporting by the media means that agencies are not resisting transparency merely because they have "something to hide." To be more precise, an agent whose evidence properly supports lower regulation has documents to hide that perhaps should remain hidden if they are likely to be misinterpret-

[19] A research might also make errors in determining whether the media or the agent was correct in a particular case. This possibility provides further support for the idea that the media might report incorrectly.

ed. Second, because greater transparency can lead to worse results for a political principal, the solution to resistance to transparency is not necessarily to redouble efforts to increase transparency, even if these efforts are costless. Even if a political principal is successful in forcing agencies to disclose more documents, and her payoff may not necessarily be better. Finally, the possibility that different agencies will resist to varying degrees means that political principal may be able to effectuate varying levels of transparency by devoting different amounts of effort to overcoming this resistance.

Conclusion

In contrast to statements by leaders, transparency non-governmental organizations, and some scholars about the values of transparency, the model presented in this paper suggests that the potential benefits to transparency need to be considered with more nuance. Greater transparency can result in loss of information about the meaning of an agent's evidence as well as undesired changes in policy proposals. Since the U.S. and many other industrialized societies already have substantial amounts of transparency in the disclosure of documents, it is not obvious that more transparency would improve policy outcomes. At the very least, the model results dispute the notion that more transparency is almost always beneficial as long it is not too difficult to accomplish. Instead, it points to additional costs that need to be considered and suggests the value of treating agencies differently rather than all the same when designing transparency policies.

Appendix: Proofs of Lemmas and Propositions

Proof of Lemma 1: The first statement follows from the first-order condition $b_P'\big(\hat{r}(\lambda)\big) = (\lambda\gamma_P^L + (1-\lambda)\gamma_P^H)c_P'\big(\hat{r}(\lambda)\big)$. Differentiating with respect to λ yields $\frac{\partial\hat{r}}{\partial\lambda} = \frac{(\gamma_P^H - \gamma_P^L)c_P'(\hat{r}(\lambda))}{(\lambda\gamma_P^L + (1-\lambda)\gamma_P^H)c_P''(\hat{r}(\lambda)) - b_P''(\hat{r}(\lambda))} > 0$. For the second statement, given any fractions (or pdf values) $\theta_1, \theta_2, \theta_3, \theta_4$, and θ_5, respectively of U_H, U_L, V_H^H, V_H^L, and V_L^L, $\bar{\lambda} = \frac{(\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_1^H + (\theta_2 p_U + \theta_5 p_V)p_L q p_1^L}{(\theta_1 p_U + \theta_3 p_V)p_H p_1^H + (\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_1^H + (\theta_2 p_U + \theta_5 p_V)p_L q p_1^L} \geq \frac{(\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_1^H + (\theta_2 p_U + \theta_5 p_V)p_L q p_1^H}{(\theta_1 p_U + \theta_3 p_V)p_H p_1^H + (\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_1^H + (\theta_2 p_U + \theta_5 p_V)p_L q p_1^H} = \frac{(\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_0^H + (\theta_2 p_U + \theta_5 p_V)p_L q p_0^H}{(\theta_1 p_U + \theta_3 p_V)p_H p_0^H + (\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_0^H + (\theta_2 p_U + \theta_5 p_V)p_L q p_0^H} \geq \frac{(\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_0^H + (\theta_2 p_U + \theta_5 p_V)p_L q p_0^L}{(\theta_1 p_U + \theta_3 p_V)p_H p_0^H + (\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_0^H + (\theta_2 p_U + \theta_5 p_V)p_L q p_0^L} = \underline{\lambda}$ because $\frac{(\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_1^H}{(\theta_1 p_U + \theta_3 p_V)p_H p_0^H + (\theta_1 p_U + \theta_4 p_V)p_L(1-q)p_1^H} < 1$. □

Proof of Lemma 2: The pooling with some A_H proposals is equivalent to having $\eta = \eta_U p_U + \eta_V p_V$ of A_H proposals pooled with $\theta > 0$ of V_L^L proposals. The posterior probabilities after the media reporting stage for proposals below the threshold can be expressed as

$$\bar{\lambda}_{A_H \cup \theta V_L^L} = \frac{\eta p_L(1-q)p_1^H + \theta p_V p_L q p_1^L}{\eta\big(p_H + p_L(1-q)\big)p_1^H + \theta p_V p_L q p_1^L} \tag{11}$$

$$\text{and } \underline{\lambda}_{A_H \cup \theta V_L^L} = \frac{\eta p_L(1-q)p_0^H + \theta p_V p_L q p_0^L}{\eta\big(p_H + p_L(1-q)\big)p_0^H + \theta p_V p_L q p_0^L}. \tag{12}$$

The low-cost group's cost of proposing below the threshold is then
$(1-p_1^L)\gamma^L \hat{c}\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right) + p_1^L\left(\gamma^L \hat{c}\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right) + k_A + k_G\right)$, and the goal is to show that its derivative with respect to p_1^L is positive. The derivative is
$k_A + k_G + \gamma^L(\hat{c}\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right) - \hat{c}\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right) + \hat{c}'\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right) p_1^L \frac{\partial \bar{\lambda}_{\eta A_H \cup \theta V_L^L}}{\partial p_1^L} + \hat{c}'\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)(1-p_1^L)\frac{\partial \underline{\lambda}_{\eta A_H \cup \theta V_L^L}}{\partial p_1^L}$.
Differentiating Equations (11) and (12) with respect to p_1^L yields

$$p_1^L \frac{\partial \bar{\lambda}_{\eta A_H \cup \theta V_L^L}}{\partial p_1^L} = \left(1 - \bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\frac{\theta p_V p_L q p_1^L}{\eta\big(p_H + p_L(1-q)\big)p_1^H + \theta p_V p_L q p_1^L} \tag{13}$$

$$\text{and } p_0^L \frac{\partial \underline{\lambda}_{\eta A_H \cup \theta V_L^L}}{\partial p_1^L} = -\left(1 - \underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\frac{\theta p_V p_L q p_0^L}{\eta\big(p_H + p_L(1-q)\big)p_0^H + \theta p_V p_L q p_0^H}. \tag{14}$$

Convexity of $\hat{c}(\lambda)$ implies $\gamma^L(\hat{c}\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right) - \hat{c}\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right) \geq \hat{c}'\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L} - \underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)$. Then
$\hat{c}'\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L} - \underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right) \leq \hat{c}'\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L} - \underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\frac{\theta p_V p_L q p_0^L}{\eta(p_H + p_L(1-q))p_0^H + \theta p_V p_L q p_0^L} =$
$-\hat{c}'\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\left(1 - \bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\frac{\theta p_V p_L q p_0^L}{\eta(p_H + p_L(1-q))p_0^H + \theta p_V p_L q p_0^L} + \hat{c}'\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\left(1 - \underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\frac{\theta p_V p_L q p_0^L}{\eta(p_H + p_L(1-q))p_0^H + \theta p_V p_L q p_0^L} \leq$
$-\hat{c}'\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\left(1 - \bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\frac{\theta p_V p_L q p_1^L}{\eta(p_H + p_L(1-q))p_1^H + \theta p_V p_L q p_1^L} + \hat{c}'\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\left(1 - \underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\frac{\theta p_V p_L q p_0^L}{\eta(p_H + p_L(1-q))p_0^H + \theta p_V p_L q p_0^L}$, where the last step follows from convexity and $p_H^1 \leq p_L^1$. Then $k_A + k_G + \gamma^L\left(\hat{c}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}\right) - \hat{c}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right)\right) >$
$\gamma^L(\hat{c}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}\right) - \hat{c}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right)$ shows that the derivative is strictly positive, and that the cost to the low-cost group from proposing below the media threshold increases with p_1^L with $p_H^1 \leq p_L^1 < 1$. □

Proof of Lemma 3: The pooling with some A_H proposals is equivalent to having $\eta = \eta_U p_U + \eta_V p_V$ of A_H proposals pooled with $\theta > 0$ of V_L^L proposals. The posterior probabilities after the media reporting stage for proposals below the threshold can be expressed as

$$\bar{\lambda}_{\eta A_H \cup \theta V_L^L} = \frac{\eta p_L(1-q)p_1^H + \theta p_V p_L q p_1^L}{\eta\big(p_H + p_L(1-q)\big)p_1^H + \theta p_V p_L q p_1^L} \tag{15}$$

$$\text{and } \underline{\lambda}_{\eta A_H \cup \theta V_L^L} = \frac{\eta p_L(1-q)p_0^H + \theta p_V p_L q p_0^L}{\eta\big(p_H + p_L(1-q)\big)p_0^H + \theta p_V p_L q p_0^L}. \tag{16}$$

The low-cost group's cost of proposing below the threshold is $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{\eta A_H \cup \theta V_L^L}\right) + p_1^L\left(\gamma^L \hat{c}\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right) + k_A + k_G\right)$, and the derivative with respect to p_1^H is $\gamma^L\left(p_0^L \hat{c}'\left(\underline{\lambda}_{\eta A_H \cup V_L^L}\right)\frac{\partial \underline{\lambda}_{\eta A_H \cup \theta V_L^L}}{\partial p_1^H} + p_1^L \hat{c}'\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\frac{\partial \bar{\lambda}_{\eta A_H \cup \theta V_L^L}}{\partial p_1^H}\right)$. Differentiating Equations (15) and (16) yields

$$p_1^L \frac{\partial \bar{\lambda}_{\eta A_H \cup \theta V_L^L}}{\partial p_1^H} = -\eta\theta p_V p_H p_L q \left(\frac{p_1^L}{\eta\big(p_H + p_L(1-q)\big)p_1^H + \theta p_V p_L q p_1^L}\right)^2 \tag{17}$$

$$\text{and } p_0^L \frac{\partial \underline{\lambda}_{A_H \cup \theta V_L^L}}{\partial p_1^H} = \eta\theta p_V p_H p_L q \left(\frac{p_0^L}{\eta\big(p_H + p_L(1-q)\big)p_0^H + \theta p_V p_L q p_0^L}\right)^2. \tag{18}$$

Then the derivative can be expressed as $\gamma^L \eta\theta p_V p_L p_H q\left(\hat{c}'\left(\underline{\lambda}_{\eta A_H \cup V_L^L}\right)\left(\frac{p_0^L}{\eta(p_H+p_L(1-q))p_0^H+\theta p_V p_L q p_0^L}\right)^2 - \hat{c}'\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right)\left(\frac{p_1^L}{\eta(p_H+p_L(1-q))p_1^H+\theta p_V p_L q p_1^L}\right)^2\right)$. Convexity implies $\hat{c}'\left(\underline{\lambda}_{\eta A_H \cup V_L^L}\right) \leq \hat{c}'\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right)$, while $p_1^H < p_1^L$ implies $\frac{p_1^L}{(p_H+p_L(1-q))p_1^H+\theta p_V p_L q p_1^L} > \frac{p_0^L}{(p_H+p_L(1-q))p_0^H+\theta p_V p_L q p_0^L}$. Thus, the derivative of the expression is negative. Thus, the cost to the low-cost group strictly decreases with p_1^H when $p_1^H < p_1^L < 1$. For $p_L^1 = 1$, the cost of proposing below the threshold is $\gamma^L \hat{c}\left(\bar{\lambda}_{\eta A_H \cup \theta V_L^L}\right) + k_A + k_G$. This cost decreases because $\bar{\lambda}_{\eta A_H \cup \theta V_L^L}$ decreases with p_1^H, as shown by Equation (17). □

Proof of Proposition 1: The default equilibrium includes one proposal, $r_A^1 \geq \tilde{r}$, under the circumstances $\Omega \setminus U_L$ and a second proposal, $r_A^2 \geq \tilde{r}$ ($r_A^2 \neq r_A^1$), under U_L. The principal's belief after r_A^1 is $\lambda = \lambda_{\Omega \setminus U_L}$, leading to $r_P^1 = \hat{r}(\lambda_{\Omega \setminus U_L})$, and her belief after r_A^2 is $\lambda = 1$, leading to $r_P^2 = \hat{r}(1)$. By setting $p_1^L < 1$, cannot propose below the threshold and use lack of a media report as proof that the signal was $s = H$. Then, the principal can believe that $\lambda = 1$ and select $r_P = \hat{r}(1)$ for proposals off the equilibrium path. The group ends up paying zero for the equilibrium proposals that meet the threshold to avoid a media report. Going back one more step, the agent's beliefs follow the signal: $\lambda = \lambda_{U_H}$ for any agent who has seen the high signal and $\lambda = 1$ for any agent who has seen the low signal. The structure of the game assures that the upright agent does not update his posterior probability, while the group's decision to always induce the same policy from the venal agent assures that the venal agent's probability is not updated, either.

The description in the previous paragraph implies the weak consistency necessary for a perfect Bayesian equilibrium. For sequential rationality, we start with the group's decision about transfers. The group cannot influence the upright agent's decisionmaking, but it could consider inducing different policies from the venal agent. However, the group will not do so because the following incentive compatibility conditions are satisfied for scenarios V_H^H, V_H^L, and V_L^L, where $\hat{c}(\lambda) \equiv c(\hat{r}(\lambda)$ and $I_{\{r<\tilde{r}\}}$ is the indicator function as to whether the group induces a policy below the threshold:

$$\gamma^H \hat{c}\left(\lambda_{\Omega \setminus U_L}\right) \leq \gamma^H \hat{c}(1) + I_{\{r<\tilde{r}\}} p_1^H (k_A + k_G) \tag{19}$$
$$\gamma^L \hat{c}\left(\lambda_{\Omega \setminus U_L}\right) \leq \gamma^H \hat{c}(1) + I_{\{r<\tilde{r}\}} p_1^H (k_A + k_G) \tag{20}$$
$$\gamma^L \hat{c}\left(\lambda_{\Omega \setminus U_L}\right) \leq \gamma^H \hat{c}(1) + I_{\{r<\tilde{r}\}} p_1^L (k_A + k_G). \tag{21}$$

These conditions are satisfied because $c(\cdot)$ is an increasing function. The group ensures that venal agent is receiving zero in expectation at all times, so the venal agent's strategy is incentive compatible. The upright agent's conditions, respectively after the high and low signals, are as follows:

$$\alpha f\left(\hat{r}\left(\lambda_{\Omega \setminus U_L}\right), \lambda_{U_H}\right) \geq \alpha f\left(\hat{r}(1), \lambda_{U_H}\right) - I_{\{r<\tilde{r}\}} p_1^H k_A \tag{22}$$
$$\alpha \hat{f}(1) \geq \alpha \hat{f}(1) - I_{\{r<\tilde{r}\}} p_1^H k_A \tag{23}$$

The condition for U_H is satisfied because $\hat{r}(1) > \hat{r}\left(\lambda_{\Omega \setminus U_L}\right) > \hat{r}(\lambda_{U_H})$, while the condition for U_L is automatically satisfied due to U_L's receiving its optimum payoff. Finally, the public's condition is incentive compatible by construction.

A fully pooling equilibrium may or may not exist, but even if it does exist, the public's payoff from it is less than the payoff from this default equilibrium: $\hat{f}(p_L) = \Pr(\Omega \setminus U_L)\, f\left(\hat{r}(p_L), \lambda_{\Omega \setminus U_L}\right) + \Pr(U_L)\, f(\hat{r}(p_L), 1) < \Pr(\Omega \setminus U_L)\, \hat{f}\left(\lambda_{\Omega \setminus U_L}\right) + \Pr(U_L)\, \hat{f}(1)$. □

Proof of Proposition 2: One of the steps in proving this proposition and others is establishing a lemma, which is generalized to allow for media reports.

Lemma 4: When U_H, V_H^H, and V_H^L are known not to incur any media costs, then, in equilibrium, all proposals of at least $\tilde{r}$ yield $\lambda \geq \lambda_{U_H}$ and any proposals below $\tilde{r}$ must yield $\underline{\lambda} \geq \lambda_{U_H}$.

Proof: If a proposal does not involve V_H^H, the principal must always believe $\lambda \geq \lambda_{U_H}$ and $\underline{\lambda} \geq \lambda_{U_H}$ (if applicable), since all distinct agent scenarios other than V_H^H have a posterior probability of at least λ_{U_H}. Meanwhile, if a proposal involving V_H^H implies $\lambda < \lambda_{U_H}$, then every proposal by V_H^H must yield $\lambda < \lambda_{U_H}$ for $r_A \geq \tilde{r}$ or $\underline{\lambda} < \lambda_{U_H}$ below the threshold. V_H^H cannot be fully pooled with V_H^L, because then the posterior probability (λ or $\underline{\lambda}$) is at least λ_{U_H}, regardless of how much additional pooling occurs with U_H, U_L, or V_L^L, none of which could pull the posterior probability below λ_{U_H}. Then there is at least one proposal which involves V_H^L but not V_H^H, which it has already been shown must have the principal believing $\lambda \geq \lambda_{U_H}$ or $\underline{\lambda} \geq \lambda_{U_H}$. Then V_H^L would deviate from any equilibrium of this form by choosing one of the proposals that follows from V_H^H. Thus, there is no proposal in equilibrium that yields $\lambda < \lambda_{U_H}$, with or without a media report. □

Lemma 4 implies that U_H, along with the venal agent, will (be induced) to achieve the lowest policy possible. Then all proposals from any venal agent or U_H must yield the same policy. If U_L pools at all with any of the other agent scenarios, they and the fraction of U_L pooled must receive the same policy which is less than $r_P = \hat{r}(1)$, in which case U_L must fully pool for $\hat{r}(p_L)$, or else U_L would deviate by separating completely for $r_P = \hat{r}(1)$. The default when U_L fully pools is less than the default payoff: $\hat{f}(p_L) = \Pr(\Omega \setminus U_L)\, f\big(p_L, \lambda_{\Omega\setminus U_L}\big) + \Pr(U_L)\, f(p_L, 1) < \Pr(\Omega \setminus U_L)\, \hat{f}\big(\lambda_{\Omega\setminus U_L}\big) + \Pr(U_L)\, \hat{f}(1)$. If U_L is by itself, then non-U_L proposals are such that they all lead to the same policy, which must be $r_P = \hat{r}\big(\lambda_{\Omega\setminus U_L}\big)$ for weak consistency. Meanwhile, U_L receives $r_P = \hat{r}(1)$, also to satisfy weak consistency. The principal's payoff is $\Pr(\Omega \setminus U_L)\, \hat{f}\big(\lambda_{\Omega\setminus U_L}\big) + \Pr(U_L)\, \hat{f}(1)$, the default payoff. □

Proof of Proposition 3:

(a) For the equilibrium in (i), the inequality is just a rearrangement of the incentive compatibility condition in (9), with beliefs that $\lambda = 1$ for any proposal off the equilibrium path. Pointing in the direction indicated, it properly implies that risk of a media report is worth the chance of a lower level of regulation so that V_L^L is fully pooled with A_H. The other incentive compatibility constraints are satisfied: the group facing the venal agent with $s = H$ receives the lowest policy available in equilibrium with probability 1, the upright agent with $s = L$ receives its optimal polity of $\hat{r}(1)$ with no media cost, and the upright agent with $s = H$ prefers $\hat{r}\left(\underline{\lambda}_{A_H \cup V_L^L}\right)$ to $\hat{r}(1)$ and can achieve it without any media cost. Weak consistency for the players is satisfied by construction, and the principal's decision rule described in the text implies that her strategy is sequentially rational. The proofs of the sustainability for the equilibria in (ii) and (iii) are analogous, except that in (iii), the test points in the other direction because V_L^L is pooled with U_L rather than A_H, and that in (ii), the test is for equality because V_L^L is pursuing a mixed strategy. Since $\underline{\lambda}_{A_H \cup \theta V_L^L}$ increases with θ (by inspection), there is no conflict between these tests, and exactly one of the three kinds of equilbria is possible.

(b) The payoff to the public from the equilibria can also be expressed as $(\Pr(A_H) + \theta p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right) + (\Pr(U_L) + (1 - \theta p_0^L) \Pr(V_L^L))\hat{f}(1)$, for some $\theta \in [0,1]$, since Equilibrium (i) represents $\theta = 1$, while Equilibrium (iii) represents $\theta = 0$. This expected utility exceeds the default payoff:

$(\Pr(A_H) + \theta p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right) + (\Pr(U_L) + (1 - \theta p_0^L) \Pr(V_L^L))\hat{f}(1) >$
$(\Pr(A_H) + \theta p_0^L \Pr(V_L^L)) f(\lambda_{\Omega\setminus U_L}, \underline{\lambda}_{A_H \cup \theta V_L^L}) + (1 - \theta p_0^L) \Pr(V_L^L)\, f(\lambda_{\Omega\setminus U_L}, 1) + \Pr(U_L)\, \hat{f}(1) = \Pr(\Omega \setminus U_L)\, \hat{f}\big(\lambda_{\Omega\setminus U_L}\big) + \Pr(U_L)\, \hat{f}(1)$. Also, given any two equilibria with fractions of V_L^L $\underline{\theta} < \bar{\theta}$, the payoff from $\underline{\theta}$ is higher:

$\big(\Pr(A_H) + \underline{\theta} p_0^L \Pr(V_L^L)\big)\hat{f}\left(\underline{\lambda}_{A_H \cup \underline{\theta} V_L^L}\right) + \big(\Pr(U_L) + \big(1 - \underline{\theta} p_0^L\big) \Pr(V_L^L)\big)\hat{f}(1) >$
$\big(\Pr(A_H) + \underline{\theta} p_0^L \Pr(V_L^L)\big) f(\underline{\lambda}_{A_H \cup \bar{\theta} V_L^L}, \underline{\lambda}_{A_H \cup \underline{\theta} V_L^L}) + \big(\bar{\theta} - \underline{\theta}\big) p_0^L \Pr(V_L^L)\, f(\underline{\lambda}_{A_H \cup \bar{\theta} V_L^L}, 1) +$
$(\Pr(U_L) + (1 - \bar{\theta} p_0^L) \Pr(V_L^L))\hat{f}(1) = (\Pr(A_H) + \bar{\theta} p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \bar{\theta} V_L^L}\right) + (\Pr(U_L) + (1 - \bar{\theta} p_0^L) \Pr(V_L^L))\hat{f}(1)$.

(c) To identify the highest achievable payoff for the public, the first step is to identify the necessary conditions for various types of equilibria. This proof holds even when U_L is not restricted from proposing below the threshold. The proof follows by a series of claims:

Claim 3.0: Proposals from the agent scenarios U_H, V_H^H, and V_H^L will all yield the lowest equilibrium policy from the public.

Proof: This claim follows from Lemma 4, since U_H, V_H^H, and V_H^L can all (be induced) to deviate to a lower policy if there is one, the public always chooses a single policy after the media report stage, and these agent types never receive a media report. □

In any equilibrium, it must be the case that V_L^L always proposes above the media threshold, mixes above and below it, or always proposes below it. The types of equilibria in these categories whose payoffs to the public exceed the default are limited and share certain characteristics:

Claim 3.1: Any equilibrium in which proposals after V_L^L are always at least the threshold and in which the public exceeds the default payoff, entails proposals after A_H that are always below the threshold and lead to $r_P = \hat{r}(\lambda_{A_H})$ and U_L's always proposing at least the threshold and receiving $r_P = \hat{r}(1)$ along with V_L^L. The equilibrium requires $p_1^L(k_A + k_G) \geq p_0^L \gamma^L \left(\hat{c}(1) - \hat{c}(\underline{\lambda}_{A_H})\right)$ for V_L^L.

Proof: If A_H always has proposals meeting or exceeding the threshold, one of three things happens: (1) U_L always proposes $r_A \geq \tilde{r}$, which the proof of Proposition 2 implies can't exceed the default payoff; (2) U_L always proposes below the threshold, in which case the remaining agent types pool together, and the resulting equilibrium (even if sustainable) yields the same as the default payoff; and (3) U_L randomizes between proposing on each side of the threshold. In the third case, U_L must always pool when it proposes at least the threshold. If he ever separates, weak consistency implies that he always separates to achieve his maximum payoff, in which case he would never propose below $\tilde{r}$. If U_L pools fully, every proposal $r_A \geq \tilde{r}$ must yield the same level of regulation and yield the same policy, because the equilibrium is only incentive-compatible only if the other agent types have proposals leading to the same λ. All the proposals that are at least $\tilde{r}$ must lead to the same policy to prevent deviations by A_H agents and U_H. The expected payoff to the public is less than the default equilibrium payoff: $\theta \Pr(U_L)\, \hat{f}(1) + \Pr(\Omega \setminus \theta U_L)\, \hat{f}(\Omega \setminus \theta U_L) = \theta \Pr(U_L)\, \hat{f}(1) + (1-\theta) \Pr(U_L)\, f(\hat{r}(\Omega \setminus \theta U_L), 1) + \Pr(\Omega \setminus U_L)\, f(\hat{r}(\Omega \setminus \theta U_L), \Omega \setminus U_L) < \Pr(U_L)\, \hat{f}(1) + \Pr(\Omega \setminus U_L)\, \hat{f}\left(\lambda_{\Omega \setminus U_L}\right)$, where θ is the frequency with which U_L chooses to propose below $\tilde{r}$.

Next to be considered is A_H randomizing above and below the threshold. Then the same value of λ must follow from each proposal involving part of A_H. With A_H and any fraction θ of U_L, $\lambda < 1$, so V_L^L will pool with A_H at least the threshold, which means that the upright agent with the low-cost signal must pool with A_H below the threshold and may also pool on the other side. Since it pools with A_H below the threshold, it cannot propose any separate policy below $\tilde{r}$, or else it would benefit by deviating to it. For $r_A \geq \tilde{r}$, it also cannot propose any separate policy from A_H or else it benefit by always making that proposal. Thus, the only possibly incentive-compatible behavior entails that all agents, except U_L after a media report, receive the same policy. (For A_H, $\underline{\lambda}$ for proposing below the threshold must equal λ for proposing at least $\tilde{r}$.) The resulting payoff is also less than the default payoff for any fraction θ of U_L that pools with A_H:
$\theta p_1^L \Pr(U_L)\, \hat{f}(1) + (1 - \theta p_1^L \Pr(U_L)) \hat{f}\left(\lambda_{\Omega \setminus \theta p_1^L U_L}\right) = \theta p_1^L \Pr(U_L)\, \hat{f}(1) + (1 - \theta p_1^L) \Pr(U_L)\, f\left(\hat{r}\left(\lambda_{\Omega \setminus \theta p_1^L U_L}\right), 1\right) + \Pr(\Omega \setminus U_L)\, f\left(\hat{r}\left(\lambda_{\Omega \setminus \theta U_L}\right), \Omega \setminus U_L\right) < \Pr(U_L)\, \hat{f}(1) + \Pr(\Omega \setminus U_L)\, \hat{f}\left(\lambda_{\Omega \setminus U_L}\right)$.

Thus, with V_L^L proposing at least the threshold, a higher payoff accrues only if A_H always proposes below $\tilde{r}$. Even without knowing what U_L proposes, weak consistency implies $r_P = \hat{r}(1)$ for whatever V_L^L proposes, in which case U_L finds it optimal to pool with V_L^L so that they both receive $r_P = \hat{r}(1)$. Claim 3.0 implies the A_H agents all get $r_P = \hat{r}(\lambda_{A_H})$. The principal's expected utility, $\Pr(A_H)\, \hat{f}\left(\lambda_{A_H}\right) + \Pr(A_L)\, \hat{f}(1)$, is the same as the payoff for Equilibrium (iii). The equilibrium policies also imply that this inequality is required to hold to be incentive compatible for V_L^L. □

Claim 3.2: Any equilibrium in which proposals after V_L^L are below the threshold with probability θ and at least the threshold otherwise, and in which the public exceeds the default payoff, entails proposals after A_H that are always below the threshold and lead to $r_P = \hat{r}(\underline{\lambda}_{A_H \cup \theta V_L^L})$ and U_L's proposing at least the threshold for $r_P = \hat{r}(1)$. After V_L^L, the policy is $r_P = \hat{r}(\underline{\lambda}_{A_H \cup \theta V_L^L})$ with probability p_0^L after proposing below $\tilde{r}$ and $r_P = \hat{r}(1)$ otherwise. The equilibrium requires $p_1^L(k_A + k_G) = p_0^L \gamma^L \left(\hat{c}(1) - \hat{c}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right)\right)$ for V_L^L.

Proof: The low-cost group facing V_L^L is mixing and so must achieve the same cost on each side of the threshold, and the expected payoffs on the two sides must be equal:

$$p_0^L \gamma^L \hat{c}(\underline{\lambda}_x) + p_1^L(\gamma^L \hat{c}(1) + k_A + k_G) = \gamma^L \hat{c}(\lambda_y)$$

By inspection $\underline{\lambda}_x < \lambda_y$ for the expected media cost to justify proposing below $\tilde{r}$. Also, λ_y must be the lowest value of λ for proposals of at least $\tilde{r}$ (including off the equilibrium path). No agent in one of the situations U_H, V_H^H, and V_H^L will ever propose at least $\tilde{r}$. If he did, he would propose whatever yields $r_P = \hat{r}(\lambda_y)$, but then he (or the group influencing him) would prefer to deviate by proposing below the threshold to yield $r_P = \hat{r}(\underline{\lambda}_x)$. Instead, all proposals after A_H fall below the threshold and yield the same policy. By weak consistency, $\lambda_y = 1$, making it optimal for U_L to pool with V_L^L. Claim 3.0 and the ability of the low-cost group with agent setting V_L^L to select any proposal below the threshold for the same cost imply that $\lambda = \lambda_{A_H \cup \theta V_L^L}$ for the proposals below the threshold. Meanwhile, weak consistency implies $\lambda = 1$ for U_L and V_L^L proposals that are at least $\tilde{r}$. The resulting polices after the media reporting stage follow from these probabilities. The resulting payoff to the public is $\Pr(A_H \cup \theta p_0^L V_L^L)\, \hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right) + \Pr(A_L \setminus \theta p_0^L V_L^L)\, \hat{f}(1)$, the same as the payoff for Equilibrium (ii). Substituting the posterior probabilities for the equilibrium into the incentive compatibility condition for V_L^L implies that this equality is also required for the value of θ. □

Claim 3.3: Any equilibrium in which proposals after V_L^L are all below the threshold entail that agents in A_H scenarios fully pool with V_L^L to induce the same policy in the event of no media report. Among these equilibria, those in which U_L (always) proposes at least the threshold yield the highest payoff for the public. These equilbria require $p_1^L(k_A + k_G) \leq p_0^L \gamma^L \left(\hat{c}(1) - \hat{c}\left(\underline{\lambda}_{A_H \cup V_L^L}\right)\right)$.

Proof: This time, the incentive compatibility condition for V_L^L is

$$p_0^L \gamma^L \hat{c}(\underline{\lambda}_x) + p_1^L(\gamma^L \hat{c}(1) + k_A + k_G) \leq \gamma^L \hat{c}(\lambda_y),$$

where $\hat{c}(\lambda_y)$ is the minimum the low-cost group would pay if it induced a policy meeting the threshold for V_L^L. The same steps as in the proof of the previous claim can be applied to establish that V_L^L proposals and A_H proposals are all below the threshold. Because there is no cost to any agent in these scenarios for changing among proposals below $\tilde{r}$, all the proposals involving these agent scenarios must lead to the same $\underline{\lambda}$ when there is no media report.

Three types of strategies are possible for U_L: First, if U_L ever proposes at least $\tilde{r}$, weak consistency implies that he always does to get $\hat{r}(1)$ all the time. Then weak consistency and the non-U_L agents' ability to pick any policy below $\tilde{r}$ for the same cost imply $\lambda = \lambda_{A_H \cup V_L^L}$ for any proposal below the threshold and $\lambda = 1$ at least the threshold. Then the incentive compatibility condition for V_L^L is $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{A_H \cup V_L^L}\right) + p_1^L(\gamma^L \hat{c}(1) + k_A + k_G) \leq \gamma^L \hat{c}(1)$, which is equivalent to the condition in the claim. The principal's expected utility is $\Pr(A_H \cup p_0^L V_L^L)\, \hat{f}\left(\underline{\lambda}_{A_H \cup V_L^L}\right) + \Pr(U_L \cup p_1^L V_L^L)\, \hat{f}(1)$, the same as that for Equilibrium (i). Second, if U_L always proposes less than $\tilde{r}$ and ever proposes a separate policy from the agent in other scenarios, then weak consistency again implies that U_L always does so in equilibrium to get $\lambda = 1$ all the time. Again, weak consistency and the non-U_L agents' ability to pick any policy below $\tilde{r}$ for the same cost imply $\lambda = \lambda_{A_H \cup V_L^L}$ for those agent settings. With the principal choosing the same policy after each agent scenario, her expected utility must be the same.

The only remaining possibility is that U_L always proposes below the threshold and fully pools with the other agents. Then Lemma 4 implies that, below $\tilde{r}$, all agent scenarios other than U_L must have the lowest value of $\underline{\lambda}$. If U_L has a different value of $\underline{\lambda}$, its proposal would be different from the other agents', which contradicts full pooling by U_L. Then all proposals yield the same $\underline{\lambda}$. This payoff is less than the payoff of the first two equilibria: $\Pr(A_H \cup p_0^L A_L^L)\,\hat{f}(\underline{\lambda}_\Omega) + p_1^L \Pr(A_L)\,\hat{f}(1) = \Pr(A_H \cup p_0^L V_L^L)\,f\left(\hat{r}(\underline{\lambda}_\Omega), \underline{\lambda}_{A_H \cup V_L^L}\right) + p_0^L \Pr(U_L)\,f\left(\hat{r}(\underline{\lambda}_\Omega), 1\right) + p_1^L \Pr(A_L)\,\hat{f}(1) < \Pr(A_H \cup p_0^L V_L^L)\,\hat{f}\left(\underline{\lambda}_{A_H \cup V_L^L}\right) + \Pr(U_L \cup p_1^L V_L^L)\,\hat{f}(1)$. □

Part (b) indicates that the less pooling by V_L^L with A_H, the better. The second and third types of equilibria from Claim 3.3 do not yield payoffs that are better than any of the equilibria in part (a), so they can be ignored. The possibilities for different types of equilibria have been exhausted based on the type of strategy that the low-cost group purses facing V_L^L. The best equilibria corresponding to these strategies correspond 1-to-1 with the equilibria described for the incentive compatibility conditions in part (a), so the equilibria in part (a) yield the greatest payoff conditional on the relevant incentive compatibility constraint for V_L^L.

(d) From part (b), given any value of p_1^L, the greatest expected utility for the principal occurs when $\theta = 0$. Substituting this value into the expression for the payoff yields $(\Pr(A_H))\hat{f}(\lambda_{A_H}) + (\Pr(U_L) + \Pr(V_L^L))\hat{f}(1)$, which does not depend on the value of p_1^L. Meanwhile, as p_1^L approaches 1, the left-hand side of $p_1^L(k_A + k_G) \geq p_0^L \gamma^L \left(\hat{c}(1) - \hat{c}(\lambda_{A_H})\right)$ approaches $k_A + k_G$ while the right-hand side approaches zero, so the incentive compatibility condition for Equilibrium (iii) is automatically satisfied. Thus, the principal can achieve this maximum expected utility when $p_1^H = 0$ if it can increase t such that $p_1^L = 1$.

(e) Based on the equilibria in part (a), the low-cost group cares about $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right) + p_1^L(\gamma^L \hat{c}(1) + k_A + k_G) - \gamma^L \hat{c}(1)$. Applying Lemma 2 with $\eta_U = \eta_V = 1$ and $p_1^H = 0$ implies that any equilibrium that previously existed with $\theta \in (0,1)$ is no longer incentive compatible for the low-cost group facing V_L^L. Rebalancing requires decreasing θ until equality is restored or until $\theta = 0$ for equilibrium (iii). For $\theta = 0$, the positive derivative causes the low-cost group to favor V_L^L proposals that avoid a media report even more. For $\theta = 1$, the positive derivative implies that increasing transparency either breaks the equilibrium, requiring $\theta < 1$ or simply reduces the benefit to the low-cost group of inducing V_L^L proposals below $\tilde{r}$. Thus, an increase in transparency means that the incentive compatibility condition that is satisfied will be for a weakly lower value of θ or for the same value of θ. Part (b) states that, for a given value of p_1^L, the payoff increases as θ decreases. However, p_1^L increases, so the principal's payoff is even higher: For any $\underline{p}_0^L < \bar{p}_0^L$,
$\left(\Pr(A_H) + \theta \underline{p}_0^L \Pr(V_L^L)\right) \hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\left(\underline{p}_0^L\right)\right) + \left(\Pr(U_L) + \left(1 - \theta \underline{p}_0^L\right) \Pr(V_L^L)\right) \hat{f}(1) >$
$\left(\Pr(A_H) + \theta \underline{p}_0^L \Pr(V_L^L)\right) f\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_0^L), \underline{\lambda}_{A_H \cup \theta V_L^L}\left(\underline{p}_0^L\right)\right) + \theta\left(\bar{p}_0^L - \underline{p}_0^L\right) \Pr(V_L^L)\, f\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_0^L), 1\right) +$
$(\Pr(U_L) + (1 - \theta \bar{p}_0^L) \Pr(V_L^L))\hat{f}(1) =$
$(\Pr(A_H) + \theta \bar{p}_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_0^L)\right) + (\Pr(U_L) + (1 - \theta \bar{p}_0^L) \Pr(V_L^L))\hat{f}(1)$. Thus, the principal's payoff is weakly increasing with t whenever $p_1^H = 0$ and strictly increasing when $\theta > 0 = p_0^H$ originally. □

Proof of Proposition 4: V_H^H and U_H must propose below the media threshold to prevent pooling by V_L^L and V_H^L, since proposals of at least $\tilde{r}$ are cheap talk. If V_H^H and U_H separate from the other agent scenarios, then V_L^L and V_H^L will be assigned $r_P = \hat{r}(1)$, in which case the low-cost group is better off not inducing a proposal less than $\tilde{r}$ and thus cannot end up proposing below $\tilde{r}$. Then, since U_L has an option to pool with V_L^L or V_H^L to achieve $\hat{r}(1)$, he also will not propose below $\tilde{r}$. Thus, proposals that can trigger a media report only come from V_H^H and U_H. Since V_H^H would achieve $r_P = \hat{r}(0)$, the high-cost group and U_H prefer different policies and do not need to be screened from each other. If this equilibrium policy works, the payoff to the principal is as high as possible: She assigns $r_P = \hat{r}(0)$ to V_H^H and $r_P = \hat{r}(1)$ to V_L^L, V_H^L, and U_L, which are optimal for those agents. She also assigns $r_P = \hat{r}(\lambda_{U_H})$ to U_H, which is as good as possible because the upright agent has no other information than $s = H$ and is effectively transmitting that message perfectly through its proposal.

However, this equilibrium may not always exist. Based on the policies chosen, the low-cost group facing the venal agent would deviate by aiming for the V_H^H proposal if it is willing to pay media costs in expectation, while the upright agent with $s = H$, which generally prefers $r_P = \hat{r}(\lambda_{U_H})$, would deviate only to avoid a media report. Thus, there are three binding incentive compatibility constraints:

$$\gamma^H \hat{c}(0) + p_1^H (k_A + k_G) \leq \gamma^H \hat{c}(1) \text{ for } V_H^H, \tag{24}$$
$$\gamma^L \hat{c}(0) + p_1^H (k_A + k_G) \geq \gamma^L \hat{c}(1) \text{ for } V_H^L, \text{ and} \tag{25}$$
$$\alpha \hat{f}(\lambda_{U_H}) - p_1^H k_A \geq \alpha f(1, \lambda_{U_H}) \text{ for } U_H. \tag{26}$$

The incentive compatibility condition for V_L^L is automatically satisfied because $p_1^H \leq p_1^L$, while U_L's is satisfied because he receives his optimal utility $\alpha \hat{f}(1)$. Combining the three binding conditions together yields $\frac{\gamma^L}{k_A + k_G}\left(\hat{c}(1) - \hat{c}(0)\right) \leq p_1^H \leq \min\left\{\frac{\gamma^H}{k_A + k_G}\left(\hat{c}(1) - \hat{c}(0)\right), \frac{\alpha}{k_A}\left(\hat{f}(\lambda_{U_H}) - f(1, \lambda_{U_H})\right)\right\}$. Fixing γ^L, letting α be arbitrarily small makes it possible for $\frac{\alpha}{k_A}\left(\hat{f}(\lambda_{U_H}) - f(1, \lambda_{U_H})\right) < \frac{\gamma^L}{k_A + k_G}\left(\hat{c}(1) - \hat{c}(0)\right)$, or Inequality (25) may fail if $k_A + k_G < \gamma^L\left(\hat{c}(1) - \hat{c}(0)\right)$ so that the equilibrium cannot be sustained. □

Proof of Proposition 5: V_H and U_H can be deterred from proposing below the media threshold if $\alpha \hat{f}(\lambda_{U_H}) - p_1^H k_A < \alpha f(1, \lambda_{U_H})$ and $\gamma^H \hat{c}(0) + p_1^H (k_A + k_G) > \gamma^H \hat{c}(\lambda_{U_H \cup A_L})$, or if $\gamma^H \hat{c}(0) + p_1^H (k_A + k_G) > \gamma^H \hat{c}(1)$ and $\alpha \hat{f}(\lambda_{U_H}) - p_1^H k_A < \alpha f(\lambda_{V \cup U_L}, \lambda_{U_H})$. In the first case, U_H will not propose below $\tilde{r}$ even if it receives its ideal policy, in which case the high-cost group facing the venal agent will not receive more than $r_P = \hat{r}(\lambda_{U_H \cup A_L})$ if it deviates from proposing below $\tilde{r}$. The conditions for the low-cost group facing the venal agent to deviate from any equilibrium in which it (sometimes) proposes below $\tilde{r}$ are not binding: $\gamma^H \hat{c}(0) + p_1^s (k_A + k_G) > \gamma^H \hat{c}(\lambda_{U_H \cup U_L \cup V_{-s}^L})$ is satisfied for each signal because $\gamma^L < \gamma^H$, $p_1^L \geq p_1^H$, and $\lambda_{U_H \cup U_L \cup V_{-s}^L} < \lambda_{U_H \cup A_L}$. In the second case, the condition for V_H^H implies that proposals from V_H^L and V_L^L will also be below the threshold because $\gamma^L < \gamma^H$ and $p_1^L \geq p_1^H$. Thus, the worst policy U_H can receive is $r_P = \hat{r}(\lambda_{V \cup U_L})$, because if U_H deviates by proposing at least $\tilde{r}$, pooling among venal agents implies that he would seek out the lowest policy. (The lowest value for the lowest policy among V and U_L is $\hat{r}(p_L)$, so U_H will not seek $r_P < \hat{r}(U_H)$.) After both cases, at least the venal agent and U_H are proposing at least $\tilde{r}$.

Lemma 4 and the fact that V_L^L proposals are also at least $\tilde{r}$ imply that proposals by the venal agent and U_H must all lead to the same policy to prevent deviations among them. Then, if U_L partially pools with any other agent scenario with a proposal, all proposals that meet the threshold must lead to the same policy. U_L might also propose below $\tilde{r}$, but, the payoff to the principal can be expressed in the form $(1 - \theta \Pr(U_L))\hat{f}(\lambda_{\Omega \setminus \theta U_L}) + \theta \Pr(U_L)\, \hat{f}(1)$ for some $\theta \in [0,1]$. This payoff does not exceed the default payoff: $(1 - \theta \Pr(U_L))\hat{f}(\lambda_{\Omega \setminus \theta U_L}) + \theta \Pr(U_L)\, \hat{f}(1) = (1 - \Pr(U_L)) \Pr(U_H \cup V)\, f(\lambda_{\Omega \setminus \theta U_L}, \lambda_{\Omega \setminus U_L}) + (1 - \theta) \Pr(U_L)\, f(\lambda_{\Omega \setminus \theta U_L}, 1) + \theta \Pr(U_L)\, \hat{f}(1) \leq (1 - \Pr(U_L))\hat{f}(\lambda_{\Omega \setminus U_L}) + \Pr(U_L)\, \hat{f}(1)$.

The requirements for the first case are $p_1^H > \max\left\{\frac{\alpha}{k_A}\left(\hat{f}(\lambda_{U_H}) - f(1, \lambda_{U_H})\right), \frac{\gamma^H}{k_A + k_G}\left(\hat{c}(\lambda_{U_H \cup A_L}) - \hat{c}(0)\right)\right\}$, $k_A \geq \alpha\left(\hat{f}(\lambda_{U_H}) - f(1, \lambda_{U_H})\right)$, and $k_A + k_G \geq \gamma^H\left(\hat{c}(\lambda_{U_H \cup A_L}) - \hat{c}(0)\right)$. The requirements for the second case are $p_1^H > \max\left\{\frac{\alpha}{k_A}\left(\hat{f}(\lambda_{V \cup U_L}) - f(1, \lambda_{U_H})\right), \frac{\gamma^H}{k_A + k_G}\left(\hat{c}(1) - \hat{c}(0)\right)\right\}$, $k_A \geq \alpha\left(\hat{f}(\lambda_{U_H}) - f(\lambda_{V \cup U_L}, \lambda_{U_H})\right)$, and $k_A + k_G \geq \gamma^H\left(\hat{c}(1) - \hat{c}(0)\right)$. □

Proof of Proposition 6:
(a) For the equilibrium in (i), the incentive compatibility condition for V_L^L is equivalent to $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{A_H \cup V_L^L}\right) + p_1^L\left(\gamma^L \hat{c}\left(\bar{\lambda}_{A_H \cup V_L^L}\right) + k_A + k_G\right) \leq \gamma^L \hat{c}(1)$, with beliefs that $\lambda = 1$ for any proposal off the equilibrium path and implies that V_L^L prefers to propose below the threshold. The other incentive compatibility constraints are satisfied: U_L's because it receives its preferred policy at no cost; U_H's by assumption; V_H^L's because replacing $\frac{p_1^L}{p_0^L}$

with $\frac{p_1^H}{p_0^H}$ in the constraint reduces the left-hand side so that V_H^L will not (be induced to) defect; and V_H^H's because compared to the constraint for V_H^L, the V_H^H more strongly keeps those proposals below $\tilde{r}$ because $\gamma^H > \gamma^L$ on the right-hand side. Weak consistency for the players is satisfied by construction, and the principal's decision rule described in the text implies that her strategy is sequentially rational. The proofs of the sustainability for the equilibria in (ii) is analogous, except that the test is for equality because V_L^L is pursuing a mixed strategy. In (iii), the test points in the opposite direction of (i) because V_L^L is pooled with U_L rather than A_H. Meanwhile, $p_1^H(k_A + k_G) < \gamma^L\left(\hat{c}(1) - \hat{c}(\lambda_{A_H})\right)$ means that the group will continue to induce the venal agent with $s = H$ to propose below the threshold. Then the upright agent follows this equilibrium just as it would follow equilibrium (i). Since $\underline{\lambda}_{A_H \cup \theta V_L^L}$ increases with θ, there is no conflict between these tests, and exactly one of the three kinds of equilibria is possible.

(b) With post-media stage probabilities listed explicitly as a function of p_1^H, the payoffs from the equilibria in part (a) can be expressed as
$(p_0^H \Pr(A_H) + \theta p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(p_1^H)\right) + (p_1^H \Pr(A_H) + \theta p_1^L \Pr(V_L^L))\hat{f}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(p_1^H)\right) + (\Pr(U_L) + (1-\theta)\Pr(V_L^L))\hat{f}(1)$, for some $\theta \in [0,1]$, since Equilibrium (i) represents $\theta = 1$, while Equilibrium (iii) represents $\theta = 0$. For $\theta < 1$, the payoffs are less than the equilibrium when $p_0^H = 0$:
$(p_0^H \Pr(A_H) + \theta p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(p_1^H)\right) + (p_1^H \Pr(A_H) + \theta p_1^L \Pr(V_L^L))\hat{f}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(p_1^H)\right) + (\Pr(U_L) + (1-\theta)\Pr(V_L^L))\hat{f}(1) =$
$(p_0^H \Pr(A_H) + \theta p_0^L \Pr(V_L^L)) f\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(p_1^H), \underline{\lambda}_{A_H \cup \theta V_L^L}(0)\right) + p_1^H \Pr(A_H)\, f\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(p_1^H), \underline{\lambda}_{A_H \cup \theta V_L^L}(0)\right) +$
$\theta p_1^L \Pr(V_L^L)\, f\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(p_1^H), 1\right) + (\Pr(U_L) + (1-\theta)\Pr(V_L^L))\hat{f}(1) < (\Pr(A_H) + \theta p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(0)\right) +$
$(\Pr(U_L) + (1-\theta p_0^L)\Pr(V_L^L))\hat{f}(1)$. Since $\underline{\lambda}_{A_H}(p_1^H) = \bar{\lambda}_{A_H}(p_1^H) = \underline{\lambda}_{A_H}(0)$, substituting $\theta = 0$ into the inequality changes it to equality.

Also, given any two equilibria with fractions of V_L^L $\underline{\theta} < \bar{\theta}$, the payoff from $\underline{\theta}$ is higher: $\big(p_0^H \Pr(A_H) +$
$\underline{\theta} p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \underline{\theta} V_L^L}\right) + \big(p_1^H \Pr(A_H) + \underline{\theta} p_1^L \Pr(V_L^L)\big)\hat{f}\left(\bar{\lambda}_{A_H \cup \underline{\theta} V_L^L}\right) + \big(\Pr(U_L) + \big(1 - \underline{\theta}\big)\Pr(V_L^L)\big)\hat{f}(1) >$
$\big(p_0^H \Pr(A_H) + \underline{\theta} p_0^L \Pr(V_L^L)) f\left(\underline{\lambda}_{A_H \cup \bar{\theta} V_L^L}, \underline{\lambda}_{A_H \cup \underline{\theta} V_L^L}\right) + \big(p_1^H \Pr(A_H) + \underline{\theta} p_1^L \Pr(V_L^L)) f\left(\bar{\lambda}_{A_H \cup \bar{\theta} V_L^L}, \bar{\lambda}_{A_H \cup \underline{\theta} V_L^L}\right)\big(\bar{\theta} -$
$\underline{\theta}\big)\left(p_0^L \Pr(V_L^L)\, f\left(\underline{\lambda}_{A_H \cup \bar{\theta} V_L^L}, 1\right) + p_1^L \Pr(V_L^L)\, f\left(\bar{\lambda}_{A_H \cup \bar{\theta} V_L^L}, 1\right)\right) + (\Pr(U_L) + (1-\bar{\theta})\Pr(V_L^L))\hat{f}(1) = (p_0^H \Pr(A_H) +$
$\bar{\theta} p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \bar{\theta} V_L^L}\right) + (p_1^H \Pr(A_H) + \bar{\theta} p_1^L \Pr(V_L^L))\hat{f}\left(\bar{\lambda}_{A_H \cup \bar{\theta} V_L^L}\right) + (\Pr(U_L) + (1-\bar{\theta})\Pr(V_L^L))\hat{f}(1)$.

(c) If V_L^L proposals are randomized on both sides of the threshold, the low-cost group facing V_L^L faces the incentive compatibility condition

$$p_0^L \gamma^L \hat{c}(\underline{\lambda}_x) + p_1^L\left(\gamma^L \hat{c}(\bar{\lambda}_x) + k_A + k_G\right) = \gamma^L \hat{c}(\lambda_y).$$

By inspection, $p_0^L \hat{c}(\underline{\lambda}_x) + p_1^L \hat{c}(\bar{\lambda}_x) < \hat{c}(\lambda_y)$ for the expected media cost to justify proposing below $\tilde{r}$. Also, λ_y must be the lowest value of λ for proposals of at least $\tilde{r}$ (including off the equilibrium path). This condition implies the group would induce the other venal agents to propose below the threshold. If not, they would choose $r_A \geq \tilde{r}$ for λ_y but then deviate to propose whatever induces $\underline{\lambda}_x$ and $\bar{\lambda}_x$ because $p_1^H < p_1^L$ and $\bar{\lambda}_x > \underline{\lambda}_x$. Meanwhile, U_L can achieve his highest utility by pooling with V_L^L and will propose at least $\tilde{r}$. The following claim will prove useful here and later in determining the possibilities for equilibria:

Claim 6.0: When all of A_H and some or all of V_L^L propose below the threshold and U_L proposes separately, only one set $(\underline{\lambda}, \bar{\lambda})$ can occur.

Proof: All proposals not coming from U_L must involve V_L^L. Otherwise, any proposal with initial $\lambda = \lambda_y$ that does not involve V_L^L comes only after the high-cost signal, in which case $\underline{\lambda} = \bar{\lambda} = \lambda_y$. For V_L^L not to defect from any of its proposals, say, one that yields λ_x before the media test, it must be that

$$p_0^L \hat{c}(\underline{\lambda}_x) + p_1^L \hat{c}(\bar{\lambda}_x) \le \hat{c}(\lambda_y),$$

where λ_y is the lowest value of λ for a proposal without V_L^L. It must be that $\lambda_y > \underline{\lambda}_x$. (Only if $\lambda_x = 1$ can $\underline{\lambda}_x = \bar{\lambda}_x$ in which case the group would induce V_L^L to deviate, even to a policy that yields at least $\tilde{r}$.) Then V_H cannot be involved. If $\lambda_y \ge \bar{\lambda}_x$, the V_H agents would be induced to pool with V_L^L. If $\lambda_y \le \bar{\lambda}_x$, $p_1^L\left(\hat{c}(\bar{\lambda}_x) - \hat{c}(\lambda_y)\right) \le p_0^L\left(\hat{c}(\lambda_y) - \hat{c}(\underline{\lambda}_x)\right)$ implies $p_1^H\left(\hat{c}(\bar{\lambda}_x) - \hat{c}(\lambda_y)\right) < p_0^H\left(\hat{c}(\lambda_y) - \hat{c}(\underline{\lambda}_x)\right)$ (since $p_1^H < p_1^L$), and again these agents would be induced to deviate. That means that any proposal(s) without V_L^L consist(s) only of U_H, which has $\lambda = \underline{\lambda} = \bar{\lambda} = \lambda_{U_H}$. Let $\phi_m = p_L(1-q)p_m^H$, $\chi_m = \left(p_H + p_L(1-q)\right)p_m^H$, and $\psi_m = p_L q p_m^L$. This means that the proposals with V_L^L that can be expressed as

$$\underline{\lambda}_{\theta_1 U_H \cup V_H \cup \theta_5 V_L^L} = \frac{(\theta_1 p_U + p_V)\phi_0 + \theta_5 p_V \psi_0}{(\theta_1 p_U + p_V)\chi_0 + \theta_5 p_V \psi_0} \text{ and } \bar{\lambda}_{\theta_1 U_H \cup V_H \cup \theta_5 V_L^L} = \frac{(\theta_1 p_U + p_V)\phi_1 + \theta_5 p_V \psi_1}{(\theta_1 p_U + p_V)\chi_1 + \theta_5 p_V \psi_1},$$

where θ_1 and θ_5 are the total fractions of U_H and V_L^L involved in these proposals. Because $\bar{\lambda}_{\theta_1 U_H \cup V_H \cup \theta_5 V_L^L} > \underline{\lambda}_{\theta_1 U_H \cup V_H \cup \theta_5 V_L^L} > \lambda_{U_H}$, the venal agents would deviate unless the proposal yielded some $\underline{\lambda} \le \lambda_{U_H}$. However, there would then need to be another proposal for which $\bar{\lambda} > \underline{\lambda} > \underline{\lambda}_{avg} > \lambda_{U_H}$, in which case the venal agents would also deviate. Thus, all proposals must involve V_L^L.

If there are multiple values of $(\underline{\lambda}, \bar{\lambda})$ it must be the case that, for any $(\underline{\lambda}_x, \bar{\lambda}_x)$ and $(\underline{\lambda}_y, \bar{\lambda}_y)$ with $\underline{\lambda}_x < \underline{\lambda}_y$, $\bar{\lambda}_y < \bar{\lambda}_x$ so that $p_0^L \hat{c}(\underline{\lambda}_x) + p_1^L \hat{c}(\bar{\lambda}_x) = p_0^L \hat{c}(\underline{\lambda}_y) + p_1^L \hat{c}(\bar{\lambda}_y)$. Because V_H has $p_1^L < p_1^H$, $p_1^L\left(\hat{c}(\bar{\lambda}_x) - \hat{c}(\bar{\lambda}_y)\right) = p_0^L\left(\hat{c}(\underline{\lambda}_y) - \hat{c}(\underline{\lambda}_x)\right)$ implies $p_1^H\left(\hat{c}(\bar{\lambda}_x) - \hat{c}(\bar{\lambda}_y)\right) < p_0^H\left(\hat{c}(\underline{\lambda}_y) - \hat{c}(\underline{\lambda}_x)\right)$. Then all proposals after V_H must yield $\left(\min(\underline{\lambda}), \max(\bar{\lambda})\right)$ for the principal. Since this is a single set of values, they can be expressed as $\min(\underline{\lambda}) = \underline{\lambda}_{\theta_1 U_H \cup V_H \cup \theta_5 V_L^L}$ and $\max(\bar{\lambda}) = \bar{\lambda}_{\theta_1 U_H \cup V_H \cup \theta_5 V_L^L}$ for some values of θ_1 and θ_5, because the final policy depends only on whether there was a media report. Meanwhile, the other values of $(\underline{\lambda}, \bar{\lambda})$, which are from proposals that do not include V_H, can be expressed as

$$\underline{\lambda}_{\dot{\theta}_1 U_H \cup \dot{\theta}_5 V_L^L} = \frac{\dot{\theta}_1 p_U \phi_0 + \dot{\theta}_5 p_V \psi_0}{\dot{\theta}_1 p_U \chi_0 + \dot{\theta}_5 p_V \psi_0} \text{ and } \bar{\lambda}_{\dot{\theta}_1 U_H \cup \dot{\theta}_5 V_L^L} = \frac{\dot{\theta}_1 p_U \phi_1 + \dot{\theta}_5 p_V \psi_1}{\dot{\theta}_1 p_U \chi_1 + \dot{\theta}_5 p_V \psi_1}$$

for some values of $\dot{\theta}_1$ and $\dot{\theta}_5$. All values of $(\underline{\lambda}, \bar{\lambda})$ for proposals below $\tilde{r}$ are expressible as

$$\underline{\lambda} = \frac{\zeta\phi_0 + \eta\psi_0}{\zeta\chi_0 + \eta\psi_0} \text{ and } \bar{\lambda} = \frac{\zeta\phi_1 + \eta\psi_1}{\zeta\chi_1 + \eta\psi_1},$$

However, $\underline{\lambda}_x = \frac{\zeta_x\phi_0 + \eta_x\psi_0}{\zeta_x\chi_0 + \eta_x\psi_0} < \underline{\lambda}_y = \frac{\zeta_y\phi_0 + \eta_y\psi_0}{\zeta_y\chi_0 + \eta_y\psi_0}$ if and only if $(\zeta_x\phi_0 + \eta_x\psi_0)(\zeta_y\chi_0 + \eta_y\psi_0) < (\zeta_x\chi_0 + \eta_x\psi_0)(\zeta_y\phi_0 + \eta_y\psi_0)$, or $\zeta_y\eta_x < \zeta_x\eta_y$, and the same condition implies $\bar{\lambda}_x < \bar{\lambda}_y$, analogously defined. This contradicts $\underline{\lambda}_x < \underline{\lambda}_y$ implying $\bar{\lambda}_y < \bar{\lambda}_x$ for multiple values of $(\underline{\lambda}, \bar{\lambda})$. Therefore, a single $(\underline{\lambda}, \bar{\lambda})$ obtains. □

Since a single $(\underline{\lambda}, \bar{\lambda})$ occurs, the principal can optimally policy solely based on whether there is a media report. The values are $\underline{\lambda}_{A_H \cup \theta V_L^L}$ and $\bar{\lambda}_{A_H \cup \theta V_L^L}$. With the other $(1-\theta)$ of V_L^L and U_L^L being assigned $r_P = \hat{r}(1)$, the resulting equilibrium has the same payoff and incentive compatibility condition for V_L^L equilibrium (ii) in part (a).

If V_L^L proposals are all below the threshold, and U_L proposes at least threshold, the incentive compatibility condition for V_L^L is

$$p_0^L \gamma^L \hat{c}(\underline{\lambda}_x) + p_1^L\left(\gamma^L \hat{c}(\bar{\lambda}_x) + k_A + k_G\right) \le \gamma^L \hat{c}(\lambda_y).$$

Following the proof for V_L^L randomizing on both sides, the group must be incentivized to induce V_H agents to propose below the threshold, as well. With A_H and V_L^L proposals less than $\tilde{r}$, Claim 6.0 implies a single set of $(\underline{\lambda}, \bar{\lambda})$, i.e., $\left(\underline{\lambda}_{A_H \cup V_L^L}, \bar{\lambda}_{A_H \cup V_L^L}\right)$, which results in the same payoff as equilibrium (i) in part (a). (Here, the set of equilibria are restricted to those with U_L proposing at least $\tilde{r}$.)

If V_L^L and U_L proposals are all at least $\tilde{r}$, while U_H proposals are less than $\tilde{r}$, left to be determined are the fractions θ_1 of V_H^H proposals and θ_2 of V_H^L proposals that are below $\tilde{r}$. Proposals with fraction $\theta_1 < 1$ and $\theta_2 > 0$ are not incentive compatible. The two group types seek the lowest policies for proposals on both sides of the threshold, and with only one signal below the threshold, only one policy results from a particular proposal. Thus, on either side of the threshold, the group facing the venal agent with $s = H$ must pool so as to receive the same policy. The low-cost group tests $\gamma^L \hat{c}(\lambda_x) + p_1^H(k_A + k_G) \leq \gamma^L \hat{c}(\lambda_y)$. If this constraint is satisfied, $\gamma^H > \gamma^L$ implies $\gamma^H \hat{c}(\lambda_x) + p_1^H(k_A + k_G) < \gamma^H \hat{c}(\lambda_y)$, which means $\theta_1 = 1$. Proposals with $\theta_1 = 1$ and $\theta_2 < 1$ are prevented by the restriction $k_A + k_G < \gamma^L\left(\hat{c}(1) - \hat{c}(\lambda_{A_H})\right)$. The low-cost group would deviate from any such equilibrium, since its worst payoff from deviating would be $\gamma^L \hat{c}\left(\lambda_{U_H \cup V_H^H \cup \theta V_H^L}\right) + p_1^H(k_A + k_G) < \gamma^L \hat{c}(\lambda_{A_H}) + (k_A + k_G) < \gamma^L \hat{c}(1)$. Finally, proposals with $\theta_2 = 0$ are precluded by the restriction $p_1^H(k_A + k_G) < \gamma^H\left(\hat{c}(p_L) - \hat{c}(\lambda_{A_H})\right)$. The high-cost group's worst payoff from deviating would be $\gamma^L \hat{c}\left(\lambda_{U_H \cup \theta V_H^H}\right) + p_1^H(k_A + k_G) \leq \gamma^L \hat{c}(\lambda_{A_H}) + p_1^H(k_A + k_G) < \gamma^L \hat{c}(p_L)$, the best payoff when U_L proposals are separated from the other proposals. Thus, only $\theta_1 = \theta_2$ is possible. Then only one value of λ, λ_{A_H}, is possible. If there were more than value of λ, the minimum value would some $\lambda_{min} < \lambda_{A_H}$. To have $\theta_1 = \theta_2$ would imply $\lambda_{min} = \lambda_{A_H}$, so $\lambda_{min} < \lambda_{A_H}$ implies $\theta_1 < \theta_2$. Then that some percentage of V_H^L proposals would yield more than λ_{min}, in which case the low-cost group would deviate. With only one value of λ, the payoff must be the same as the equilibrium described in (a)(iii).

(d) If $p_1^L(k_A + k_G) < \gamma^L\left(\hat{c}(1) - \hat{c}(\lambda_{A_H})\right)$, then some $\theta > 0$ of V_L^L proposals appear below the media threshold. For p_1^L increasing, the low-cost group tests the difference $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right) + p_1^L\left(\gamma^L \hat{c}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}\right) + k_A + k_G\right) - \gamma^L \hat{c}(1)$. Applying Lemma 2 with $\eta_U = \eta_V = 1$ reveals that the derivative of this expression is positive. Then any equilibrium that previously existed with $\theta \in (0,1)$ is no longer incentive compatible for the low-cost group facing V_L^L. Rebalancing requires decreasing θ until equality is restored or until $\theta = 0$ for equilibrium (iii). For $\theta = 0$, the positive derivative causes the low-cost group to favor V_L^L proposals that avoid a media report even more. For $\theta = 1$, the positive derivative implies that increasing transparency either breaks the equilibrium, requiring $\theta < 1$ or simply reduces the benefit to the low-cost group of inducing V_L^L proposals below $\tilde{r}$. Thus, an increase in transparency means that the incentive compatibility condition that is satisfied will be for a weakly lower value of θ or for the same value of θ. Part (b) states that, for given values of p_1^L and p_1^H, the payoff increases as θ decreases. However, p_1^L increases, so the principal's payoff is even higher. The payoffs from the proposals that are at least $\tilde{r}$ are the same. From proposals below the threshold, for any $\underline{p}_0^L < \bar{p}_0^L$, the payoff is higher with $\underline{p}_0^L$: $\left(p_0^H \Pr(A_H) + \theta \underline{p}_0^L \Pr(V_L^L)\right) \hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\left(\underline{p}_0^L\right)\right) + \left(p_1^H \Pr(A_H) + \theta(1 - \underline{p}_0^L) \Pr(V_L^L)\right) \hat{f}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}\left(\underline{p}_0^L\right)\right) > \left(p_0^H \Pr(A_H) + \theta \underline{p}_0^L \Pr(V_L^L)\right) f\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_0^L), \underline{\lambda}_{A_H \cup \theta V_L^L}\left(\underline{p}_0^L\right)\right) + \theta(\bar{p}_0^L - \underline{p}_0^L) \Pr(V_L^L) f\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_0^L), \bar{\lambda}_{A_H \cup \theta V_L^L}\left(\underline{p}_0^L\right)\right) + \left(p_1^H \Pr(A_H) + \theta(1 - \bar{p}_0^L) \Pr(V_L^L)\right) f\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_0^L), \bar{\lambda}_{A_H \cup \theta V_L^L}\left(\underline{p}_0^L\right)\right) = \left(p_0^H \Pr(A_H) + \theta \bar{p}_0^L \Pr(V_L^L)\right) \hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_0^L)\right) + \left(p_1^H \Pr(A_H) + \theta(1 - \bar{p}_0^L) \Pr(V_L^L)\right) \hat{f}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_0^L)\right)$. (Equations (3) and (4) imply that $\underline{\lambda}_{A_H \cup \theta V_L^L}$ increases while $\bar{\lambda}_{A_H \cup \theta V_L^L}$ decreases with p_0^L.) Thus, the principal's payoff is strictly increasing when $\theta > 0$ originally.

For p_1^H increasing, if $p_0^L \gamma^L\left(\hat{c}(1) - \hat{c}(\lambda_{A_H})\right) \leq p_1^L(k_A + k_G) < \gamma^L\left(\hat{c}(1) - \hat{c}(\lambda_{A_H})\right)$ when $p_1^H = 0$, increasing p_1^H from zero by any amount will cause a switch from $\theta = 0$ of V_L^L proposals below $\tilde{r}$ in equilibrium to some $\theta > 0$ in equilibrium. When it is not the case that $p_1^H = \theta = 0$, the low-cost group will again test the difference $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right) + p_1^L\left(\gamma^L \hat{c}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}\right) + k_A + k_G\right) - \gamma^L \hat{c}(1)$. Applying Lemma 3 with $\eta_U = \eta_V = 1$ yields the fact that the derivative of the expression is negative. If the equilibrium has $\theta \in (0,1)$, then the incentive compatibility constraint no longer holds; $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}\right) + p_1^L \left(\gamma^L \hat{c}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}\right) + k_A + k_G\right) < \gamma^L \hat{c}(1)$, and re-balancing requires θ to increase until equality is restored or until $\theta = 1$. If $\theta = 1$, the negative derivative implies that V_L^L proposals remain fully below the threshold. Thus, in all cases, the equilibrium value of θ weakly increases. For the same p_1^H, part (b) indicates that a higher θ reduces the principal's payoff.

Increasing p_1^H also affects the value of the equilibrium at θ due to the reduction in information from the media signal. The proof is complete if increasing p_1^H decreases the value of an equilibrium at θ, because then whether θ increases or stays the same, the principal's payoff is lower. Looking at Equations (3) and (4) reveals that $\underline{\lambda}_{A_H \cup \theta V_L^L}(p_1^H)$ increases while $\bar{\lambda}_{A_H \cup \theta V_L^L}(p_1^H)$ decreases with p_1^H. Comparing two values of p_1^H, $\underline{p}_1^H < \bar{p}_1^H$, the expected payoff is lower with $\bar{p}_1^H$ from the proposals below the threhsold: $((1-\bar{p}_1^H)\Pr(A_H) + \theta p_0^L \Pr(V_L^L))\hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_1^H)\right) + (\bar{p}_1^H \Pr(A_H) + \theta p_1^L \Pr(V_L^L))\hat{f}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_1^H)\right) = ((1-\bar{p}_1^H)\Pr(A_H) + \theta p_0^L \Pr(V_L^L)) f\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_1^H), \underline{\lambda}_{A_H \cup \theta V_L^L}(\underline{p}_1^H)\right) + \left(\bar{p}_1^H - \underline{p}_1^H\right)\Pr(A_H)\, f\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_1^H), \underline{\lambda}_{A_H \cup \theta V_L^L}(\underline{p}_1^H)\right) + \left(\underline{p}_1^H \Pr(A_H) + \theta p_1^L \Pr(V_L^L)\right) f\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(\bar{p}_1^H), \bar{\lambda}_{A_H \cup \theta V_L^L}(\underline{p}_1^H)\right) <$
$\left((1-\underline{p}_1^H)\Pr(A_H) + \theta p_0^L \Pr(V_L^L)\right)\hat{f}\left(\underline{\lambda}_{A_H \cup \theta V_L^L}(\underline{p}_1^H)\right) + \left(\underline{p}_1^H \Pr(A_H) + \theta p_1^L \Pr(V_L^L)\right)\hat{f}\left(\bar{\lambda}_{A_H \cup \theta V_L^L}(\underline{p}_1^H)\right)$. The payoff from the proposals that are at least $\tilde{r}$ is the same for either value of p_1^H, so for any $\theta \in (0,1]$, the payoff from the equilibrium decreases with p_1^H.

(e) As p_1^H approaches p_1^L, $\underline{\lambda}_{A_H \cup \theta V_L^L}$ and $\bar{\lambda}_{A_H \cup \theta V_L^L}$ both approach $\lambda_{A_H \cup \theta V_L^L}$. If $p_1^H = p_1^L$, the low-cost group proposes at least sometimes above the threshold if $p_0^L \gamma^L \hat{c}\left(\lambda_{A_H \cup \theta V_L^L}\right) + p_1^L \left(\gamma^L \hat{c}\left(\lambda_{A_H \cup \theta V_L^L}\right) + k_A + k_G\right) \le \gamma^L \hat{c}(1)$. By inspection, $\lambda_{A_H \cup \theta V_L^L}$ increases with θ, so the condition $p_1^L(k_A + k_G) \le \gamma^L \left(\hat{c}(1) - \hat{c}\left(\lambda_{A_H \cup V_L^L}\right)\right)$ implies that $p_1^L(k_A + k_G) < \gamma^L \left(\hat{c}(1) - \hat{c}\left(\lambda_{A_H \cup \theta V_L^L}\right)\right)$ for any $\theta < 1$, so $p_1^H = p_1^L$ in this situation implies that V_L^L proposals and A_H proposals all are below the threshold and yield $\lambda_{A_H \cup V_L^L}$. Then the principal's payoff is $(\Pr(A_H) + \Pr(V_L^L))\hat{f}\left(\lambda_{A_H \cup V_L^L}\right) + \Pr(U_L)\,\hat{f}(1) = \Pr(\Omega \setminus U_L)\,\hat{f}\left(\lambda_{\Omega \setminus U_L}\right) + \Pr(U_L)\,\hat{f}(1)$. This part of the proposition then follows from the fact that $\underline{\lambda}_{A_H \cup \theta V_L^L}$ and $\bar{\lambda}_{A_H \cup \theta V_L^L}$ vary continuously with p_1^H. □

Proof of Proposition 7: The proof begins by establishing a claim similar to Claim 6.0.

Claim 7.0: In this form of equilibrium only one $(\underline{\lambda}, \bar{\lambda})$ obtains below the threshold.
Proof: We can apply many of the steps from the proof of Claim 6.0. A key step was that all proposals not involving V_L^L there had to consist only of U_H, but because there are no U_H proposals below $\tilde{r}$, all proposals under the threshold involve V_L^L. If there are multiple values of $(\underline{\lambda}, \bar{\lambda})$, we can apply more steps from Claim 6.0 proof to shows that all proposals after V_H must yield $(\min(\underline{\lambda}), \max(\bar{\lambda}))$ for the principal. All proposals must involve V_H; if they didn't, they would involve V_L^L only with $\lambda = 1$, which would result in deviation by V_L^L. □

(a) If U_H were by himself, incentive compatibility for V_L^L would require $p_0^L \gamma^L \hat{c}(\underline{\lambda}_V) + p_1^L(\gamma^L \hat{c}(\bar{\lambda}_V) + k_A + k_G) \le \gamma^L \hat{c}(\lambda_{U_H})$. However, $\underline{\lambda}_V \ge \lambda_{U_H}$, so V_L^L would defect from this equilibrium. Meanwhile, for any equilibrium in which some $0 < \theta < 1$ of V_L^L proposals remain pooled with V_H, $\theta < p_V$ if $\hat{c}(\lambda)$ is convex. Then $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{V_H \cup \theta V_L^L}\right) + p_1^L \gamma^L \hat{c}\left(\bar{\lambda}_{V_H \cup \theta V_L^L}\right) \le \gamma^L \hat{c}\left(\lambda_{U_H \cup (1-\theta) V_L^L}\right) - k_A - k_G$ implies that $\lambda_{V_H \cup \theta V_L^L} < \lambda_{U_H \cup (1-\theta) V_L^L}$, since convexity means $p_0^L \hat{c}\left(\underline{\lambda}_{V_H \cup \theta V_L^L}\right) + p_1^L \hat{c}\left(\bar{\lambda}_{V_H \cup \theta V_L^L}\right) \ge \hat{c}\left(\lambda_{V_H \cup \theta V_L^L}\right)$. Solving the inequality $\lambda_{V_H \cup \theta V_L^L} < \lambda_{U_H \cup (1-\theta) V_L^L}$ for θ implies $1 - \theta > p_U$.

(b) Starting from an equilibrium in which fraction θ of V_L^L proposals are below the threshold, the incentive compatibility condition for V_L^L is $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{V_H \cup \theta V_L^L}\right) + p_1^L \left(\gamma^L \hat{c}\left(\bar{\lambda}_{V_H \cup \theta V_L^L}\right) + k_A + k_G\right) = \gamma^L \hat{c}\left(\lambda_{U_H \cup (1-\theta) V_L^L}\right)$.
Lemma 2 implies that the LHS increases with p_1^L, while Lemma 3 implies that the LHS increases with p_1^H.

Meanwhile, the RHS does not change with either of these parameters. Thus, to be incentive compatible for V_L^L, θ must decrease with p_1^L and increase with p_1^H.

(c) In the non-existent equilibrium for U_H, U_H's incentive compatibility constraint would be fully met: $p_0^H \alpha f(\underline{\lambda}_V, \lambda_{U_H}) + p_1^H(\alpha f(\bar{\lambda}_V, \lambda_{U_H}) - k_A) < \alpha \hat{f}(\lambda_{U_H})$. As more V_L^L proposals pool with U_H (i.e., θ decreases), $\underline{\lambda}_{V_H \cup \theta V_L^L}$ and $\bar{\lambda}_{V_H \cup \theta V_L^L}$ decrease toward λ_{U_H}, and $\lambda_{U_H \cup (1-\theta) V_L^L}$ increases away from λ_{U_H}. Thus, the LHS of the previous inequality increases and the RHS decreases as θ approaches 0. For sufficiently large p_1^L, θ will be small enough that $\bar{\lambda}_{V_H \cup \theta V_L^L} < \lambda_{U_H \cup (1-\theta) V_L^L}$. For sufficiently small p_1^H, V_H proposals will stay below the threshold. Then $p_0^H f\left(\underline{\lambda}_{V_H \cup \theta V_L^L}, \lambda_{U_H}\right) + p_1^H f\left(\bar{\lambda}_{V_H \cup \theta V_L^L}, \lambda_{U_H}\right) > f\left(\lambda_{U_H \cup (1-\theta) V_L^L}, \lambda_{U_H}\right)$, and for α large enough, U_H can be made to deviate to propose below the threshold with V_H (and θ of V_L^L). Then for some smaller values of p_1^L, it will also be the case that $p_0^H f\left(\underline{\lambda}_{V_H \cup \theta V_L^L}, \lambda_{U_H}\right) + p_1^H f\left(\bar{\lambda}_{V_H \cup \theta V_L^L}, \lambda_{U_H}\right) > f\left(\lambda_{U_H \cup (1-\theta) V_L^L}, \lambda_{U_H}\right)$, even if $\bar{\lambda}_{V_H \cup \theta V_L^L} > \lambda_{U_H \cup (1-\theta) V_L^L}$, since $\lambda_{V_H \cup \theta V_L^L} < \lambda_{U_H \cup (1-\theta) V_L^L}$ for any equilibrium of the form described in this proposition. In this case, as well, a sufficiently large α makes it possible that U_H will defect below the threshold.

(d) Claim 6.0 implies that the best equilibrium payoff with U_H proposing $r_A < \tilde{r}$ when there are V_L^L proposals also below the threshold involve full pooling. In this case, the incentive compatibility condition is $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{V_H \cup \theta V_L^L}\right) + p_1^L\left(\gamma^L \hat{c}\left(\bar{\lambda}_{V_H \cup \theta V_L^L}\right) + k_A + k_G\right) = \gamma^L \hat{c}(1)$ for $\theta \in (0,1)$. Since $\lambda_{U_H \cup (1-\eta) V_L^L} < 1$, for any η, the incentive compatibility condition $p_0^L \gamma^L \hat{c}\left(\underline{\lambda}_{V_H \cup \eta V_L^L}\right) + p_1^L\left(\gamma^L \hat{c}\left(\bar{\lambda}_{V_H \cup \eta V_L^L}\right) + k_A + k_G\right) = \gamma^L \hat{c}\left(\lambda_{U_H \cup (1-\eta) V_L^L}\right)$ is satisfied with $\eta < \theta$, or the rebalancing is accomplished with $\eta = 0$. If the original equilibrium involves only U_L proposing at least the threshold, then part (a) of this proposition automatically implies that less of the V_L^L proposals will be below the threshold.

(e) For a venal agent proposing below $\tilde{r}$, incentive compatibility constraint is then of the form $\gamma^i \hat{c}(\lambda_{V_H}) + p_1^i(k_A + k_G) \leq \gamma^i \hat{c}(1)$ or $\gamma^i \hat{c}(\lambda_{V_H}) + p_1^L(k_A + k_G) = \gamma^i \hat{c}(1)$ either V_L^H or V_H^H. Either way, moving U_H proposals to at least $\tilde{r}$ means that the RHS of the constraint will decrease while the LHS stays the same, meaning that there can be only more venal agents with U_H setting $r_A \geq \tilde{r}$. □

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