An Informational Perspective on Administrative Procedures

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A number of scholars have identified the important role administrative procedures have in "structuring" the interest group environment of government agencies: determining who can participate and in what manner. Using a formal model, we analyze the incentives and outcomes that different procedural—and therefore interest group—environments generate. The model yields a number of important conclusions. First, because elected officials are concerned not only about distributional rents, but also informational ones, the use of procedures in some cases will result in worse outcomes for political principals on the policy dimension. Officials will be willing to bear the losses in exchange for informational gains. Second, under certain conditions, a politician is better off with a biased group monitoring the agency rather than a neutral one, since biased groups will subsidize a portion of the monitoring cost. Third, having multiple interest groups, including one in opposition to the politician, makes the political principal strictly better off than any other constellation of monitors, since competing interest groups will provide the greatest information at the lowest cost to the elected official.

1. Introduction

The managerial authority of government agencies is delegated to them by political principals. As many have noted, this delegation creates the requirement for control relationships between public officials and bureaus. The mechanisms whereby politicians control agents, however, are varied. In the late 1970s and early 1980s a number of scholars developed positive theories of how government officials can control agencies through the use of ex post rewards and punishments: for example, budgets, recognition, and oversight (see, e.g., Niskanen, 1971; Weingast and Moran, 1983; Weingast, 1984; Bendor, Taylor, and Van Gaalen, 1985, 1987; Aberbach, 1990). But these control

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mechanisms are not the only ones available to political principals. In their seminal article, McCubbins and Schwartz (1984) highlighted the difference between these ex post control mechanisms and ex ante mechanisms primarily in the form of legal requirements about the process by which rules are developed. McCubbins and Schwartz argue that politicians can use “fire alarms” to manage the bureaucracy—by enabling an interest group environment that will “pull the alarm” when agencies stray from the principal’s preferred policy path. Fire alarms at once eliminate the need for costly oversight and guarantee that principals will obtain policies they prefer. McCubbins, Noll, and Weingast (1987, 1989) further this argument in a series of papers about the Administrative Procedure Act of 1946 (APA). They argue that the use of administrative procedures for bureaucratic rulemaking, such as burdens of proof, evidentiary standards, reporting and information requirements, hearings, and interest group subsidies, can be understood as control mechanisms. They argue, for example, that by “stacking the deck” in favor of certain interest groups in the rulemaking process, agency decisions will tend toward outcomes which are preferred by political principals. As they point out, one of the key roles of the APA is to establish the basis for interest group representation in agency rulemaking.

One of the primary results from this line of research relates to administrative procedures’ effect on policy outcomes. In particular, these scholars emphasize that administrative procedures in general, and the APA in particular, ensure that policies will be near those that public officials want. For example, McCubbins and Schwartz (1984:432, emphasis added) comment that, “A predominantly fire-alarm oversight policy is likely to be more effective—*to secure greater compliance with legislative goals*—than a predominantly police-patrol policy. . . ”. Similarly, McCubbins, Noll, and Weingast (1987:273) note, “Administrative procedures constitute an additional mechanism for achieving greater compliance.”

In this article we explore these insights about the role of legislated administrative procedures. The model has a principal, an agency, and an interest group. Each has well-defined preferences over a unidimensional policy space that the agency passes rules over. Following Niskanen (1971) and others (e.g. Miller and Moe, 1983; Bendor, Taylor, and van Gaalen, 1987; McCubbins, Noll, and Weingast, 1987; Banks, 1989; Spiller and Urbiztondo, 1991; Banks and Weingast, 1992; Lupia and McCubbins, 1994; Epstein and O’Halloran, 1995), we assume that the agency has an informational advantage over the political principal—the agency knows better how particular policies will result in particular outputs. In addition to preferences over policies, both the political official and the agency care about the way in which punishments and rewards (inducements) are meted out. The principal prefers to obtain given policy outcomes without offering many rewards to the agency. The agency, on the other hand wants as much as it can get—higher budgets, more autonomy, positive recognition and publicity. This then creates the central tension in the model—agencies can use their informational advantages to get policies they prefer and higher transfers and rewards at the same time.

It is in this context that administrative procedures play a role. One of the central properties of administrative procedures is to enable participation in the regulatory process of interest groups that previously were, for technical or incentive reasons, unable to participate. These groups, such as the traffic safety lobby in the 1950s and the consumer and environmental movements of the late 1960s and early 1970s, undoubtedly benefited from the passage of the APA as well as many specific agency procedures (see, e.g., Weingast, 1981). Further, these procedures specify how these groups participate: by being part of the regulatory process they can provide information about agency rulemaking to public officials. Section 4 of the APA, for example, requires that "notice of proposed rulemaking shall be published in the Federal Register" and that "[a]fter notice . . . the agency shall afford interested persons an opportunity to participate in the rulemaking through submission of written data, views or arguments with or without the opportunity to present the same orally. . . " (United States Congress, 1946). Similar guidelines are contained in the specific procedural requirements of many agencies. The Consumer Product Safety Commission (CPSC), for example, must publish notification of any proposed standard setting in the *Federal Register*. Further, for those participating in standard setting, "the Commission may agree to contribute to the offeror's cost in developing a proposed product safety standard, in any case in which the Commission determines that such contribution is likely to result in a more satisfactory standard. . . " (United States Congress, 1972). These and other procedures, then, aid the participation of a number of previously excluded groups.[1]

To capture this feature of administrative procedure, we follow McCubbins and Schwartz (1984) and model interest groups as monitors (see also Epstein and O'Halloran [1995] and Lupia and McCubbins [1994]). These monitors can learn and reveal ex ante the nature of the regulatory environment to the political principal. In contrast to McCubbins and Schwartz, we distinguish between two "types" of monitors: interested (such as Ralph Nader and the NRDC) and strictly neutral ones (such as the CBO and GAO).[2] Specifically, as has been explored in a number of political contexts (e.g., Austen-Smith, 1993; Lupia and McCubbins, 1994; Epstein and O'Halloran, 1998), we assume that the monitor can ameliorate some of the uncertainty that the principal has about the regulatory environment (but not all of it).

Our model reinforces the literature about administrative procedures by clarifying the conditions under which policy bias decreases. First, while we agree that ensuring favorable policy outcomes is an important part of the rationale for procedures, in this article we reinforce one of the less emphasized, but equally important points from the original work on administrative procedures: that there are also informational reasons as well (McCubbins, Noll, and Weingast,

1. Note that here we distinguish between procedures attempting to force information *from* an agency and those designed to force information *into* an agency by enabling public interest group participation. In this article we focus on the latter.

2. We treat "neutral" and "interested" monitors here as ideal types, recognizing that often some neutral monitors may become interested.

1987). Interest group participation does not necessarily bias expected policy outcomes toward those that the political principal desires, because political officials are also concerned about informational rents that must be paid to the agency. Caught in such a balancing act, in many cases, the public official will use procedures as a way of decreasing her information costs, and not necessarily to bias policy toward her ideal. In this context, we explicitly define conditions under which policies will be more or less biased toward politicians' ideals. Second, as was initially hinted at by these earlier works on administrative procedures and has been developed in alternative settings elsewhere (Banks, 1989; Bawn, 1995; Epstein and O'Halloran, 1998), the reason for this trade-off is that there is a dependence between the various types of mechanisms the principal has at her disposal. In particular, the use of ex ante mechanisms has an impact on the ex post rewards and transfers politicians must make to obtain particular policy outcomes. Third, our analysis allows us to compare three potential interest group structures the principal might organize: a "neutral monitor" [such as the Congressional Budget Office (CBO) or General Accounting Office (GAO)], a single interest group whose preferences are aligned with the public official, and multiple groups with competing interests. For the principal, the choice between a neutral monitor and an interested one is contingent: an interested monitor will require smaller subsidies in order to participate, since they will usually benefit by investing in information; however, this incentive is offset by the fact that they will have a strategic reason to hide information when it will lead to outcomes that make them worse off. Thus, only if the information losses do not outweigh the reduced subsidization will a political principal prefer an interest group to provide information in rulemaking. More importantly, however, we argue that viewing the APA as a means of "deck stacking" is inappropriate. In particular, while the APA and other agency procedures do subsidize certain interest groups over others, this is to even the playing field among groups, not to privilege some over others. The reason for this is that when considering the relationship between interest group participation and ex post inducements, political officials are always better off with multiple interest groups participating. This leads us to the conclusion that when faced with a choice between a single monitor whose interests are aligned (as emphasized in previous research) and utilizing an additional interest group whose preferences are opposed to the public official's, the official will always prefer more than one group, including one whose interests are opposed to the principal. In this sense, we view procedures as "deck unstacking" rather than "deck stacking" (Lupia and McCubbins, 1994; Epstein and O'Halloran, 1995).

Finally, the model we employ builds on the model and draws on the insights in Spiller and Urbiztondo (1991). In that model, the transfers between the principals and the agent did not induce truth telling by the agent. To deal with this issue, we simplify their model by considering only the relationship between a single principal and the agency. This limits our ability to analyze the relationship between multiple principals who might be politically opposed, but enables us to clarify the trade-offs between ex ante and ex post control mechanisms. Thus our model is a variant of those used to analyze adverse selection problems in economics (e.g., Baron and Myerson, 1982; Myerson, 1982; Maskin and Riley, 1984; Rogerson, 1985). We adapt this model by adding an additional "layer" of information: a monitor or auditor who can obtain some, but not all, of the information the agency has. Our model also builds on a subset of this literature which explores the relationship between agents and monitors or multiple agents as a means of monitoring (e.g., Demski and Sappington, 1984; Baron and Besanko, 1987; Demski, Sappington, and Spiller, 1988).

The article proceeds as follows. In the next section we formally describe the basic model. In Section 3, as a base case, we analyze the model assuming no informational asymmetries to introduce notation and define the criterion we use to evaluate information structures: informational rents and policy bias. In Section 4 we examine the situation where there are informational asymmetries, but no interest groups exist: there is simply a principal and an agency. In Section 5 we consider the advantages of an interested monitor in comparison to the absence of one, and compare the interested monitor to a "neutral" or uninterested one. In Section 6 we show that having multiple interest groups makes the political principal strictly better off than any other constellation of monitors, neutral or interested. Finally, in Section 7 we offer some concluding remarks.

2. The Basic Model

There is a public official P, an agent A, and for now, a single interest group monitor M. The policy outcome is chosen by A and takes a value from $x \in [0, \infty)$.

We model the players' interests in both policy outcomes and transfers by specifying their utility functions as follows:

$$
\begin{aligned}
&U_P = ax - T(x, r) - S && a > 0 \\
&U_A = T(x, r) - \theta_i x^2 && \theta_L > \theta_H > 0, i \in \{L, H\} \\
&U_M = bx + S - c_S && b \geq 0, c_S \geq 0
\end{aligned}
$$

where a is the marginal utility that P obtains from x, T is the transfer made from the official to the agent, S is the transfer made from the official to the monitor in exchange for the monitor's report, θ is a parameter for the productivity of effort, b is the marginal utility the monitor obtains from the policy, and c_S is the cost the monitor must incur to obtain a signal. To examine the difference between ex ante and ex post control mechanisms, we model each in the following way: ex ante procedural mechanisms have the interpretation of operating to (1) reduce the costs c_S of interest group participation for a given group and (2) increase the number of groups that can participate. In the basic model we consider the former and then we expand the analysis in later sections to include the latter. Ex post control is modeled as contingent transfers, or rewards, that P will make after observing the agent's choice of a particular policy, x. In particular, we allow only nonnegative transfers, so $T(x, r)$ represents the transfers made to A as a result of x and the report r by the monitor. As we show below, the participation by the interest group is not assured without transfers. First, participation in the regulatory proceedings is expensive, both in terms of gathering relevant and credible information and spending time and resources to participate. Thus c_S represents the costs of a particular interest group to participate. Second, since the interest group is interested in policy outcomes, it might find it optimal to strategically withhold information. To counter that incentive, P might want to offer transfers to compensate the interest group for revealing its information. S is what we call these transfers offered to M in exchange for its information. Finally, for simplicity, we assume that the agency is drawn from a homogenous set of agent-candidates who have a reservation utility level of zero.

The structure of the information is summarized in Figure 1. There are two states of nature, θ_L and θ_H. The state variable θ determines the intensity with which the agent dislikes higher policy outcomes, or alternatively, how much higher policy outcomes cost him in each environment. In other words, for a given policy, the agent incurs a greater cost under θ_L versus θ_H. When $\theta = \theta_H$, therefore, the agent can be interpreted to be more productive than when $\theta = \theta_L$, since $\theta_L > \theta_H$, and therefore dislikes given levels of x less. Further, we assume that θ is drawn from one of two equally likely distributions, f_L or f_H. If θ is drawn from f_L, then Prob$(\theta = \theta_H) = \pi_L$. If θ is drawn from f_H, then prob$(\theta = \theta_H) = \pi_H$. Further, we assume that in the absence of any information about the true distribution f_j, the ex ante probability of the high state is $\alpha = \frac{\pi_H + \pi_L}{2}$.

The public official only knows the prior distribution of states. The agency knows the state of the world with certainty. The interest group monitor begins the game by sharing the principal's information, namely, the prior distribution of θ. At cost c_S, however, it can obtain a signal $s(\theta)$, which might provide more information about θ. If the monitor incurs the cost c_S, the signal received by the interest group is $s(\theta) \in \{f_j(\theta), \o\}$ where $j = L,H$ and ø is the empty set. If $s(\theta) = \o$, M learns nothing about the true state of the world, so that Prob$(\theta = \theta_H | s(\theta) = \o) = \alpha$. We call p the probability that $s(\theta) = \o$. Finally, the report of the interest group monitor is of the type $r \in \{s(\theta), \o\}$. This reporting structure reflects the fact that the interest group information is "hard." In other words, it is assumed that the report by the interest group monitor is verifiable by P and A (Tirole, 1986).

The sequence of play is as follows (see Figure 2). Nature moves first, and chooses a state according to the probabilities indicated above, and A observes the outcome of nature's draw. Next the interest group monitor chooses whether or not to buy the signal $s(\theta)$. Next the principal moves and offers M the quantity S in exchange for r. P then offers a contract to A of the form $T(x, r)$. Finally, A picks x and the transfers are implemented. We assume that A does not have to accept a contract after he observes θ, so the contract has to be ex post individually rational.

3. Equilibrium with Complete Information

To evaluate the equilibrium contracts, informational reports and transfers between the principal, interest group monitor, and agency, we will focus on two

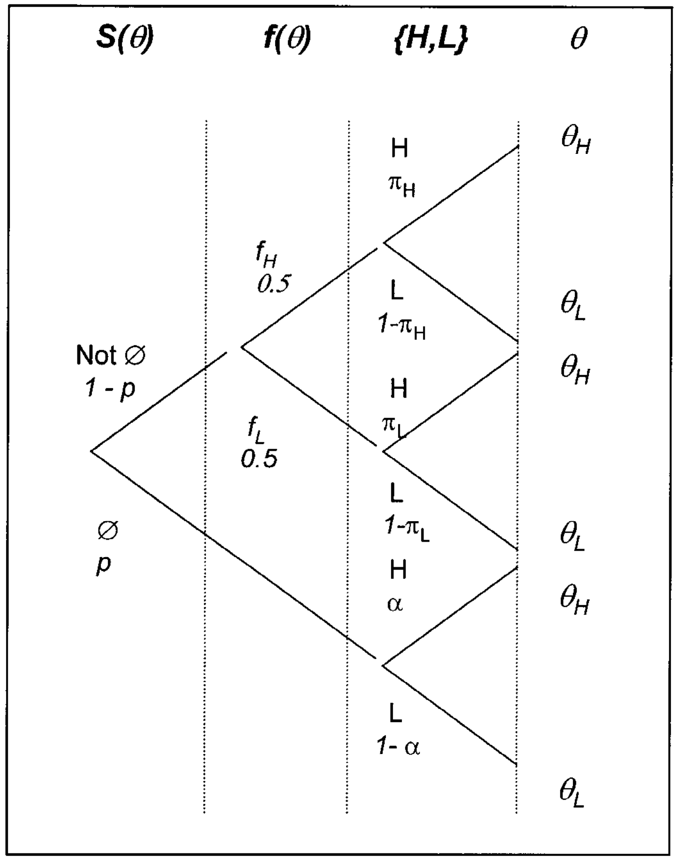

Figure 1. Information structure.

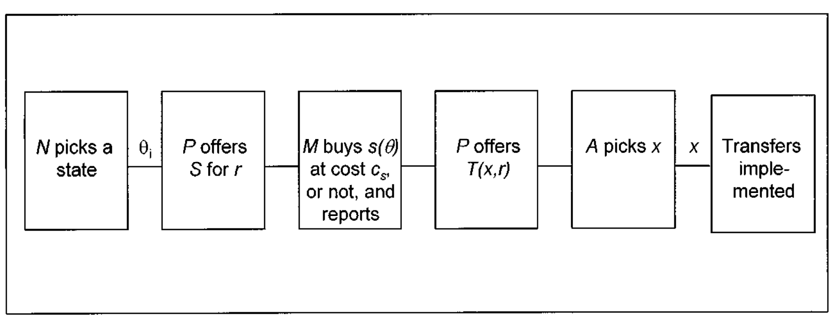

Figure 2. Basic sequence of play.

aspects of the equilibrium: policy bias and informational rents. As we noted earlier, all of the actors in the model have policy interests, which for clarity we define below. In particular, we assume that the political principal prefers more to less of x (i.e., $a > 0$); that for the agent, greater policy implementation (or effort) creates greater disutility (i.e., $\theta x^2 > 0$); and that the monitor also has preferences over policy outcomes (i.e., U_M is a function of x with marginal utility equal to b), so each actor's preferences over x are well defined.

Policy bias, then, is the degree to which one actor or the other can bias policy outcomes in the preferred direction, vis-à-vis the preferences of the other actors. As a way of measuring the degree of bias, we will focus on the first-best case from the political principal's perspective. This is equivalent to the level of x which would obtain if either the principal was implementing the policy herself (at cost identically equal to θx^2) or was able to observe the state of the world θ_i $i \in \{L, H\}$. In this case (see Myerson, 1982; Kreps, 1990; Mas-Colell, Whinston, and Green, 1995) the optimal effort level (and transfers) in equilibrium are as follows (all proofs appear in the Appendix):

Proposition 1. The equilibrium in the first-best case (with an observable state variable θ) is to set $x_i^* = \frac{a}{2\theta_i}$, to pay transfers such that $T(x_i^*, ø) = \frac{a^2}{4\theta_i}$, and to never pay for a report from the interest group monitor, where x_i is the policy implemented by A in state i.

In this context, we can define policy bias in terms of expected policy outcomes. In particular, we have

Definition 1. Let Θ_1 and Θ_2 be two possible information sets that P has at the time of contracting. Then the state-contingent policy is relatively biased in favor of the principal under Θ_1, if $E(x|\Theta_1) > E(x|\Theta_2)$.

Definition 1 simply states that if the principal obtains higher outcomes under a particular informational regime, then the policy is relatively biased in her favor under that regime. Similarly, we can also define the informational rents, or the rents that the agency (or interest group) can extract from the political principal based on their informational advantages over the political principal. Notably, as shown in Proposition 1, the agency under the first-best case will be paid such that his utility is zero (e.g., $T(x_i^*, ø) = \theta_i x_i^2$) under both the high and low productivity states. We can thus define the informational rents as follows:

Definition 2. The agent's informational rents are the excess over his reservation utility, or $I_i(x_i, r, c_S) \equiv U(x_i, \theta_i)$ $i \in \{L, H\}$, and expected rents are $I = E_{i \in (L,H)}(I_i)$.

Given Definitions 1 and 2 we can then compare the relative bias and informational rents that are extracted as the result of different procedural and ex post control environments.

4. No Viable Interest Group Monitor with Hidden Information

As a base case, we first consider the situation in which a monitor is not economically viable; in other words, when the monitor's costs of obtaining information about θ are very high, that is, $c_S \gg 0$ (later we will define more precisely what is meant by "very high").[3] In the game sequence, this means that M will not invest in obtaining the signal and hence will not make a report, that is, $r = ø$. In this case, we can rewrite the utility functions of the players in their reduced form as

$$U_P = ax - T(x, ø) - S(ø) = ax - T(x) \qquad a > 0$$
$$U_A = T(x, ø) - \theta x^2 = T(x) - \theta x^2 \qquad \theta_L > \theta_H > 0$$

Notice here, that the model reduces to the classic adverse selection problem elucidated elsewhere (Baron and Myerson, 1982; Myerson, 1982; Rogerson, 1985; Mas-Colell, Whinston, and Green, 1995).

Proposition 2. When interest group monitoring is not economically viable, the equilibrium policy $\hat{x}_i$ and transfers $\hat{T}(\hat{x}_i, \theta_i)$ are such that $\hat{x}_H = x^*_H$, $\hat{x}_L < x^*_L$, $\hat{I}_H > 0$ and $\hat{I}_L = 0$.[4]

Proposition 2 is a well-known result in the agency theory literature. In particular, when interest group monitoring is not a viable option, then the political principal and agency are playing a standard hidden-information game. Hidden information has two effects. First, the optimal policy (effort) for the agent in a low-productivity environment is lower than it would be if the agent's information about the state of the world were common knowledge. The intuition behind this result is that hidden information introduces a dependency between what the political principal can offer in the low-productivity state and the high-productivity state. While inducing a lower policy causes the political official to lose some benefits (rents) in the low-productivity state, it also relaxes the incentive compatibility constraint, and thus reduces the gain the agent would have by lying in the high-productivity state. This allows the political principal to obtain the first-best policy in the high-productivity state without providing as high transfers to the agent. The implication is that the policy induced by the political official in the low-productivity state reflects the incentive to trade a policy biased downward in the low-productivity state for a lower rent transferred to the agent in the high-productivity state. Note that we allow the agent to always choose zero effort once the state of nature is revealed, meaning that the transfers offered must be individually rational in both states (see also Mas-Colell, Whinston, and Green, 1995).

The second point of Proposition 2 is that the principal has to provide informational rents to the agency A, so that in the high-productivity environment, $\hat{T}(\hat{x}_H, ø) > T(x^*_H, ø) = \frac{a^2}{4\theta_H}$. The reason for this is that in order to motivate the first-best effort, the principal cannot simply provide the reservation utility to A, but must provide an added incentive to truthfully report his information. Thus in the absence of monitoring, both in expectation and in the high-productivity state, the agency can strategically use its informa-

3. We assume the cost of obtaining information by an uninterested monitor is equally very high.
4. Note that here we introduce the convention that $\hat{}$'s represent equilibrium strategic choices and *'s represent those in the first-best case.

tional asymmetries in order to extract informational rents from the political principal.

In terms of the evaluative criterion in the adverse selection model, without any monitoring by interest groups, policies will be biased downward and informational rents will be higher in comparison to the case when the state of the world is fully observable. This is not surprising, although in this context of our model, the interpretation is a bit different: in the standard principal-agent interpretation, the substantively interesting questions are how high expected profits are and what the allocation of rents are between the owner (principal) and manager (agent). In this case, we are not only interested in these two aspects but also what actual policy outcomes are and how biased they are; in other words, the effort (policy) levels chosen in the typical adverse selection setting are themselves interesting in a political context.

Using Proposition 2, we next characterize the behavior of the equilibria with respect to the information available to the principal. We can interpret administrative procedures as facilitating the participation by interest groups in the regulatory process. This participation takes the form of transmission of information to the political principal. Interest groups will have the incentive to offer information prior to the incentives being offered to the agency so as to have an impact on the final policy outcome.[5] Thus, to compare the case when an interest group participates to that in which it does not, it is necessary to understand how the parameters of the ex post incentives provided to the agency change with different beliefs about the distribution of θ.

Lemma 1. As the probability of θ_H, or α when $c_s \gg 0$, increases:

(i) x_L decreases;
(ii) T_L and T_H decrease.
(iii) I_H decreases.
(iv) $E(x)$ increases.

Lemma 1 establishes that as the probability of the high state increases, the principal is willing to bear lower policy outputs in the low state in exchange for lower informational rents. Part (iv) establishes the rationale: since the probability of the high state is increasing, in expectation the reduction in x_L is offset by the fact that the probability that θ_L will be realized has also decreased. So as before, the principal is willing to trade a lower policy in that state for limiting the agency's informational rent in the (more likely) high state.

Next we characterize what happens if the principal "gets it wrong." Suppose the principal believes (as per her prior beliefs over states) that Prob$(\theta = \theta_H) = \alpha$. Suppose further, that in fact, Prob$(\theta = \theta_H) = \lambda$. What will be the outcome for the principal? To analyze this case we compare the differences in the political principal's utility (denoted ΔP) based on the "inefficient contract" obtained by assuming that Prob$(\theta = \theta_H) = \alpha$ instead of Prob$(\theta = \theta_H) = \lambda$.

5. Note that if there was a transfer of information after the policy is implemented, it would have no impact on the policy but might have repercussions for the agency.

Lemma 2. Suppose P solves Equation (P.2.1) (from the Appendix) according to beliefs $\text{Prob}(\theta_H) = \alpha$, when in fact $\text{Prob}(\theta_H) = \lambda$, where $\alpha \neq \lambda \in (0, 1)$. Further, let $\Delta P((\lambda, \alpha)|\cdot) = EU_P(x_L(\lambda), T_L(\lambda), T_H(\lambda)|\lambda, x_H, \theta_L, \theta_H, a) - EU_P(x_L(\alpha), T_L(\alpha), T_H(\alpha)|\lambda, x_H, \theta_L, \theta_H, a)$. Then

(i) $\Delta P > 0$ *and*
(ii) $\frac{\partial \Delta P}{\partial(\lambda-\alpha)} > 0$ *if* $\lambda > \alpha$, *and* $\frac{\partial \Delta P}{\partial(\alpha-\lambda)} > 0$ *if* $\alpha > \lambda$.

We use the notation $\Delta P((\lambda, \alpha)|\cdot)$ to indicate the difference in the principal's expected utility between implementing the contract under beliefs α when the "true" probability is λ. Lemma 2 provides an intuitive result we can use as the basis for considering alternative information structures. In particular, the first part states that for all choices of combinations of policies and transfers that are not based on the true distribution of states, the principal will suffer a loss. This follows trivially from the fact that the principal's problem in the adverse selection model is globally concave. The second part is less obvious. It states that as the actual and inappropriate beliefs diverge, the expected loss from an inefficient contract increases. The intuition behind this result stems from Lemma 1. Namely, since all of the endogenous choices in the principal's problem are monotonic and the maximand is globally concave in those choices, it must be the case that the farther beliefs stray from the actual probability, the worse off the principal will do in an expected sense in the inefficient contract.[6]

5. Interest Group Monitoring is Viable

In the previous section we considered the model when interest groups were not economically viable, as the participation costs were prohibitively high. In this section we relax this assumption. To make the analysis clear, therefore, we assume that the costs of participation are negligible (e.g., $c_S \approx 0$).

Now the interest group has an incentive to participate.[7] But the incentives for active or voice participation are not uniform, they depend on the signal it receives, $s(\theta)$. Since the interest group has preferences which are somewhat aligned with the political principal (and therefore aligned against the agency), or in other words $b > 0$, the marginal utility of policy outputs is positive. Further, the interest group bears no costs for implementing the policy, so its preferences are not single-peaked, but unbounded: it always wants higher implementation of the policy. Thus the interested monitor has a preference for high policy outputs and attempts to directly obtain them with information provision. When $b > 0$, and $s(\theta) = f_L$, then the interest group has an incentive to provide its information since it can encourage higher output of the policy by reporting $s(\theta)$. When $s(\theta) = f_H$, however, the monitor does not want to disclose its information since it will result in a lower effort when $\theta = \theta_L$. Since the

6. Notably, this is not to say that the decrease will be symmetric, simply that expected utility is strictly decreasing as one moves away from the optimum under the proper information.

7. In all of the foregoing we assume that the interest group monitor always acquires the signal. As we note below, this is equivalent to a condition on the prior probability of observing f_L, namely that $\frac{1-p}{2}$ must be sufficiently high.

principal knows that the monitor has the incentive to disclose f_L, when it does not report a signal (e.g., $r = ø$), the principal also gains information (namely, that $s(\theta) \in \{f_H(\theta), ø\})$).[8] Thus, conditional on having received a signal, the political principal's posterior beliefs (which we call ϕ_j where $j \in \{L, H\}$) about the environment are

$$\Pr(\theta = \theta_H | r = f_L) = \pi_L = \phi_L \tag{5.1}$$

$$\Pr(\theta = \theta_H | r = ø) = \frac{2p\alpha + (1-p)\pi_H}{1+p} = \phi_H.$$

Further, since $\alpha < \pi_H$, we have

$$\phi_L = \pi_L < \alpha < \phi_H < \pi_H. \tag{5.2}$$

Our next step is to analyze what role an interest group monitor will play when monitoring (acquiring a signal) is economically viable. From Lemma 1, it immediately follows that the interest group monitor does not have to be paid any transfers in order to obtain its information. Since the transfers to the monitor are not a function of the report, the monitor will only reveal information in the low-productivity environment. Thus we have the equilibrium when monitoring is costless:

Proposition 3. Let $c_S = 0$, then in the equilibrium with an interest group monitor aligned with the political principal, $S = 0, r(f_L) = f_L, r(f_H \cup ø = ø$, and P is strictly better off than without a monitor.

Proposition 3 shows that the availability of an interest group monitor provides P with better information about the true distribution of θ, and therefore improves her position. The principal is strictly better off simply from the presence of an interest group monitor, even if the monitor reports no information. This result then provides a slightly different interpretation of the same phenomenon that McCubbins and Schwartz (1984) have noted. In particular, as they explain, the presence of an interest group conditions the behavior of agencies so that political principals are better off. The difference, here, is that procedures help with ex ante contracting, thus strictly improving the political principal's position.

The next question is what happens with policy bias and informational rents. Consider first the case in which the signal is $s(\theta) = f_L$. In this case, x_L will be strictly higher than under no information provision by the monitor. So in comparison to the inefficient contract without a monitor, bias will decrease,

8. Although ex ante, it might make sense for the interest group monitor to play a strategy in which it states that it will not reveal any information, this strategy is not subgame perfect (conditional on having received the signal). Here we assume that when $c_S = 0$, M will always acquire the signal. Similarly, it would be sufficient to show that if $\frac{1-p}{2}$ is sufficiently high, it will always make sense for M to obtain the signal (in fact, later, we define a $c_S^*(a, b, p, \alpha, \pi_H, \pi_L))$, which is the level of cost at which a monitor will invest in information. Later we relax the assumption that the monitor cannot avoid acquiring the signal. Notice also here the important role played by our assumption of information "hardness." If this were not the case, the principal would not be able to make these inferences from M's report.

since given the true distribution, effort will be higher. In terms of informational rents, when $r(f_L) = f_L$, the transfers in the high state will be strictly higher, by Lemma 1. So expected informational rents will be higher as well. Thus when θ is drawn from f_L, the bias decreases but the informational rents increase. If $r = ø$, the political principal knows that $s(\theta) \in \{f_H, ø\}$. Thus it updates its beliefs that the probability of a high state is higher than before, which means that in equilibrium, x_L will fall. By a similar argument, however, for a given distribution of states, the expected bias will increase, since in expectation, the policy outcome will be lower. Informational rents in the high state, however, fall, since P now believes that the probability of a high state is higher, resulting in lower transfers by Lemma 1. Thus, although the political principal is strictly better off with an interest group monitor, it is not necessarily the case that bias in policy outcomes will decrease. Because there is a trade-off between informational rents and bias, an increase in one means a fall in the other: in some cases, a principal will trade higher bias for lower rents in enabling an interested group monitor. In fact, which trade-off is taken depends on the distribution that the state is drawn from and the signal received by the monitor. This result qualifies the conditions under which procedures improve "policy compliance."

Consider now how a neutral monitor performs in comparison to an interested one. We relax here the assumption that $c_S = 0$, and assume $c_S > 0$. To analyze this case, we start by considering what the effect will be on the interest group monitor of investing in a signal. Recall that the interest group monitor is interested in maximizing the expected policy outcome. If the monitor is an interest group, as we explained in Proposition 3, it will not report symmetrically for the cases of high- and low-productivity signals. To recapitulate, it will only report a low signal, but not a high one. By investing in a signal, therefore, the monitor benefits when $s(\theta) = f_L$ and $\theta = \theta_L$, since the policy implemented, $x_L(\pi_L)$, will be higher. When $s(\theta) = f_H$ or $s(\theta) = ø$, and $\theta = \theta_L$, the monitor is worse off since the policy implemented, $x_L(\phi_H)$, will be lower. When $\theta = \theta_H$,the monitor is unaffected by investing in a signal since the policy implemented will always be x_H^*. Thus the difference in expected policy outcomes from a monitor investing in a signal, which we call ΔX_L, is given by

$$\begin{aligned}\Delta X_L \;=\; &\frac{1}{2}[1-p][1-\pi_L]\{x_L(\pi_L) - x_L(\alpha)\}\\ &+\{\frac{1}{2}[1-p][1-\pi_H] + p[1-\alpha]\}\{x_L(\phi_H) - x_L(\alpha)\}.\end{aligned} \tag{5.3}$$

Notice that the first expression on the right-hand side is the expected policy gain that M will obtain if it sees f_L and thus encourages a higher policy outcome in the low productivity state. The second expression is similarly the expected policy loss it will suffer if it observes either $s(\theta) = f_H$ or $s(\theta) = ø$ and a low productivity state results. One can distinguish two effects for M, which work in opposite directions. On the one hand, as p becomes smaller, the expected policy gain to the monitor will decrease, since it is unlikely to obtain a signal f_L which will improve its utility. On the other hand, since x_L is strictly decreasing in the probability of the high state, as the probability of the high state increases it becomes increasingly more costly to the monitor in terms of reductions in policy outputs. If p is large, however, then the loss associated with not obtaining f_L also goes down, since P will not update "that much" (i.e., $\phi_H - \alpha$ will be small) and there will not be a large loss to a "bad" signal.

Given Equation (5.3), a monitor will only buy the signal if the expected benefit (cost) of the change in policy and the principal's subsidy are at least as great as the cost of obtaining the signal. For the principal to obtain the information from the monitor, therefore, she will have to pay a subsidy of $S = c_S - b\Delta X_L$ if $c_S > b\Delta X_L$ and $S = 0$ if $c_S \leq b\Delta X_L$. The principal will only do this if the benefits to obtaining better information outweigh this subsidy price. Thus we have

Lemma 3. Suppose $c_S > 0$, then a the monitor will invest in a signal if

$$\frac{1}{2}(1-p)\Delta P((\pi_L, \alpha)|\cdot)+\frac{1}{2}(1+p)\Delta P((\phi_H, \alpha)|\cdot)-c_S+b\Delta X_L \geq 0.^{9} \quad \text{(L.3.1)}$$

Lemma 3 therefore states that a principal will only pay the monitor if the monitor's information outweighs any subsidy she might have to pay in order for the monitor to obtain it. Further, when $\Delta X_L > 0$, as the marginal utility to the monitor of policy outcomes increases (i.e., as b increases), P subsidizes less and less of the cost to the interested monitor of obtaining better information. Similarly, as the cost of obtaining information increases, the principal's incentive to provide such a subsidy decreases.

A neutral monitor (with $b = 0$), on the other hand, has a slightly different calculus. In this case, the monitor has to be fully compensated for r [i.e., $S(c_S, b = 0) = c_S$]. The benefit to the principal, however, is that she learns more information. In particular, since the monitor, having obtained the report,

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9. Throughout the article, we assume that there is no opportunity for ex ante negotiations between the monitor and agency. In certain circumstances it might be useful to assume that such collusion might be possible. Consider the impact of such collusion in different situations. By Lemma 1, reporting f_L allows M to implement a higher x_L and increases A's rents in the high-productivity state. Alternatively, reporting f_H both reduces x_L and reduces A's rents in the high-productivity state. Thus, while P and M are policy aligned, M and A are signal aligned, ex ante. While this might lead one to think that there are no incentives for collusion (and thus transfers from A to M), when $c_S > 0$, such incentives might exist. In particular, the agency might be willing to subsidize part of the costs of participation of the monitor if Equation (L.3.1) does not hold and the expected agency rents increase as a result of participation. Alternatively, in cases when the opposite holds, the agency would have an incentive to provide subsidies for non-participation. This last point, that an agency might want to "buy out" a monitor's active participation is further reinforced if we additionally relax the assumption that b is positive. When $b < 0$, M wants to disclose $s(\theta) = f_H$, but A does not. A's incentive therefore introduces an additional constraint into the principal's problem. The striking result is that P will actually subsidize the participation of interest group monitors who are policy opposed to P. Thus subsidies not only vary according to c_S, but also (negatively) with b. Finally, as shown in Tirole (1986) and Kofman and Lawarree (1993), collusion between A and M implies the need to give rewards, or rents, to the monitor, which in turn induces P to optimally introduce an additional distortion into the contract. In this context, P will implement a lower x_L, reducing the informational rents to A in the high state, thus reducing the rents to be paid to the monitor.

will report $r = s(\theta)$, there is more information in r for P. In particular, the posterior probabilities for the principal of each state based on the report from a neutral monitor are

$$\Pr(\theta = \theta_H | r = f_L) = \pi_L$$

$$\Pr(\theta = \theta_H | r = f_H) = \pi_H$$

$$\Pr(\theta = \theta_H | r = ø) = \alpha.$$

The value of a neutral monitor to the principal is that P can offer a more efficient schedule of ex post rewards when $s(\theta) \in \{f_H, ø\}$. We formally state this logic in Proposition 4.

Proposition 4. Let $\Delta X_L > 0$ and $\frac{1}{2}(1 - p)\Delta P((\pi_L, \alpha|\cdot) + \frac{1}{2}(1 + p)\Delta P((\phi_H, \alpha)|\cdot) - c_S + b\Delta X_L \geq 0$, then in equilibrium, P will prefer an interested monitor over a neutral one iff[10]

$$\frac{1-p}{2}\Delta P((\pi_H, \phi_H)|\cdot) + p\Delta P((\alpha, \phi_H)|\cdot) < \min(b\Delta X_L, c_S). \qquad \text{(P.4.1)}$$

Proposition 4 formalizes the result that, in many cases, the principal is better off with an interested monitor than a neutral one. The intuition behind the result is that the principal makes a trade-off when choosing between an interested and neutral monitor. On the one hand, when she chooses an interested monitor, as we saw in Lemma 3, she offsets part of the cost (which has to be made up in a subsidy) with the benefit the monitor gets from a better expected policy. On the other hand, she loses the opportunity for information, since as we saw in Proposition 3, an interested monitor will strategically withhold information when it observes $s(\theta) = f_H$. Thus, if the monitor is sufficiently interested [i.e., for c_S sufficiently high, the right-hand side of Equation (P.4.1) is obviously increasing in b], or the difference in information is not too great (which is a function of p), the principal will do better by enabling an interested monitor over a neutral one. This result is further strengthened by the fact that in many cases, the costs of obtaining information are lower for an "insider" interest group (such as the NRDC or AFL-CIO) rather than for a monitor which has been organized by the government (e.g., the GAO or CBO) (see, e.g., Wilson, 1989). In that case the tendency to prefer an interested monitor will be even greater.[11]

10. Note that when $\Delta X_L \leq 0$ the choice between a neutral and interested monitor, for the principal, is trivial: choosing a neutral monitor beats an interested one for all parameter values that satisfy the condition.

11. To see this, consider the case in which there are two monitors I and N, for interested and neutral monitor, each with specific costs to obtaining a signal denoted $c_{sN} > c_{sI} > 0$ (and $c_{sI} > b\Delta X_L$)). Then we can rewrite Equation (P.4.1) as

$$b\Delta X_L - \frac{1-p}{2}\Delta P((\pi_H, \phi_H)|\cdot) - p\Delta((\alpha, \phi_H)|\cdot) + c_{sN} - c_{sI} > 0,$$

which is clearly increasing in $c_{sN} - C_{sI}$.

The second, and perhaps more important point is that in both cases, whether there is an interested or neutral monitor, participation by interested and relatively better-informed groups means that political principals can more easily obtain informationally more efficient outcomes.

6. Multiple Interest Groups

In the previous sections we assumed that the game played is between a principal, an agency and a single interest group. As we noted earlier, however, one of the signal properties of the Administrative Procedure Act of 1946, as well as similar specific agency procedures, was that it facilitated the participation of new interest groups in many agency environments. In most cases, the APA and other similar agency-specific procedures which followed did not hinder the participation of existing interests; those interests who had been previously represented continued their participation. What these procedures did was to enable additional groups to participate by increasing public disclosure requirements, shifting the burden of proof and increasing evidentiary standards, hence subsidizing the participation of certain interests. In this section, then, we expand our model to consider the case in which multiple interested groups participate in the rulemaking process.

To model this situation we now assume that there are two interest groups, denoted M_1 and M_2. The preferences of the interest groups over policies and subsidies are

$$U_{M_k} = b_k x + S_k - c_{sk} \qquad b_1 \geq 0, b_2 \leq 0, c_{sk} \geq 0, k \in \{1, 2\}.$$

The assumptions on b_1 and b_2 mean that the interest groups are "opposed." M_1 is equivalent to the interest group monitors considered in the previous sections; it prefers higher policy outcomes to lower ones. M_2, however, is on the other side; it suffers disutility from higher policies, and thus prefers lower outcomes. We further denote the signals each group can receive by $s_1(\theta)$ and $s_2(\theta)$, for M_1 and M_2, respectively. Since procedures reduce the costs of participation, and for simplicity, we begin by assuming that $c_{sk} = 0\ \forall k$. This means that neither group will have to pay to obtain the signal. If both monitors obtain the signal, we assume that their signals are correlated. In particular, each group sees the same signal from $\{f_j, ø\}$ where $j \in \{L, H\}$, or one group sees f_j and the other ø. In other words, either both groups see the true distribution, only one sees the true distribution and the other nothing, or both see nothing. This means that the groups will never observe that the state of the world is drawn from opposite distributions, so the groups learn weakly more about the true state.[12]

Given these assumptions, we can then characterize the information that will be revealed by each of the monitors. Since the cost of incurring the signal

12. Notice that this assumption is an extension of the earlier assumption that we make that the information is "hard."

is zero, both groups will have an incentive to obtain it. To see this, suppose the conditions in Lemma 3 are satisfied, so that M_1 will obtain the signal irrespective of M_2's choice (i.e., M_1 has a *dominant strategy* to obtain the signal by Proposition 3) and will report $s_1(\theta) = f_L$ since doing so will increase x_L. Conditional on M_1's strategy, M_2 will be strictly better off by acquiring the signal as well, since it will be able to at least report a high-productivity environment when it receives $s_2(\theta) = f_H$. So if Lemma 3 is satisfied, both interested monitors will acquire the signal. If Lemma 3 is not satisfied, alternatively, the logic works in the opposite direction, and again both will obtain $s_k(\theta)$. This logic is summarized in Lemma 4.

Lemma 4. Suppose $c_{sk} = 0\ \forall k$. Then both monitors will obtain a signal, M_1 will reveal its information if $s_1(\theta) = f_L$, and M_2 will reveal its information when $s_2(\theta) = f_H$.

The rationale for Lemma 4 is straightforward. Given the previous discussion, both interest groups will obtain the signal when it is costless to do so. Given that both will obtain the signal, the incentives to reveal information operate in a similar fashion as before. When the state of nature is a low-productivity environment and the principal learns that information, x_L will be higher. M_1 will be strictly better off, and M_2 will be strictly worse off. In this situation, M_1 will always want to reveal its signal if it sees f_L. M_1 therefore does not need to condition on M_2 when it sees f_L. A similar logic works when M_2 observes f_H. If the principal knows the true state is f_H, x_L will be lower, increasing the expected utility obtained by M_2.

Using this result, we can then consider the optimal transfers, policy outcomes, and informational rents that will obtain when there are two interest groups.

Proposition 5. Suppose there are two interest groups, and $c_{sk} = 0\ \forall k$. Then P will offer no subsidies and will be strictly better off in expectation than with a single interest group monitor.

The intuition behind Proposition 5 follows from the previous analysis of neutral monitors. First, since both players have an incentive to acquire the signal, the principal needs offer no subsidies to obtain reports from both monitors. Further, as Lemma 4 states, each group will have an incentive to reveal its information when that information benefits it. This means the principal now gets information that will allow her to update her beliefs about the state of the world when $s_2(\theta) = f_H$. This allows the principal to more efficiently contract based on the reports she obtains from the two monitors than when there is only a single interest group. Then, by Lemma 2, the principal has a strictly higher utility than under a single monitor (see Austen-Smith and Wright [1992] for a similar treatment of lobbying legislators).

This result has important implications for our understanding of many administrative procedures. In the literature, the traditional view is that political principals will prefer situations in which interest group representation is "stacked" in favor of the groups that are aligned with the political principal. This would imply, for example, that legislators who are beholden to environmental interests would prefer a regulatory environment for the EPA in which environmentalists are privileged in rule making. Proposition 5, however, contradicts this claim. In particular, since political principals must also be concerned about the informational rents they must provide to agencies to obtain policies, all political principals, irrespective of their policy preferences will prefer to have all interest groups represented, not just the ones on the same side of the policy debate. Thus rather than "stacking the deck" in favor of particular interest groups, principals will prefer procedures which actually balance interest group representation.[13] Indeed, this is the case with the APA, for example. The reason is that in most cases, the APA does not affect the ability of naturally advantaged groups to participate: those groups, such as business interests in the environmental or consumer context are still able to participate and influence rulemaking outcomes. Instead, through in-kind subsidies, public hearings, and standards for evidence, the APA and similar agency-specific procedures served to lower the participation costs for those groups that are naturally underrepresented in agency environments, and therefore allowed for multiple groups to be represented.

7. Conclusion

The passage of the APA in 1946 codified a varied set of administrative laws and judicial rulings about the rulemaking environment of federal agencies. As scholars have noted, the net result of the APA, and other procedures which followed it, was to modify interest group representation for most federal agencies. The incentives to do so were manifold: among them, locking in particular policies (McCubbins, Noll, and Weingast, 1987; Moe, 1989, 1991), providing signals to courts for statutory interpretation (Schwartz, Spiller, and Urbiztondo, 1994), and biasing policy outcomes in favor of political principals (McCubbins, Noll, and Weingast, 1987; McCubbins and Schwartz, 1984; Bawn, 1995). In this article, we develop a model which helps clarify the last of these.

Our model's most important contribution is to highlight the trade-off political principals must make between policy benefits and ex post inducements. Agencies' natural informational advantages, first highlighted in the positive political theory tradition by Niskanen (1971), creates a dependence between policy outcomes and transfers to agencies. This dependence means that political principals have an incentive to improve the information they have before offering ex post inducements. The APA, in enabling greater participation by politically interested groups, has worked to help politicians obtain better out-

13. Of course, as McCubbins, Noll, and Weingast (1987, 1989) and Moe (1989, 1991) point out, much of the incentive for single-group bias is a dynamic one: namely, in order to "lock in" benefits against future principals who might have different interests from the current ones. In this case, it is straightforward to see that a principal who values the future sufficiently and thinks there is a high probability that she will not survive future periods would revert to single interest group representation (as these authors suggest) since she pays no informational rents in the future. On the other hand, principals who believe they are in a strong position to retain public authority would be more likely to enable multiple groups. This dependence on the beliefs about electoral chances, and their impact on administrative procedures, is explored in de Figueiredo (1997).

comes. Because of informational disadvantages, the outcomes principals obtain are better in one sense only: under administrative procedures, politicians obtain better overall outcomes. This does not necessarily mean that actual policies will always be biased in their favor. Instead, political principals will optimally trade off the benefits of better policies with lower informational rents (see Gilligan and Krehbiel [1987] and Austen-Smith [1993] for similar reasoning in alternative contexts).

This setup then helps clarify what type of interest group environment political principals will most desire. First, groups that are aligned with the political principal will be superior to neutral monitors of the environment only in certain cases: if the costs of obtaining a signal are high, the interest group is "sufficiently" interested and the probability of the monitor obtaining "good information" is sufficiently high. Second, and perhaps most importantly, political principals will always prefer multiple interest groups to be represented in an agency's rulemaking process, irrespective of the principal's political orientation (see Calvert, 1985). The rationale for this second point is that principals' primary use of interest groups is that these groups provide information. As long as a group has an incentive to provide some information, the principal will gain by their participation. In this sense, while the political principal is biased in what policies she prefers, she is neutral with respect to information: more is better and less is worse, irrespective of the message. Thus with such "message-neutral" principals, administrative procedures which "unstack the deck" will always be superior to those that do not.

Indeed, the superiority of multiple interest groups over biased single ones might help explain a more dynamic puzzle: if the APA biases outcomes in favor of those who pass legislation, why would they not be repealed by future, opposed groups? The answer might lie in the fact that rather than privileging certain outcomes over others in a contest between opposed politicians, the APA in fact serves another purpose: to improve the informational position of all political principals vis-à-vis government agencies.

Appendix

Proof of Proposition 1.[14] Since θ_i is observable, P can contract directly on that information and offer transfers contingent on the state. Notice further that $S = 0$ is a dominant strategy since there is no information in any possible report. P's problem then is

$$\max_{T_H, T_L, x_H, x_L \geq 0} \alpha[ax_H - T(x_H, ø)] + (1-\alpha)[ax_L - T(x_L, ø)]$$

s.t. (i) $T(x_H) - \theta_H x_H^2 \geq 0$

(ii) $T(x_L) - \theta_L x_L^2 \geq 0.$

14. This proof follows that in Mas-Colell, Whinston, and Green (1995:490–491).

Since there is full observability, constraints (i) and (ii) both bind under θ_H and θ_L, respectively. This implies the second part of the proposition. The first part of the proposition is obtained by substituting these solutions for $T(x_i^*)$ into the maximand and differentiating with respect to x_i. ■

Proof of Proposition 2. Consider first P's problem. It is

$$\max_{T_H, T_L, x_H, x_L \geq 0} \alpha[ax_H - T(x_H, \o)] + (1-\alpha)[ax_L - T(x_L, \o)] \tag{P2.1}$$

$$\textit{s.t. (i) } T(x_H) - \theta_H x_H^2 \geq 0 \tag{IRC1}$$

$$\textit{(ii) } T(x_L) - \theta_L x_L^2 \geq 0 \tag{IRC2}$$

$$\textit{(iii) } T(x_H) - \theta_H x_H^2 \geq T(x_L) - \theta_H x_L^2 \tag{TT1}$$

$$\textit{(iv) } T(x_L) - \theta_L x_L^2 \geq T(x_H) - \theta_L x_H^2, \tag{TT2}$$

where *IC1* and *IC2* are the individual rationality (or participation) constraints, and *TT1* and *TT2* are the truth-telling constraints (or incentive compatibility constraints) in states θ_H and θ_L, respectively. The proof of the rest of the proposition follows directly from Mas-Colell, Whinston, and Green (1995) Lemmas 14.C.1–4 and Proposition 14.C.3. ■

Proof of Lemma 1. Let $\gamma = \text{Prob}(\theta = \theta_H)$ (which is α if $c_s \gg 0$) at the time the principal offers the contract. (i) From the principal's problem [Equation (P2.1)], when $\theta = \theta_L$, the optimal level of x is given to satisfy the first-order condition:

$$a - 2\theta_L x_L + \frac{\gamma}{1-\gamma}(2\theta_H x_L - 2\theta_L x_L) = 0.$$

Solving for x_L yields

$$\hat{x}_L = \frac{(1-\gamma)a}{2(\theta_L - \gamma\theta_H)} \Rightarrow \frac{\partial \hat{x}_L}{\partial \gamma} = \frac{a(\theta_H - \theta_L)}{2(\theta_L - \gamma\theta_H)^2}. \tag{L.1.1}$$

Since $a > 0$, $\theta_H < \theta_L$, and $\gamma \in (0, 1)$, $\frac{\partial \hat{x}_L}{\partial \gamma} < 0$. (ii) From Equation (IRC1), we have

$$\begin{aligned} \hat{T}_L &= \theta_L x_L^2 = \frac{\theta_L a^2}{4}\left(\frac{1-\gamma}{\theta_L - \gamma\theta_H}\right)^2 \Rightarrow \frac{\partial \hat{T}_L}{\partial \gamma} \\ &= -\frac{a^2\theta_L}{4(\theta_L - \gamma\theta_H)^3}((1-\gamma)(\theta_L - \theta_H)). \end{aligned} \tag{L.1.2}$$

Again, by the same assumptions, we have $\frac{\partial \hat{T}_L}{\partial \gamma} < 0$. From Equation (TT1), we have

$$\hat{T}_H = \frac{a^2}{4}\left(\left(\frac{1-\gamma}{\theta_L - \gamma\theta_H}\right)(\theta_L - \theta_H) + \frac{1}{\theta_H}\right) \Rightarrow \frac{\partial \hat{T}_H}{\partial \gamma} = \frac{-a^2(\theta_L - \theta_H)}{4(\theta_L - \gamma\theta_H)}.$$

Again, by the same assumptions, we have $\frac{\partial \hat{T}_H}{\partial \gamma} < 0$. (iii) Also from Equation (P2.1) we have

$$\hat{x}_H = x_H^* = \frac{a}{2\theta_H}. \tag{L.1.3}$$

We calculate informational rents in the high state as

$$\hat{I}_H = \hat{T}_H - \theta_H \hat{x}_H^2. \tag{L.1.4}$$

That this is decreasing in γ follows directly from the fact that $\hat{T}_H$ is decreasing in γ and $\hat{x}_H = x_H^*$. (iv) Next, we have

$$\begin{aligned} E(\hat{x}) \ &= \ (1-\gamma)\hat{x}_L + \gamma x_H = \frac{a}{2}\left\{\frac{(1-\gamma)^2}{\theta_L - \gamma\theta_H} + \frac{\gamma}{\theta_H}\right\} \Rightarrow \frac{\partial E(\hat{x})}{\partial \gamma} \\ &= \ \frac{a}{2}\left\{\frac{(\theta_L - \theta_H)^2}{(\theta_L - \gamma\theta_H)^2} + \frac{1}{\theta_H}\right\}. \end{aligned} \tag{L.1.5}$$

Since $a > 0$, $\frac{\partial E(\hat{x})}{\partial \gamma} > 0$. ■

Proof of Lemma 2. (i) The result follows from Proposition 2, which shows that $EU_p(.)$ is strictly concave in λ, x_L, T_L, and T_H, and is maximized at $x_L(\lambda)$, $T_L(\lambda)$, and $T_H(\lambda)$. (ii) The result follows from the fact that $x_L(\lambda)$, $T_L(\lambda)$, and $T_H(\lambda)$ are monotonic in λ by Lemma 1. ■

Proof of Proposition 3. Note first that when M is reached at nodes in which $s(\theta) = f_L$, it will have an incentive to reveal its information since doing so will increase x_L by Lemma 1, at no cost to M. When $s(\theta) = f_H$, M will not reveal its information as it decreases x_L , so when $s(\theta) \in \{f_h, ø\} \Rightarrow r = ø$. By Equations (5.1) and (5.2) and Lemma 2, we have P is strictly better off. ■

Proof of Lemma 3. P's change in expected payoffs between a monitor when it invests in a signal and when it does not is given by the first two expressions. For there to be an incentive to subsidize, therefore, this must be greater than the cost of the subsidy, which is at most $c_S - b\Delta X_L$. ■

Proof of Proposition 4. Note first that the first condition means that the subsidy to the interested monitor will be less than that to the neutral monitor. The second condition guarantees that a principal will benefit from both interested and neutral monitors by Lemma 3. The incremental contracting benefit from a neutral monitor to the principal of $\Delta P((\pi_H, \phi_H)|\cdot)$ occurs when $s(\theta) = f_H$, which will occur with probability $\frac{1}{2}(1-p)$, or $s(\theta) = ø$ which will occur with probability p, since both interested and neutral monitors will report $r = f_L$ when $s(\theta) = f_L$. Then the left-hand side is simply the expected incremental contracting benefit to the principal of utilizing a monitor. When $c_S > b\Delta X_L$, then $b\Delta X_L$ is the net reduction in required subsidies for an interested monitor versus a neutral one. A similar logic follows for $c_S \leq b\Delta X_L$. The proposition follows by noting, for a principal to prefer an interested monitor, the minimum subsidy reduction must exceed the expected contracting benefit of better information with a neutral monitor. ■

Proof of Lemma 4. Consider first the strategies of M_k, conditional on having received $s_k(\theta)$ where $k \in \{1, 2\}$. Then, it is straightforward to see that M_k will be weakly better off playing $r_1(s_1(\theta) = f_L, r_2(s_2(\theta))) = f_L$ and $r_1(s_1(\theta) \in \{f_H, ø\}, r_2(s_2(\theta))) = ø$. The argument holds in the same manner substituting M_2 for M_1, f_H for f_L, r_2 for r_1, and s_2 for s_1. This means that conditional on having received a signal, each player has a dominant strategy. Now consider whether players will want to invest in that strategy. Suppose that Equation (L.3.1) is satisfied. Then, by Proposition 3 and the above reasoning, M_1 will acquire the signal. M_2, conditional on M_1's strategy will then have an incentive to acquire $s_2(\theta)$, since it will do strictly better when $s_2(\theta) = f_H$ and is no worse off under any other combination of $(s_1(\theta), s_2(\theta) \in \{f_L, ø\})$. The rest of the proposition follows from logic analogous to Proposition 3. ■

Proof of Proposition 5. The first part of the proposition follows directly from Lemma 4 and Lemma 3. For the second part of the proposition, Lemma 4 establishes that under $s_2(\theta) = f_H$, P's contract will be strictly more efficient, and under all other cases the contract will be the same, so in expectation, P is strictly better off. ■

References

Aberbach, Joel D. 1990. *Keeping a Watchful Eye*. Washington, D.C.: Brookings Institution.

Austen-Smith, David. 1993. "Information and Influence: Lobbying for Agendas and Votes," 37 *American Journal of Political Science* 799–833.

———, and John R. Wright. 1992. "Competitive Lobbying for a Legislator's Vote," 9 *Social Choice and Welfare* 229–257.

Banks, Jeffrey S. 1989. "Agency Budgets, Cost Information and Auditing," 33 *American Journal of Political Science* 670–699.

———, and Barry R. Weingast. 1992. "The Political Control of Bureaucracies under Asymmetric Information," 36 *American Journal of Political Science* 509–524.

Baron, David P., and David Besanko. 1987. "Monitoring, Moral Hazard, Asymmetric Information, and Risk Sharing in Procurement Contracting," 18 *Rand Journal of Economics* 509–532.

Baron, David P., and Roger Myerson. 1982. "Regulating a Monopolist with Unknown Costs," 50 *Econometrica* 911–930.

Bawn, Kathleen. 1995. "Political Control versus Expertise: Congressional Choices about Administrative Procedures," 89 *American Political Science Review* 61–73.

Bendor, Jonathan, Serge Taylor, and Roland van Gaalen. 1985. "Bureaucratic Expertise vs. Legislative Authority: A Model of Deception and Monitoring in Budgeting," 79 *American Political Science Review* 1041–1060.

———. 1987. "Politicians, Bureaucrats and Asymmetric Information," 31 *American Journal of Political Science* 796–828.

Calvert, Randall L. 1985. "The Value of Biased Information: A Rational Choice Model of Political Advice," 47 *Journal of Politics* 530–555.

de Figueiredo, Rui J. P., Jr. 1997. "Electoral Competition, Political Uncertainty and Policy Insulation," unpublished manuscript, University of California, Berkeley.

Demski, Joel S., and David E. M. Sappington. 1984. "Optimal Incentive Contracts with Multiple Agents," 33 *Journal of Economic Theory* 152–171.

———, and Pablo T. Spiller. 1988. "Incentive Schemes with Multiple Agents and Bankruptcy Constraints," 44 *Journal of Economic Theory* 156–167.

Epstein, David, and Sharyn O'Halloran. 1998. *Delegating Powers: A Transaction Cost Politics Approach to Policy Making Under Separate Powers*. Cambridge: Harvard University Press.

______. 1995. "A Theory of Strategic Oversight: Congress, Lobbyists and the Bureaucracy," 11 *Journal of Law, Economics, & Organization* 227–255.

Gilligan, Thomas W., and Keith Krehbiel. 1987. "Collective Decision Making and Standing Committees: An Informational Rationale for Restrictive Amendment Procedures," 3 *Journal of Law, Economics, & Organization* 145–193.

Kofman, Fred, and Jacques Lawarree. 1993. "Collusion in Hierarchical Agency," 61 *Econometrica* 629–656.

Kreps, David M. 1990. *A Course in Microeconomic Theory*. Princeton: Princeton University Press.

Lupia, Arthur, and Mathew D. McCubbins. 1994. "Designing Bureaucratic Regulation," 57 *Law and Contemporary Problems* 91–126.

Mas-Colell, Andreu, Michael D. Whinston, and Jerry R. Green. 1995. *Microeconomic Theory*. Cambridge: Oxford University Press.

Maskin, Eric and John G. Riley. 1984. "Monopoly with Incomplete Information," 15 *Rand Journal of Economics* 171–196.

McCubbins, Mathew D., Roger G. Noll, and Barry R. Weingast. 1987. "Administrative Procedures as Instruments of Political Control," 3 *Journal of Law, Economics, & Organization* 243–275.

______. 1989. "Structure and Process; Politics and Policy: Administrative Arrangements and the Political Control of Agencies," 75 *Virginia Law Review* 431–482.

McCubbins, Mathew D., and Thomas Schwartz. 1984. "Congressional Oversight Overlooked: Police Patrols versus Fire Alarms," 2 *American Journal of Political Science* 165–179.

Miller, Gary, and Terry M. Moe. 1983. "Bureaucrats, Legislators and the Size of Government," 77 *American Political Science Review* 297–322.

Moe, Terry M. 1989. "The Politics of Bureaucratic Structure," in John E. Chubb and Paul E. Peterson, eds., *Can the Government Govern?* Washington, D.C.: Brookings Institution.

______. 1991. "Politics and the Theory of Organization," 7 *Journal of Law, Economics & Organization* 106–129.

Myerson, Roger. 1982. "Optimal Coordination Mechanisms in Generalized Principal-Agent Problems," 10 *Journal of Mathematical Economics* 67–81.

Niskanen, William. 1971. *Bureaucracy and Representative Government*. New York: Basic Books.

Rogerson, William P. 1985. "The First-Order Approach to Principal-Agent Problems," 53 *Econometrica* 1357–1368.

Schwartz, Edward P., Pablo T. Spiller, Santiago Urbiztondo. 1994. "A Positive Theory of Legislative Intent," 57 *Law and Contemporary Problems* 51–74.

Spiller, Pablo T., and Santiago Urbiztondo. 1991. "Interest Groups and the Control of the Bureaucracy: An Agency Perspective on the Administrative Procedure Act," unpublished manuscript, University of Illinois.

Tirole, Jean. 1986. "Hierarchies and Bureaucracies: On the Role of Collusion in Organizations," 2 *Journal of Law, Economics, & Organization* 181–214.

United States Congress. 1946. *Public Laws, 79th Congress, 2nd Session*. Chapter 324 ("Administrative Procedure Act"). Washington, D.C.: U.S. Government Printing Office, 237–244.

United States Congress. 1972. *Public Law, 92-573* ("Consumer Product Safety Act"). Washington, D.C.: U.S. Government Printing Office, 1207–1233.

Weingast, Barry R. 1981. "Regulation, Reregulation and Deregulation: The Political Foundations of Agency Clientele Relationships," 44 *Law and Contemporary Problems* 147–177.

______. 1984. "The Congressional-Bureaucratic System: A Principal Agent Perspective (With Applications to the SEC)," 44 *Public Choice* 147–191.

______, and Mark J. Moran. 1983. "Bureaucratic Discretion or Congressional Control? Regulatory Policymaking by the Federal Trade Commission," 91 *Journal of Political Economy* 765–800.

Wilson, James Q. 1989. *Bureaucracy: What Government Agencies Do and Why They Do It*. New York: Basic Books.