Uncertain Policy Implementation with Public Information

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Abstract

Politicians' policy proposals are often vetted by the media, academics, and non-partisan organizations. This paper explores the effects of this policy vetting, which I model as a public signal about the policy's expected outcome, on a politician's incentive to implement her policy proposal In my model, the voter and the politician are uncertain both about the politician's competence and the suitability of her proposed policy. Because more competent politicians are more likely to propose good policies, the voter can use the signal to update her beliefs about the politician. This updating creates a perverse reputational incentive for the politician to implement her policy proposal if and only if its expected outcome is sufficiently low. When the results of vetting are shown only to the politician, she implements her policy only when its expected outcome is sufficiently high, because her policy information does not directly affect the voter's beliefs about her. Consequently, voters may be better off with less transparency of information.

JEL Classifications: D72, D83

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1 Introduction

Politicians' policy proposals are often vetted by the media, academics, and non-partisan organizations. This vetting provides information to policymakers about the likely results of their policies before they are implemented, to encourage the passage of good policies and discourage the passage of bad ones. Because this information is public, vetting may also help voters to learn more about the competence of their representatives, so that they may make better electoral decisions. However, despite its prevalence, little is known about vetting's effects on policy implementation or voters' welfare .

This paper explores the effects of this policy vetting, modeled as a public signal about the policy's expected outcome, on a politician's incentive to implement her policy proposal. The existing literature focuses on the case in which politicians receive private information about their proposal's expected outcome, and finds that they often ignore valuable information to take actions that signal competence. In a model of pandering, for example, the politician disregards her superior private information to take actions that are favored by the voter's prior. However, politicians do not necessarily have significant amounts of private information on many domestic policy issues. For example, projections about a tax reform's expected impact come from publicly accessible sources such as the Congressional Budget Office, which voters can observe through media coverage. Because the signaling that drives inefficient behavior in the private information case is not possible when information is public, politicians might behave efficiently when their policies are vetted.

In my model, the voter and the politician are uncertain both about the politician's competence and the suitability of her proposed policy. Before the politician decides to implement her policy, there is a public signal, indicating the policy's expected outcome. Because competent politicians are more likely to generate good policy proposals, the voter can use the signal to update his beliefs that the politician is competent, according to Bayes' rule. The lack of private information implies that further learning about the policy's suitability, and consequently about the politician's competence, can only occur if the politician implements her policy proposal, so that voters may observe its outcome. At the end of the first period, the voter observes the challenger's reputation and elects whoever is more likely to be competent. The politician's goal is to be re-elected. I characterize the equilibrium behavior in this environment and then compare this with the behavior that maximizes the voter's utility.

I then consider the case in which the politician privately observes policy information, but the voter knows only the distribution of possible signals. While the voter can still observe the outcomes of implemented policies, if the status quo is maintained, he must vote on the basis of the politician's expected signal. In this environment, the choice of inaction is informative because the politician has private information. I then compare the voter's welfare in the private and public cases.

My first main result is that public vetting either has no effect or encourages the politician to act *contrary* to the voter's welfare, because the politician prefers to implement her proposed policy only if its expected outcome is sufficiently poor. This counter-intuitive result is due to the reputational impacts of public information. Because more competent politicians are more likely to propose good policies, the voter can use the policy signal to update her beliefs about the politician before the policy is implemented. If vetting reveals positive information about her proposal, she appears more competent. Because there is still a chance that her proposed policy will fail, she does not want to take a risk by implementing her policy. Conversely, if vetting reveals negative information about her proposal, she appears less competent, and she is willing to gamble on a good policy outcome in order to restore her reputation. Essentially, public vetting allows the politician to reap electoral rewards for having a good proposal, rather than implementing it and generating a good result. Similarly, it causes her to be punished for having a bad proposal, rather than implementing it and generating a bad result.

My second main result is that when the results of vetting are shown only to the politician, it either has no effect or encourages the politician to act in the voter's interest, because the politician implements her policy proposal only if its expected outcome is sufficiently high. In this case, the politician's reputation is not directly affected by the information about her policy, because voters do not observe it. In the absence of a policy outcome, the voter only has an expected signal with which to evaluate the politician. This expected signal is the same regardless of the particular signal received by the politician. Therefore, when the politician has a sufficiently low private signal, this expected signal may be more appealing than taking a gamble by implementing her proposed policy. When the politician has a high signal relative to this expectation, she may feel she can do better by taking a risk and implementing her proposed policy. Essentially, when policy information is private, the politician is not immediately rewarded for having a good proposal. She must implement her proposed policy and generate a good result to capture any electoral gain from her proposal. A politician with a bad proposal will suffer some electoral harm by choosing the status quo, but this may be less than if she were to gamble by implementing a policy that is almost certain to fail. Consequently, the voter may be better off not observing policy information.

By abstracting away from many other factors relevant to policy-making in real life, the situation I consider in the public information case is seemingly ideal from the perspective of the voter. There is no private information whatsoever. The voter is perfectly rational, well-informed, and Bayesian. The only way the politician can appear more competent to the voter is by generating a good policy outcome, and her only goal is to be re-elected. There are no special interest groups or lobbies. The fact that the politician behaves inefficiently even in this case suggests there is a fundamental inability of electoral incentives alone to encourage efficient policy-making.

However, in reality, politicians have many other motivations beyond seeking office. They may care about the welfare of their voters, their legacy, the desires of special interests, or the costs of implementing a new policy. The main results should be interpreted as the effect of electoral motivations on a politician's decision, which may be decisive for a politician who is otherwise on the margin about implementing her policy. For example, a politician who cares deeply about her constituents may be inclined to pass a policy that is likely to help her constituents even if there is reputational risk involved. A politician who cares less may be pushed by that electoral incentive to delay passing the policy until after the election, or to not pass the policy at all. Private information eliminates this perverse incentive.

The transparency literature has established in many contexts that politicians often ignore valuable private information. Canes-Wrone, Herron, and Shotts (2001) show that a politician with an imperfect private signal may sometimes *pander* by choosing to do what is ex-ante optimal from the voter's perspective, despite having private information to the contrary, in order to appear competent. Even if only outcomes are observable, politicians may maximize the voter's utility in the most likely state, rather than maximizing the voter's expected utility (Fox and Van Weelden 2015). Politicians may also *posture* by choosing bold actions that are very unlikely to be appropriate (Fox and Stephenson 2011). My paper adds to this literature by determining if the politician uses her information more responsibly when it is public rather than private, and explores a novel way in which private information may enhance welfare.

Further, the existing literature has focused on transparency of actions and outcomes. Comparing the public information case to the private case in my model illustrates the effects of transparency of information . Laws such as the Freedom of Information Act are fundamentally about enabling the public to see the government's private information. Further, legislative attempts have been put forth in recent years to make currently confidential Congressional Research Service reports public. While it is often taken as given that more transparency of information is beneficial, the results of this model suggest it is not certain to make voters better off.

In the closest work in the transparency literature, Majumdar and Mukand (2004) consider how policymakers handle a reform task when there is private information about the probability that the reform will succeed. They find that a desire to signal competence implies "reckless experimentation" and an unwillingness to back down on policies that are publicly failing because it would suggest that the politician had received negative private information. I show that even without private information, politicians are irresponsible in their policies.

In the related Bayesian persuasion literature, the politician may conduct a policy experiment in order to manipulate learning about the state of the world, which then makes her platform more or less desirable. The politician does not have private information about her policy proposal; instead, all policy information is generated by her experiment. When the politician can choose the degree of experimentation by controlling the extremism of the implemented policy, a negative valence shock can encourage more extensive policy changes (Izzo 2018). Similarly, when the politician can design an optimal experiment, the informativeness of this experiment is decreasing in the politician's valence (Alonso and Câmara 2016). However, both models rely on the independence of valence from experiment outcomes. It is difficult to model uncertainty about competence in this context, because the outcome of interest is a belief about the politician, which is necessarily a function of the prior beliefs about the politician. Further, I consider the case in which the politician has only a single experiment which she can implement or not, rather than the ability to create optimal experiments.

The closest model in this literature is Dewan and Hortala-Vallve (2017). The authors consider a politician who does not have private information about her competence and assume the voter can set the reelection probability associated with the status quo. The politician can choose to launch a reform, which serves as an experiment that reveals information about her competence. Despite the lack of private information, the politician implements policies in a way that may be either too risky or too cautious. An informative campaign about the politician, which reveals information about the politician's competence during the election, makes matters worse for the voter. This paper differs by considering reelection probabilities that are endogenously determined by the reputation of the politician and the distribution of challengers, and by assuming that information about the politician's competence arrives before her implementation decision, instead of during the election. Further, I analyze how private information, rather than informative campaigns, may affect welfare.

My paper also relates to the broader literature on reputation-concerned decision-makers, as initiated by Holmström (1999). I consider a novel utility function for reputation, the CDF of others' reputations, which models situations in which decision-makers' future employment prospects depend on their reputations relative to other applicants. I show this utility function implies the decision-maker acts nearly opposite to the desires of the principal, the voter. While there has been some exploration of policy implementation under reputational concerns, such as Fu and Li (2014), these models consider private information. I show that reputational concerns can still cause inefficient policy-making even in the absence of private information.

In Section 2, I detail the assumptions of the public information model. In Section 3, I characterize the public information equilibrium and show that it is inefficient. In Section 4, I consider the private information model and perform a welfare comparison. In Section 5, I summarize the main results and discuss possible extensions. All proofs are contained in Appendix A, while all extensions and generalizations are contained in Appendix B.

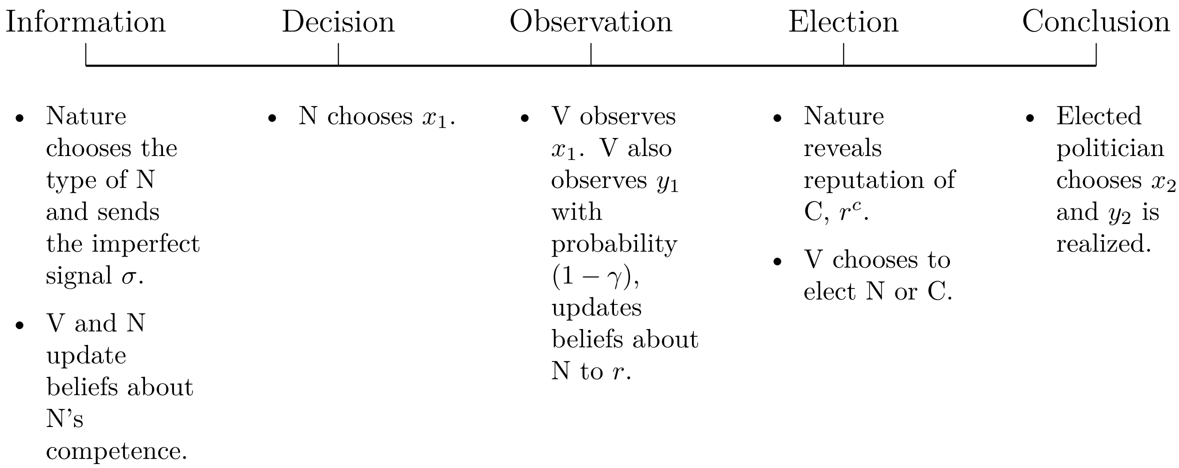

Figure 1: The sequence of events for the public information model.

2 The Public Information Model

The players are a politician (N), a challenger (C), and a representative voter (V). Politicians are referred to by feminine pronouns and the representative voter by masculine pronouns. There are two periods, $t \in \{1, 2\}$. The sequence of events is shown in Figure 1. Each period, the politician, who is either competent or incompetent, may either implement her policy proposal ($x_t = \theta_t$), or maintain the status quo ($x_t = s_t$). For brevity, I may refer to $x_t = \theta_t$ as *implementation* and $x_t = s_t$ as *inaction*. At the beginning of period one, before the politician's implementation decision, the politician and the voter receive an imperfect public signal about the suitability of the politician's proposed policy. At the end of the first period, the representative voter observes the choice of the politician x_1. With a probability of $1-\gamma$, the voter is able to observe the outcome of the politician's policy if it has been implemented, y_1. He then decides whether to retain the incumbent politician or to elect the challenger. The solution concept for this and all other models considered in the paper is Perfect Bayesian Nash Equilibrium.

2.1 Competence and Outcomes

The politician may be either *competent* ($\tau = H$), or *incompetent* ($\tau = L$). Competence in this model is the ability of the politician to choose and implement policies that generate good outcomes for the representative voter. The politician's proposed policy for the issue at time t, θ_t, is a policy which she has publicly committed to in some way, either in her campaign, or in a public announcement, prior to the start of the game.

The outcome of the policy proposal θ_t if it is implemented is y_t. A *good outcome* is $y_t = 1$, while a *bad outcome* is $y_t = -1$. As is common in models of policy choice, there is a probability $\gamma \in (0, 1)$ that the that the voter observes $y_t = 0$ when a policy is implemented rather than a good or bad outcome.

Both the voter and the politician are uncertain about the outcome of the policy if it is implemented, and politician's competence. The two are closely intertwined. A good policy outcome requires both the choice of the right policy in principle, and the right details to fit the policy to the situation. Competence is the politician's ability to choose the right policies and details. Uncertainty about one implies uncertainty about the other, and it is natural to assume that policy outcomes are uncertain a priori. Statistical evidence at best informs us about the average effect of a policy in one particular context. The specific details required to implement a policy successfully are highly context-dependent, and there is little hard evidence to guide policymakers. A competent politician knows how to identify good policies and has the additional local knowledge of the details necessary to implement them smoothly; whether or not someone has this skill can only be revealed by experience.

Because competent politicians are more likely to generate good policy outcomes than incompetent politicians, $P(y_t = 1|\tau = H) > P(y_t = 1|\tau = L)$. To simplify the exposition in the main text, I consider the special case in which policy succeeds if and only if the politician is competent. *In the main text, I assume that* $P(y_t = 1|\tau = H) = 1$ *and* $P(y_t = 1|\tau = L) = 0$*, so that* $P(y_t = 1) = P(\tau = H)$. This assumption is for ease of exposition, as it greatly simplifies the proof of the main result. In Appendix B.2, I consider the more general case.

While it is may be the case in reality that the politician has some private information about her competence, it is of theoretical interest to know whether the politician behaves efficiently in an idealized situation of no private information whatsoever. The fact that the voter's and the politician's interests are not aligned this model suggests that there are fundamental incentive issues in electoral politics that undermine efficient decision-making. Further, in comparing this case to one of private information, one can isolate the effect of private information from other electoral factors. However, I relax this assumption in Appendix B.4, and the results are qualitatively similar.

2.2 Policy Vetting and Reputation

The voter and the politician know the prior probability that her proposed policy may work, π_y, and the prior probability that the politician is competent, π_τ. Then, both receive an imperfect public signal $\sigma \in (0,1)$ about her proposed policy's effectiveness. This signal is conditionally independent of the politician's competence, in the sense that $P(\sigma|y_t = 1) = P(\sigma|y_t = 1, \tau)$. This assumption can be interpreted as saying that the signal only contains information about the merits of the proposed policy. However, because good policies are more likely to come from a competent politician than an incompetent politician, whenever a signal increases the belief that the proposed policy will be effective, it must also increase the belief that the politician proposing it is competent. Note that this does not require the stronger assumption that policy proposal succeeds if and only if the politician is competent.

Lemma 1. *Assume $P(y_t = 1|\tau = H) > P(y_t = 1|\tau = L)$. If $P(y_t = 1|\sigma) > \pi_y$, then $P(\tau = H|\sigma) > \pi_\tau$. Conversely, If $P(y_t = 1|\sigma) < \pi_y$, then $P(\tau = H|\sigma) < \pi_\tau$.*

Lemma 1 implies that good news about a politician's policy is good news about the politician as well. As it becomes more and more likely for the politician's policy to work, it simultaneously becomes more likely that the politician is competent.

As is standard in the literature, I refer to the probability that the politician is competent given the available information as her *reputation*. In the main text, because the proposed policy succeeds if and only if the politician is competent, and the voter observes the probability that the proposed policy succeeds if implemented, the value of reputation after the signal is received,$P(\tau = H|\sigma)$, is simply $P(y_1(\theta_1) = 1|\sigma)$. For notational ease, signals are referred to by the reputation they imply. That is, $P(\tau = H|\sigma) \equiv \sigma$.[1] A completely uninformative signal is allowed, in which case $\sigma = \pi$.

In the exposition, I take the signal to be a research report about the proposed policy, from an

1. Assumptions on the distribution of σ are not required in the public information model, and so they are introduced when they are needed in Section 4.

organization such as the Congressional Budget Office. However, any other way in which a symmetric belief about the politician's competence may be formed before policy is chosen is compatible with my analysis.

Based on his observation of the politician's action and its outcome, the voter updates the politician's reputation at the end of period one to r. The challenger's reputation is unknown when policy is chosen. At the end of period one, before the election, a challenger with reputation r^c is drawn from the continuously differentiable CDF F, with support $(0, 1)$. I assume F is *strictly unimodal*. That is, there exists a unique mode $m \in (0, 1)$, such that F is strictly convex on $(0, m)$ and strictly concave on $(m, 1)$. I also assume the density function satisfies $f(0) < 1$, $f(1) < 1$ and $f(r^c) > 0,\ \forall r^c \in (0, 1)$. The strict unimodality and continuous differentiablity of F also implies that f is a continuous, strictly quasiconcave function.

2.3 Preferences

The voter's utility in a given period is identically equal to the outcome of policy. The voter's total utility is therefore

$$Y(y_1, y_2) = y_1 + \beta y_2,$$

where $\beta \geq 0$ indicates the relative importance of the second period policy decision to the first. If the issue at hand in the first period is relatively minor, then β may be greater than one. If the policy chosen in the first period is expected to remain in effect for a long time, β may be very small.

Consider the expected outcome for the voter when the politician implements a policy in the first period. There is a probability σ that the politician is competent, and so her policy delivers a good outcome, plus a probability of $1 - \sigma$ that she is incompetent, and her policy generates a bad outcome. Hence, the voter's expected utility is given by

$$v_1(\sigma) \equiv \mathbb{E}(y_1 | \sigma, x_1 = \theta_1) = \sigma \cdot 1 + (1 - \sigma) \cdot (-1) = 2\sigma - 1.$$

Similarly, the voter's expected utility from a policy implemented in the second period by a politician with reputation r is

$$v_2(r) \equiv \mathbb{E}(y_2|r, x_2 = \theta_2) = r \cdot 1 + (1-r) \cdot (-1) = 2r - 1$$

To emphasize their office motivation, I assume that politicians strictly prefer whichever policy choice has the highest probability of re-election. If the two policies are equivalent in their probability of re-election, the politician prefers $x_t = \theta_t$ to $x_t = s_t$.

In the second period, the politician has no possibility of re-election regardless of her choice of x_2. Hence, whomever holds office in period two chooses $x_2 = \theta_2$. Therefore, the representative voter re-elects the politician if and only if $r \geq r^c$.

3 First Period Strategies Under Public Information

In this section, I characterize the incentives of the politician to implement her proposed policy in the first period. Because the voter prefers the candidate with the highest reputation, the politician would like to manipulate her reputation to improve her expected outcome in the election. Because further learning about her competence occurs only if she implements her policy, she does so only when she would like voters to learn more about her. This is only true when her reputation would be sufficiently low in the absence of new information. Consequently, vetting can cause a good policy to go undone and a bad policy to be pushed forward.

3.1 Implementation and Reputation

If the politician implements her proposed policy and the voter observes a good outcome, then he is certain that the politician is competent and $r = 1$. If the politician implements her policy and the voter observes a bad outcome, then the politician is certainly incompetent and $r = 0$.

Let $r(y_1)$ represent the politician's reputation after outcomes are observed. The assumption that the voter and the politician are symmetrically informed implies that if the politician chooses inaction, nothing can be inferred from her choice not, so $r(0) = \sigma$. If she implements her policy and it generates a good outcome, she is proven to be competent, so $r(1) = 1$. If she implements her policy and a bad outcome results, she is proven to be incompetent, so $r(-1) = 0$.

The payoff to the politician of a given reputation is the probability of re-election associated with each reputation. Consequently, the value to the politician of a reputation of r is $F(r)$, the probability that the challenger has a reputation less than r. Because the support of r^c is $(0, 1)$, $F(0) = 0$ and $F(1) = 1$.

3.2 The Incentive To Implement.

Implementing her policy is a gamble for the politician, because she does not know if she is competent. With a probability of σ, she is competent, so her policy creates a good outcome and she is re-elected for sure. With a probability of $(1 - \sigma)$, she is incompetent, so her policy generates a bad outcome, and she has no chance of re-election. If the outcome is not revealed, which occurs with probability γ, voters learn nothing about her, and she wins re-election with probability $F(\sigma)$. Hence, the expected probability of re-election of implementation given σ is

$$(1 - \gamma)\sigma + \gamma F(\sigma)$$

On the other hand, inaction is a safe choice for the politician, because she can keep her current reputation for sure, and be re-elected with a probability of $F(\sigma)$. Implementation implies a higher expected probability of re-election than inaction if

$$(1 - \gamma)\sigma + \gamma F(\sigma) > F(\sigma),$$

or equivalently, if

$$\sigma \geq F(\sigma).$$

This condition says that the politician prefers to implement her policy whenever the probability she is competent is greater than the probability she will face a challenger with a lower reputation than her signal. Note that when $\sigma = F(\sigma)$, the probability of re-election is equal for θ_1 and s_1, so the politician prefers θ_1.

To develop the intuition for when this inequality is satisfied, consider Figure 2. The politician prefers implementation if $\sigma \geq F(\sigma)$, and this is only true when σ is sufficiently small; namely, to the left of the intersection point of $y = \sigma$ and the F. The politician prefers inaction if $F(\sigma) > \sigma$. This is true to the right of that intersection point. Hence, the politician only implements her policy when σ is sufficiently low; otherwise, she prefers to avoid taking a gamble. Formally, let σ_{pub} be a value of $\sigma \in [0,1]$ satisfying $\sigma_{pub} = F(\sigma_{pub})$. In equilibrium, the politician implements her proposed policy if and only if σ is less than σ_{pub}.

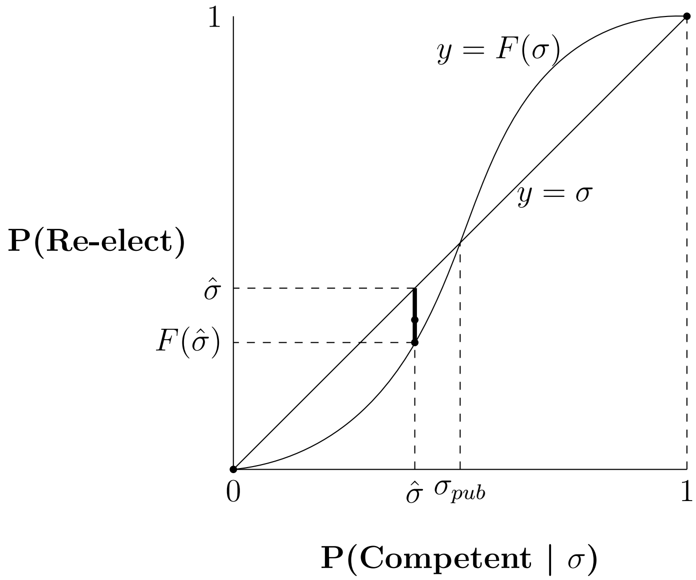

Figure 2: The politician would prefer to implement her policy with a signal of $\hat{\sigma}$, as she would with any signal less than σ_{pub}.

Theorem 1. *In the public information model, the politician chooses $x_1 = \theta_1$ if and only if $\sigma \leq \sigma_{pub}$, and $x_2 = s_1$ otherwise. The representative voter re-elects the politician if and only if $r(y_1) \geq r^c$. In the second period, both the politician and challenger choose $x_2 = \theta_2$.*

Theorem 1 implies that when the signal about the politician's policy is public knowledge, the politician only implements her policy when the expected outcome is sufficiently poor. That a single policy outcome is decisive for the politician's re-election is a special case, and one which makes the gamble very stark for the politician. In reality, good policies may fail sometimes, and bad policies may occasionally appear to work. The voter may find the challenger to be unpalatable despite her talents, or like her despite her incompetence. There may be other issues on which the politician has already proven herself. Further, the politician may know the quality of the challenger. In Appendix B.2, I allow for valence, other policy issues, and less informative policy outcomes, and it remains the case that the politician only implements her policy when her signal is sufficiently low.

The fact that the value to the politician of retaining the status quo increases in her signal is what drives these results, and this in turn is driven by the fact that the voter observes her signal. As the politician's signal increases, reflecting a higher probability that the politician's policy will generate a good outcome, the probability that she ends up with a good reputation from implementing her policy increases. The difficulty is that the voter knows this signal as well, before the proposed policy is implemented, and he uses it to update his beliefs about the politician. As the signal increases, the politician's reputation also increases. As she can take this reputation into the election with certainty if she chooses the status quo, her payoff from choosing the status quo is also increasing in her signal. The value of the outside option eventually overtakes the value of implementing policy, leading to the politician's pathological incentives.

In the special case in which F is also symmetric on $[0, 1]$, the median must be located at $r^c = \frac{1}{2}$, and hence, $F(\frac{1}{2}) = \frac{1}{2}$, and therefore $\sigma_{pub} = \frac{1}{2}$.

Corollary 1. *In the public information model, if F is symmetric in addition to strictly unimodal,* $\sigma_{pub} = \frac{1}{2}$.

3.3 Robustness: Additional Motivations

In this subsection, I allow for the politician to have alternative motivations when making the first period policy decision. I argue that even in this richer environment, the public signal either fails to change inefficient behavior or encourages inefficiency.

Suppose that in the first period, the politician has alternative motivations aside from election, captured by a direct utility of $u(\sigma)$ from implementing a policy with signal σ. For simplicity, let $\gamma = 0$, and that assume that F is symmetric about $\frac{1}{2}$, so that $\sigma_{pub} = \frac{1}{2}$. Her expected utility of implementing a policy is equal to $\lambda\sigma + u(\sigma)$, where $\lambda > 0$ represents the relative value of re-election in comparison to implementing policy for the politician. Her expected utility of the maintaining the status quo is $\lambda F(\sigma)$. Hence, she prefers to implement her policy if

$$\lambda\big[\sigma - F(\sigma)\big] + u(\sigma) \geq 0.$$

Consider a policy for which $\sigma < \frac{1}{2}$. For such a policy, $\sigma > F(\sigma)$. If $u(\sigma) > 0$, then the politician implements her proposal for any value of λ. If $u(\sigma) < 0$, then for a sufficiently large λ, she will prefer to implement her policy. Hence, the public information about the policy fails to restrain incumbents who have some alternative motive to pass a bad policy, such as pressure from a special interest group, and may induce some politicians who would otherwise maintain the status quo to implement the policy.

Now consider a policy for which $\sigma > \frac{1}{2}$. For such a policy, $\sigma < F(\sigma)$. If $u(\sigma) > 0$, then for a sufficiently large λ, she will prefer the status quo. If $u(\sigma) < 0$, then the politician prefers the status quo for any value of λ. Hence, the public information about the policy fails to motivate incumbents who have some alternative motive not to implement a good policy, and may induce some politicians who would otherwise implement the policy to instead maintain the status quo.

3.4 The Impact of Vetting

Public vetting of a policy has a reputational effect that pushes office-motivated politicians to act contrary to the voter's interests. In this subsection, I show that vetting either has no effect or causes the politician to act contrary to the voter's interests.

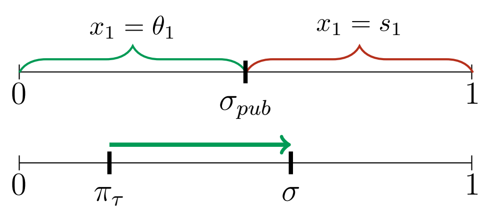

Figure 3: The effect of positive information about a politician's proposed policy on her reputation and decision.

Suppose vetting reveals positive information about the policy. Voters then update favorably about the incumbent, so that $\sigma > \pi_\tau$. This discussion is depicted in Figure 3. First suppose that π_τ, the prior about the politician, is less than σ_{pub}. If σ, the updated reputation of the incumbent after voters observe the results of policy vetting, remains less than σ_{pub}, then the politician's behavior is unchanged. She would have implemented the policy in the absence of vetting, and she continues to do so afterward. If $\sigma > \sigma_{pub}$, then the politician now has an incentive to choose the status quo, when she previously would have implemented the policy. If $\pi_\tau > \sigma_{pub}$, then the incumbent chooses inaction no matter how good the news is about her policy. Hence, vetting that reveals positive information about a policy either has no effect, or encourages the politician to maintain the status quo when she would have implemented the policy in the absence of vetting.

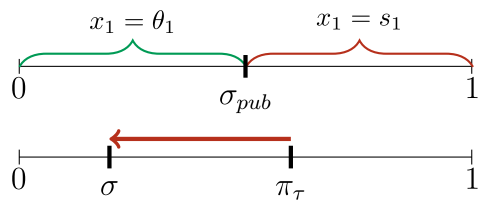

Figure 4: The effect of negative information about a politician's proposed policy on her reputation and decision.

Conversely, suppose vetting reveals negative information about the policy, so that $\sigma < \pi_\tau$. This discussion is depicted in Figure 4. First suppose $\pi_\tau > \sigma_{pub}$. If σ remains greater than σ_{pub}, then the politician's behavior is unchanged. She would have chosen the status quo in the absence of vetting, and she continues to do so afterward. If $\sigma < \sigma_{pub}$, then the politician now has an incentive to implement the policy when she would have chosen not to in the absence of vetting. Lastly, if $\pi_\tau < \sigma_{pub}$, then the incumbent chooses to implement her policy no matter how bad the news is about her policy. Hence, vetting that reveals positive information about a policy either has no effect, or encourages the politician to maintain the status quo when she would have implemented the policy in the absence of vetting.

3.5 Inefficient Implementation Under Public Information

When a politician implements her policy, it generates valuable information about her competence, but potentially at a cost. In this subsection, I consider this trade off and show that implementation is only optimal for the voter if the policy signal is sufficiently high.

If the politician chooses the status quo, then the voter has only the signal σ with which to make his decision. In that event, an incompetent politician may be retained when she should have been replaced by a challenger, and a competent politician may be replaced when she should have been retained. When the politician implements her policy, she reveals her competence, eliminating those mistakes and leading to higher second period welfare. Consequently, policy implementation always generates valuable information about the incumbent.

To show the value of information formally, consider the expected second period utility for the voter before the election has occurred, given that the politician has a reputation of r, denoted by $\Omega(r)$. The voter has the option to retain the politician, in which case her expected utility is $v_2(r)$, or elect the challenger, in which case her expected utility is $v_2(r^c)$. If $r > r^c$, which occurs with a probability of $F(r)$, the voter elects the politician and his his second period expected utility is $v_2(r)$. If $r^c > r$, which occurs with a probability of $1 - F(r)$, the voter elects the challenger and his second period expected utility is $v_2(r^c)$. Taking the expectation across realizations of r^c, conditional on $r^c > r$, implies that second period expected utility if the challenger is elected is $\mathbb{E}(v_2(r^c)|r^c > r)$. Hence, the expected second period utility of the voter given a politician with a reputation of r before the election is

$$\Omega(r) = F(r)v_2(r) + (1 - F(r))\mathbb{E}(v_2(r^c)|r^c > r).$$

Now suppose the politician implements her proposed policy and its outcome is observed. There is a probability σ that the proposed policy succeeds and $r = 1$, and a probability $1 - \sigma$ that it fails and $r = 0$. The expected value of $\Omega(r)$ is

$$\sigma\Omega(1) + (1 - \sigma)\Omega(0) = \sigma v_2(1) + (1 - \sigma)\mathbb{E}(v_2(r^c)),$$

which by definition of v_2 is

$$\sigma[1] + (1 - \sigma)[2\mathbb{E}(r^c) - 1].$$

Lemma 2 shows that second period welfare is greater on average when the politician implements her proposed policy and the outcome is observed.

Lemma 2. *For every* $\sigma \in (0, 1)$, $\sigma + (1 - \sigma)[2\mathbb{E}(r^c) - 1] > \Omega(\sigma)$.

In the event that a politician attempts to implement her policy but the voter does not observe its outcome, the voter does not learn anything. His information is the same as if the politician had deliberately chosen the status quo. Consequently, the improvement in second period expected utility from first period policy implementation is only realized with probability $(1 - \gamma)$. I now add the expected first period outcome, $v_1(\sigma) = 2\sigma - 1$, to arrive at the *net benefit of policy* *implementation,*

$$NB(\sigma) = 2\sigma - 1 + (1-\gamma)\beta[\sigma + (1-\sigma)[2\mathbb{E}(r^c) - 1] - \Omega(\sigma)].$$

The net benefit of policy implementation is the increase in the voter's two-period expected utility when the politician chooses to implement her proposed policy, rather than maintain the status quo. It is optimal for a politician with signal σ to implement her proposed policy if and only if $NB(\sigma) \geq 0$. This is true only if σ is sufficiently large.

Theorem 2. *There exists* $\sigma_{opt} \in (0, \frac{1}{2})$ *such that* $NB(\sigma)$ *is positive for* $\sigma > \sigma_{opt}$ *and negative for* $\sigma < \sigma_{opt}$.

The intuition for Theorem 2 is as follows. When the politician has a signal above $\frac{1}{2}$, her policy is expected to improve first period welfare as well. Hence, in that case the voter gets more information and better policy when the politician implements her policy; there is no trade-off between information and policy outcomes.[2] As σ falls below $\frac{1}{2}$, information about the politician comes at the cost of a negative expected policy outcome. Once σ is low enough, the costs outweigh the benefits and the politician should maintain the status quo.

Theorem 2 demonstrates the incompatibility of rational, office seeking behavior with optimal policy implementation. The politician seeking re-election wants to implement her proposed policy if and only if her signal is sufficiently low. Optimal experimentation requires the politician to implement her policy if and only if her signal is sufficiently high. This result is differs from that of Dewan and Hortala-Vallve (2017), because in their model, the politician under-invests in risky reforms when her signal is low, and over-invests when her signal is high, relative to the efficient benchmark.

4 Private Information

In this section, I consider the behavior of the politician when policy information is private. The voter cannot update his beliefs about the politician's competence on the basis of the realized policy

2. In many related two-period models, such as the one considered by Canes-Wrone, Herron, and Shotts (2001) and Morelli and Van Weelden (2013), even an incompetent politician improves policy outcomes on average, so there is no trade-off between information and policy outcomes.

signal, and she must instead rely on an equilibrium expectation. This in turn implies that the politician's electoral chances if she chooses the status quo do not vary with the policy signal, and consequently, she only implements her proposal if the signal is sufficiently high.

4.1 Setup

I assume only the politician can observe the signal, while the voter only knows the distribution of possible signals. Specifically, σ is distributed according to a continuous, differentiable CDF G such that $g(\sigma) > 0, \ \forall \sigma \in [0, 1]$. The expectation of a distribution of Bayesian posterior probabilities is the prior probability, so $\mathbb{E}(\sigma)$ must be π_τ, the prior probability that the politician is competent. I assume for this section that $\pi_\tau = \frac{1}{2}$. That is, the politician is equally likely to be competent or incompetent in the absence of any further information. This assumption is relaxed in Appendix B.4. The challenger has a publicly observable reputation of r^c, as in the public information case. *I also impose that F is a symmetric distribution,* so that $\mathbb{E}(r^c) = m = \frac{1}{2}$. An interpretation of these assumptions is that neither the politician nor the challenger is at any a priori advantage, and without more information, the voter does not have any knowledge if either will make things better or worse for them in the next period. Also note that by Corollary 1, symmetry of F implies that $\sigma_{pub} = \frac{1}{2}$. A more general analysis, which allows for less informative policy outcomes, is available in Appendix B.3.

I initially assume that the voter is able to observe the actions of the politician; however, I show that this is unlikely to hold in equilibrium. *Consequently, when I characterize equilibrium in section Section 4.4, I assume the voter cannot observe the politician's actions.*

4.2 The Voter's Decision Rule

If the politician implements her proposed policy and its outcome is revealed, it remains fully informative if the outcome is observed, so that $r = 1$ if $y_1 = 1$ and $r = 0$ if $y_1 = -1$. In this case the voter re-elects the politician if $r \geq r^c$. Should the voter observe $y_1 = 0$, the voter forms an expectation of the contents of the signal based upon the equilibrium strategy profile, equal to $\mathbb{E}(\sigma | x_1 = \theta_1, y_1 = 0)$ if the politician attempted to implement her policy, or $\mathbb{E}(\sigma | x_1 = s_1)$

otherwise. Because $v_2(r)$ is linear in r, and $r = \sigma$ whenever $y_1 = 0$, the voter re-elects the politician if $\mathbb{E}(\sigma|x_1, y_1 = 0) \geq r^c$.

4.3 The Politician's Decision Rule

Whereas in the public information case, choosing the status quo implies a reputation equal to the public signal, in the private information case, choosing the status quo implies a reputation equal to the expected value of reputation implied by the signal contained in the report, $\mathbb{E}(\sigma|s_1)$. I refer to this as the *expected reputation* for brevity. A politician with signal σ prefers implementation when the expected probability of re-election from implementation meets or exceeds the probability from the status quo reputation.

I now consider when the politician prefers to implement her proposed policy. With a probability of σ, she is competent, so her policy creates a good outcome and she is re-elected for sure. With a probability of $(1 - \sigma)$, she is incompetent, so her policy generates a bad outcome, and she has no chance of re-election. If the outcome is not revealed, which occurs with probability γ, voters evaluate her using $\mathbb{E}(\sigma|\theta_1, y_1 = 0)$, and she wins re-election with probability $F(\mathbb{E}(\sigma|\theta_1, y_1 = 0))$. Hence, the expected probability of re-election of implementation given σ is

$$(1 - \gamma)\sigma + \gamma F(\mathbb{E}(\sigma|\theta_1, 0))$$

If the politician chooses inaction, she is re-elected with a probability of $F(\mathbb{E}(\sigma|s_1))$. This expected utility is greater than the utility from maintaining the status quo if

$$(1 - \gamma)\sigma + \gamma F(\mathbb{E}(\sigma|\theta_1, 0)) > F(\mathbb{E}(\sigma|s_1)).$$

Note that both expectations are constant with respect to sigma. Hence, the left hand side is strictly increasing in σ while the right hand side is a constant. It follows that the equilibrium strategies of the politician are described by a cut-off. Let $\sigma^* \in [0, 1]$ be the cut-off value of σ, which satisfies the following inequalities:

$$(1 - \gamma)\sigma + \gamma F(\mathbb{E}(\sigma|\theta_1, 0)) > F(\mathbb{E}(\sigma|s_1)) \text{ if } \sigma > \sigma^*,$$

$$(1 - \gamma)\sigma + \gamma F(\mathbb{E}(\sigma|\theta_1, 0)) < F(\mathbb{E}(\sigma|s_1)) \text{ if } \sigma < \sigma^*.$$

Proposition 1. *In the private information model, the politician chooses $x_1 = \theta_1$ if and only if $\sigma > \sigma^*$.*

Proposition 1 implies the politician prefers to implement her policy when information is private only if σ is sufficiently large, whereas when information is public, she prefers to implement her policy when her signal is sufficiently small. That the politician has such a fundamental change in her incentives from private information is due to the fact that the value of maintaining the status quo—the probability of re-election she has if she chooses inaction—is now a constant, rather than an increasing function of her signal. I show in Appendix B.3 that this feature of private information holds also for more general assumptions.

Because the politician only chooses the status quo if $\sigma < \sigma^*$, $E(\sigma|s_1) = E(\sigma|\sigma < \sigma^*)$. Further, the politician only chooses to implement her policy if $\sigma \geq \sigma^*$, $E(\sigma|\theta_1, 0) = E(\sigma|\sigma > \sigma^*)$. Consequently, the politician's expected reputation is strictly higher if she is observed to have attempted her policy to no avail than if she is observed to choose the status quo.

Consequently, a politician who prefers inaction will want to make it appear that she had actually attempted to implement her policy and failed. Consequently, when the voter observes $y_1 = 0$, he may find it difficult to determine if this observation is the result of an insincere effort to implement the policy, or a sincere effort to enact the policy that was prevented by forces beyond the politician's control. This facade makes it difficult for the voter to discern the politician's action whenever there is no observed change in outcomes.

Consequently, for the remainder of the analysis, I assume that the voter is unable to observe x_1, and instead must make his electoral decision on the basis of y_1 alone. The case in which the action is observed is covered in Appendix B.3. Under this assumption, the politician prefers to implement her policy if:

$$(1-\gamma)\sigma + \gamma F(\mathbb{E}(\sigma|y_1 = 0)) > F(\mathbb{E}(\sigma|y_1 = 0)),$$

or, equivalently, if

$$\sigma > F(\mathbb{E}(\sigma|y_1 = 0)).$$

To develop the intuition for when this inequality is satisfied, consider Figure 5. Because

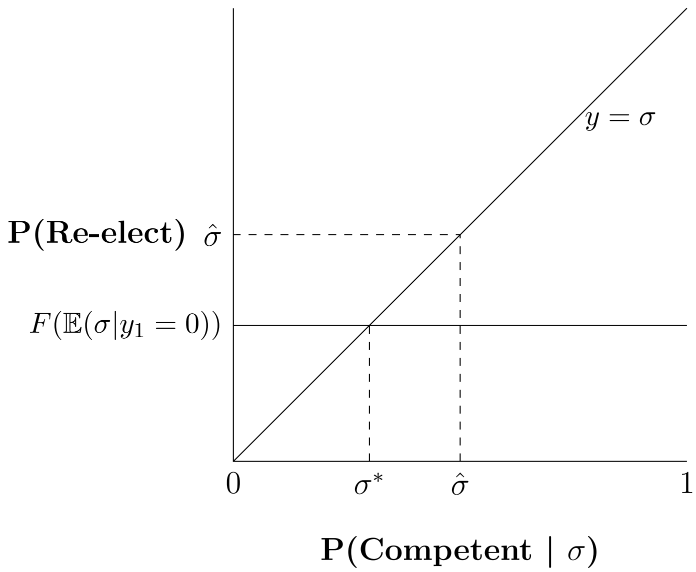

Figure 5: The politician prefers to implement her policy when she has a signal of $\hat{\sigma}$.

$\mathbb{E}(\sigma|y_1 = 0)$ is constant with respect to σ, $F(\mathbb{E}(\sigma|y_1 = 0))$ is constant. Hence, the value of choosing the status quo is represented by a horizontal line that intersects the vertical axis at a value of $F(\mathbb{E}(\sigma|y_1 = 0))$. The politician prefers implementation if $\sigma > F(\mathbb{E}(\sigma|y_1 = 0))$. This is true only when σ is sufficiently large; namely, to the right of the intersection point of $y = \sigma$ and the horizontal line. The politician prefers inaction if $F(\mathbb{E}(\sigma|y_1 = 0)) > \sigma$. This is true to the left of that intersection point. Therefore, σ^* is the intersection point of $y = \sigma$ and $F(\mathbb{E}(\sigma|y_1 = 0))$.

4.4 Equilibrium Behavior

In this subsection, I combine the decision rules of the voter and the politician with the expectations implied by their actions, and characterize the equilibrium cutoff.

In order for a given cutoff σ^* to be an equilibrium, it must be the case that given $\mathbb{E}(\sigma|y_1 = 0)$, the politician does not want to change her strategy given any σ, and it must also be the case that $\mathbb{E}(\sigma|y_1 = 0)$ is consistent with the equilibrium behavior.

To ensure there is no incentive for deviation, it must be the case that $F^{-1}(\sigma^*) = \mathbb{E}(\sigma|s_1)$. If $F^{-1}(\sigma^*) < \mathbb{E}(\sigma|y_1 = 0)$, then there exists $\sigma > \sigma^*$ but arbitrarily close to σ^* such that $F^{-1}(\sigma) < \mathbb{E}(\sigma|y_1 = 0)$, so a politician with σ would deviate to inaction. If $F^{-1}(\sigma^*) > \mathbb{E}(\sigma|y_1 = 0)$, then there is a signal such that $\sigma < \sigma^*$ but arbitrarily close to σ^* such that $F^{-1}(\sigma) > \mathbb{E}(\sigma|y_1 = 0)$, so a politician with σ would deviate to action.

For an arbitrary value of σ^*, the value of $\mathbb{E}(\sigma|y_1 = 0)$ consistent with equilibrium behavior is

$$ER(\sigma^*) = \frac{\mathbb{E}(\sigma|\sigma \leq \sigma^*)G(\sigma^*) + \mathbb{E}(\sigma|\sigma \geq \sigma^*, y_1 = 0)\gamma(1 - G(\sigma^*))}{G(\sigma^*) + \gamma(1 - G(\sigma^*))}.$$

The denominator is the total probability of observing $y_1 = 0$, which is the probability that inaction was deliberately chosen, given by $G(\sigma^*)$, plus the probability that no policy change occurred despite an effort to implement policy, given by $\gamma(1-G(\sigma^*)$. The first term in the numerator is the expected value of the signal given that the politician chose inaction, weighted by the probability inaction was chosen. The second term is the expected value of the signal for given that the politician chose to implement policy but no change in outcomes resulted, weighted by the probability that this occurs.

Let the equilibrium value of σ^* be σ_{pri}. The preceding discussion has established that σ_{pri} is the solution to $F^{-1}(\sigma_{pri}) = ER(\sigma_{pri})$, or the intersection point of F^{-1} and ER.

To determine the location of this intersection point, it is necessary to establish some properties of ER. As σ^* increases, two things occur. First, the incumbent deliberately chooses inaction more often, which increases the weight placed on $\mathbb{E}(\sigma|\sigma \leq \sigma^*)$ and reduces the weight placed on $\mathbb{E}(\sigma|\sigma \geq \sigma^*)$, which reduces the value of $ER(\sigma^*)$. Second, the values of $\mathbb{E}(\sigma|\sigma \leq \sigma^*)$ and $\mathbb{E}(\sigma|\sigma \geq \sigma^*)$ increase, which has a positive effect on the value of $ER(\sigma^*)$. Lemma 3 shows that for small values of σ^*, the negative effects dominate, but then after a critical value $\tilde{\sigma}$, the positive effects dominate. It further shows that ER is decreasing in σ^* whenever $ER(\sigma^*) > \sigma^*$, and that ER is increasing in σ^* whenever $ER(\sigma^*) < \sigma^*$. These properties are illustrated in Figure 6.

Lemma 3. *The expected reputation $ER(\sigma^*)$ is strictly decreasing on $(0, \tilde{\sigma})$ and strictly increasing on $(\tilde{\sigma}, 1)$. Further, $ER(\sigma^*) > \sigma^*$ for $\sigma^* < \tilde{\sigma}$, and $ER(\sigma^*) < \sigma^*$ for $\sigma^* > \tilde{\sigma}$.*

The location of σ_{pri} is identified by the intersection of F^{-1} and ER. The intuition of Theorem 3 is as follows, and is illustrated in Figure 7. Because $F^{-1}(\sigma^*) > \frac{1}{2}$ whenever $\sigma^* > \frac{1}{2}$, while ER is bounded above by $\frac{1}{2}$, this intersection must be at a value less than $\frac{1}{2}$. In this region, $F^{-1}(\sigma^*)$ is strictly greater than σ^*, and therefore the intersection must occur where $ER(\sigma^*) > \sigma^*$, which is to the left of $\tilde{\sigma}$. In this region, F^{-1} is strictly increasing, while ER is strictly decreasing, which

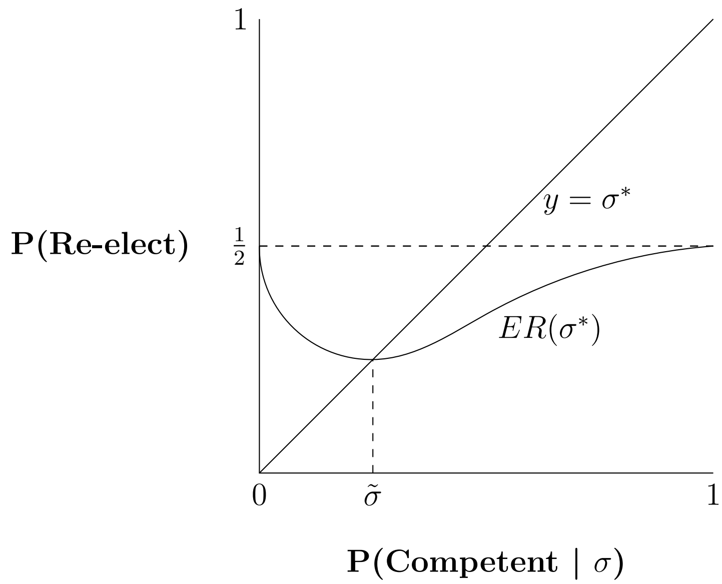

Figure 6: A sketch of the key properties of $ER(\sigma^*)$.

implies a unique intersection, and therefore a unique equilibrium cut-off σ_{pri}.

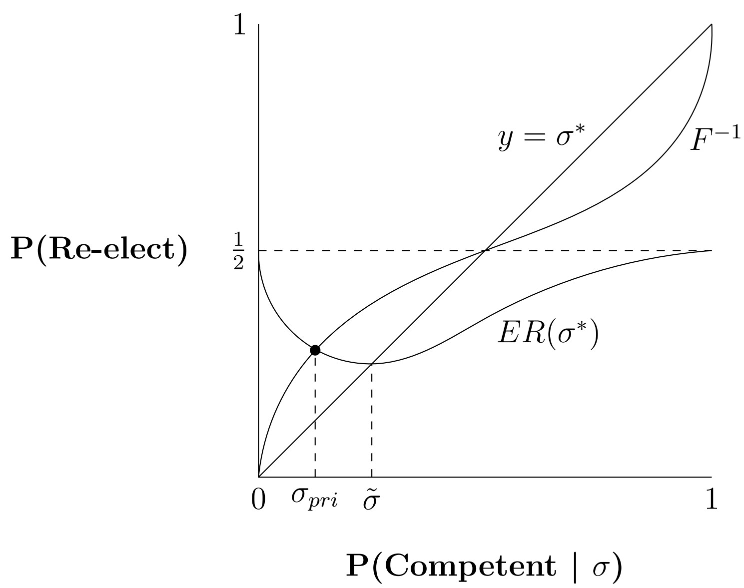

Figure 7: The equilibrium cut-off σ_{pri} is determined by the intersection of F^{-1} and $ER(\sigma^*)$.

Theorem 3. *In the private information model, there is a unique value $\sigma_{pri} \in (0, \frac{1}{2})$ such that the politician chooses $x_1 = \theta_1$ if $\sigma \geq \sigma_{pri}$, and chooses $x_1 = s_1$ if $\sigma < \sigma_{pri}$.*

Theorem 3 implies that, as one might intuitively expect, a politician implements her policy if she believes it is sufficiently likely to work. The higher is the politician's signal, the more likely that implementing her policy results in a good reputation, and the more incentive she has to implement it. Unlike the public information model, her reputation if she chooses to do nothing is unaffected by her signal, because the voter does not observe it. Hence, as the politician's signal increases, implementing her policy becomes more lucrative while the payoff from inaction is constant. Hence, only a politician with a sufficiently high signals wishes to implement her policy.

4.5 The Impact of Private Vetting

When the results of vetting are only shown to the politician, her incentive to implement her proposal only when the probability of success is sufficiently high implies that positive policy information makes implementation more likely, and that negative policy information makes implementation less likely.

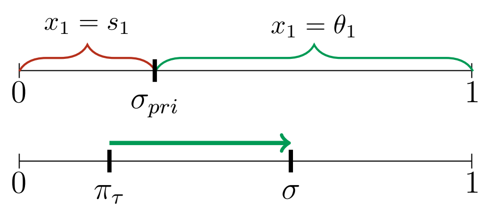

Figure 8: The effect of positive information about a politician's proposed policy on her reputation and decision.

Suppose vetting reveals positive information about the policy, so that $\sigma > \pi_\tau$. This discussion is depicted in Figure 8. First suppose that π_τ is less than σ_{pri}. If σ remains less than σ_{pri}, then the politician's behavior is unchanged. She maintains the status quo whether the policy is vetted or not. If $\sigma > \sigma_{pri}$, then the politician now has an incentive to implement her policy, when she previously would have maintained the status quo. If $\pi_\tau > \sigma_{pri}$, then the incumbent chooses to implement her policy regardless. Hence, vetting that reveals positive information about a policy either has no effect, or encourages the policy to be implemented when it would not have been otherwise.

Conversely, suppose vetting reveals negative information about the policy, so that $\sigma < \pi_\tau$. This discussion is depicted in Figure 9. First suppose $\pi_\tau > \sigma_{ppri}$. If σ remains greater than σ_{pri}, then the politician's behavior is unchanged. She would have implemented her policy in the absence of

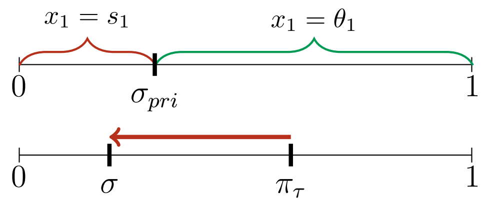

Figure 9: The effect of negative information about a politician's proposed policy on her reputation and decision.

vetting, and she continues to do so afterward. If $\sigma < \sigma_{pri}$, then the politician now has an incentive to choose the status quo, when she would have chosen not to in the absence of vetting. Lastly, if $\pi_\tau < \sigma_{pri}$, then the incumbent chooses not to implement her policy. Hence, private vetting that reveals negative information about her policy either results in no change in behavior, or causes a policy not to be implemented when it would have been otherwise.

4.6 Private Vetting Can Improve Welfare in Both Periods

The strategies chosen by the politician in the first period in the private information model and the effects of betting both accord with what one would intuitively think is best for the voter, because the politician only implements a proposal that is sufficiently likely to work. However, the information available in the absence of an observed policy outcome is worse, the voter may be worse off in the second period. In this section, I consider the circumstances in which the voter is better off in both periods.

In the first period, the voter benefits from more policy implementation when politician is likely to be competent, and less when the politician is likely to be incompetent. Whenever the politician has a signal greater than $\frac{1}{2}$, so that the politician's policy benefits the voter in expectation, she implements her proposed policy when information is private, but does not when information is public. Conversely, a politician with a signal less than σ_{pri}, whose policy harms the voter in expectation, does not implement her policy when information is private, but does when information is public. Overall, this change in first period strategies is an unambiguous improvement for the voter's welfare compared to the public information case.

Lemma 4. *The voter's expected first period welfare is greater when information is private than*

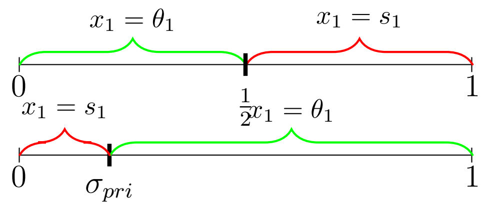

Figure 10: The differences in equilibrium behavior between the public information and private information case.

when it is public.

While it is possible for the voter's overall welfare to improve even if second period welfare deteriorates because of the gains in the first period, I focus on the case in which private information leads to improvements in both periods. If it is the case that second period welfare is higher, then it follows that private information on the part of the politician led to improved selection, because second period behavior is identical in both models.

There are informational benefits to private information. Because $\sigma_{pri} < \frac{1}{2}$, the politician implements her policy whenever $\sigma > \frac{1}{2}$, and she would not have done so when information was public. This choice reveals her competence and improves selection. Hence, the benefit of private information relative to public is

$$(1-\gamma)\int_{\frac{1}{2}}^{1} \sigma - \Omega(\sigma) dG(\sigma).$$

On the other hand, whenever information about the politician is not revealed, the voter is worse off than before, as she knows only the expected reputation of the politician, rather than her actual signal. This leads to more electoral mistakes and consequently worse second period welfare. Let $\tilde{\Omega}(ER(\sigma_{pri}), \sigma)$ be the expected second period utility when a politician with signal σ has reputation $ER(\sigma_{pri})$. Specifically,

$$\tilde{\Omega}(ER(\sigma_{pri}), \sigma) \equiv F(ER(\sigma_{pri}))(2\sigma - 1) + (1 - F(ER(\sigma_{pri})))[2\mathbb{E}(r^c | r^c > ER(\sigma_{pri})) - 1].$$

The first term is the probability that a politician with reputation $ER(\sigma_{pri})$ is re-elected, times the expected utility from that politician in the second term. The second term is the probability the politician with reputation $ER(\sigma_{pri})$ is not re-elected, times the expected utility from a challenger that is elected over the politician.

Proposition 2. *For every $\sigma \in (0,1)$ such that $\sigma \neq ER(\sigma_{pri})$, $\Omega(\sigma) > \tilde{\Omega}(ER(\sigma_{pri}), \sigma)$.*

This proposition establishes the possible information loss faced by the voter whenever outcomes are not observed. This loss of information manifests itself in two ways. First, because the politician does not implement policy when $\sigma < \sigma_{pri}$, whenever such the politician would have revealed her competence under public information, the voter is now going to observe only the expected signal. Second, even when the politician is not changing her behavior, information is lost because the voter only observes expected reputation when the status quo occurs. This unintentional loss happens with probability γ whenever the politician implements her policy, and also whenever she chooses to maintain the status quo. Hence, the cost to the voter of private information is

$$(1-\gamma)\int_0^{\sigma_{pri}} \sigma - \tilde{\Omega}(\sigma) dG(\sigma) + \gamma \int_0^1 \Omega(\sigma) - \tilde{\Omega}(ER(\sigma_{pri}), \sigma) dG(\sigma).$$

Whether the benefits outweigh the costs is ambiguous in general. Further, while the benefits of policy implementation are monotonically decreasing in γ, the relationship between the costs and γ is far more complex, because σ_{pri} and $ER(\sigma_{pri})$ also vary with γ. However, it can be established that when γ is very small, private information provides higher expected second period welfare, relative to public information. This occurs because σ_{pri} is continuously increasing in γ. Intuitively, as it becomes more likely that inaction results when policy implementation is chosen, inaction is increasingly likely when the politician has a high signal. This change raises the value of ER, and therefore moves the intersection point in Figure 7 to the right. Hence, as γ increases, the politician chooses the status quo more frequently.

Lemma 5. *The equilibrium value σ_{pri} is continuously increasing in γ, and $\sigma_{pri} \to 0$ as $\gamma \to 0$.*

If γ is small, then Lemma 5 implies σ_{pri} is small, so the politician the politician chooses inaction only for very small σ, and it is extremely likely that when the politician chooses to implement her policy, her competence is revealed. Further, there is knowledge gained whenever $\sigma > \frac{1}{2}$, because the politician now chooses to implement policy. Hence, the voter gets the benefit of having the politician reveal her competence far more often, and suffers the loss of observing only the expected reputation very infrequently.

Theorem 4. *Second period voter utility is higher under private information than public information if γ is arbitrarily small.*

5 Conclusion

I have shown that when policy information is public, and the politician is of uncertain competence, despite having no private information, the politician uses her ability to control the flow of information to improve her expected probability of re-election. In equilibrium, the politician her implements policy proposal only if she is sufficiently likely to be incompetent, which is true when her policy is sufficiently likely to fail. This behavior is contrary to what might be intuitively expected in this scenario. The voter has all of the information the politician does, observes the politician's choices and outcomes, rewards politicians that implement good policies with re-election, and punishes politicians that implement bad policies with removal from office. The politician is only interested in re-election. Consequently, one would think that the electoral mechanism would encourage the politician to implement her policy if and only if she expected it to work. This intuition provides only half of the story. As the public signal indicates higher probabilities of success for the politician's policy, the probability that she ends up with a good reputation from implementing her policy increases. However, because the signal is also observed by the voter, the good signal raises the politician's reputation directly, allowing her to capture much of the electoral gain of having a good policy proposal without implementing it. Conversely, when the politician's policy proposal is sufficiently likely to fail, she ends up with a poor reputation, and she is willing to gamble on her policy in order to repair it.

When the results of vetting are shown only to the politician, the voter cannot use them to update her belief that the politician is competent. If a politician with a good policy proposal wants to profit from it, she must implement it. Otherwise, she has to accept the reputation associated with choosing the status quo. For a politician with a policy that is likely to work, the status quo reputation is low enough to encourage her to take a gamble by implementing her policy proposal. A politician with a weak signal is no longer placed at as severe of an electoral disadvantage after receiving the signal because the voter cannot see it. While the voter is not optimistic about a politician that does not implement her policy proposal, if the politician has a low enough signal, the lackluster reputation associated with the status quo is better than taking a gamble that is unlikely to benefit her.

A crucial ingredient in these results is the use of a standard notion of competence from the literature. Politicians are competent if and only if they receive a signal for the right policy. If a politician does not have an idea the voter views as correct in the first place, the politician can only demonstrate competence by implementing her policy and showing it was the right one. The voter can reward good ideas, rather than good policies, because of the publicity of information, but his inclination to do so arises from this notion of competence. If instead, competence meant an ability to learn from information, or an ability to come up with new policy proposals when existing proposals appear to be a poor fit, then it may be the case that public information is incentive enhancing. This possibility implies an empirical need to assess how exactly voters define competence.

In terms of policy implications, my findings help to explain why institutions may be set up to have private information in the first place. Given the incentives for pandering private information may induce, it seems strange that political institutions would often not only allow but sometimes require that information be kept private. Incentive correcting mechanisms such as options, which are available in the private sector, are not available in political settings. Therefore, allowing the politician to have private information may be one of the only tools available to encourage more responsible risk-taking. Further, my findings imply that efforts to increase the transparency of information may have undesirable side-effects. While in any particular election, more information about the data underlying the politician's policies is always useful, the equilibrium effects of such disclosure can encourage extremely inefficient behavior on the part of the politician.

A Appendix

A.1 Mathematical Appendix

Lemma 6. *Let X be an interval of $\mathbb{R}$ and let H be a continuous and differentiable function.*

(i) If H has a unique root r and $H'(r) > 0$, then H must be positive for all $x > r$ and negative for all $x < r$. If $H'(r) < 0$, then H must be negative for all $x > r$ and positive for all $x < r$.

(ii) If H has multiple roots, ordered $r_1, r_2, ..., r_n$, then if $H'(r_i) > 0$ or if $H'(r_{i+1}) < 0$, H must be positive for all $x \in (r_i, r_{i+1})$. If $H'(r_i) < 0$ or if $H'(r_{i+1}) > 0$, H must be negative for all $x \in (r_i, r_{i+1})$.

Proof. In case (i), $H'(r) > 0$ implies that for $x > r$ but sufficiently close, $H(x) > 0$. The sign of a continuous function cannot change on an interval without a root. Because r is the unique root, it must be the case that $H(x) > 0$ for all $x > r$. Similarly, $H'(r) > 0$ implies that for $x < r$ but sufficiently close, $H(x) < 0$. Because r is the unique root, it must be the case that $H(x) < 0$ for all $x < r$. The situation in which $H'(r) < 0$ is symmetric.

In case (ii), $H'(r_i) > 0$ implies that for $x > r_i$ but sufficiently close, $H(x) > 0$. Similarly, $H'(r_i) < 0$ implies that for $x < r_i$ but sufficiently close, $H(x) > 0$. The sign of a continuous function cannot change on an interval without a root. Consequently, it must be the case that $H(x) > 0$ for all $x \in (r_i, r_{i+1})$. The situation in which $H'(r_i) < 0$ or $H'(r_{i+1}) > 0$ is symmetric. □

A.2 Proofs of Results in Main Text

Proof of Lemma 1. Consider a signal σ for which $P(y_t = 1|\sigma) > \pi_y$. Bayes' rule implies

$$\frac{P(\sigma|y_t = 1)\pi_y}{P(\sigma|y_t = 1)\pi_y + P(\sigma|y_t = -1)(1 - \pi_y)} > \pi_y. \tag{1}$$

Dividing by π_y and multiplying both sides of (1) by the denominator, it follows that

$$P(\sigma|y_t = 1) > P(\sigma|y_t = 1)\pi_y + P(\sigma|y_t = -1)(1 - \pi_y). \tag{2}$$

Subtracting the first term on the right hand side from both sides, (2) is equivalent to

$$P(\sigma|y_t = 1) > P(\sigma|y_t = -1). \tag{3}$$

Now consider the inequality $P(\tau = H|\sigma) > \pi_\tau$. Bayes' rule implies

$$\frac{P(\sigma|\tau = H)\pi_\tau}{P(\sigma|\tau = H)\pi_\tau + P(\sigma|\tau = L)(1 - \pi_\tau)} > \pi_\tau. \tag{4}$$

By similar arithmetic to the inequality for y, (4) is satisfied if and only if

$$P(\sigma|\tau = H) > P(\sigma|\tau = L). \tag{5}$$

By the conditional independence of σ and τ, the following equivalences hold:

$$P(\sigma|\tau = H) = P(\sigma|y_t = 1)P(y_t = 1|\tau = H) + P(\sigma|y_t = -1)(1 - P(y_t = 1|\tau = H)) \tag{6}$$

$$P(\sigma|\tau = L) = P(\sigma|y_t = 1)P(y_t = 1|\tau = L) + P(\sigma|y_t = -1)(1 - P(y_t = 1|\tau = L)). \tag{7}$$

Hence, (5) is equivalent to

$$\begin{aligned} &P(\sigma|y_t = 1)P(y_t = 1|\tau = H) + P(\sigma|y_t = -1)(1 - P(y_t = 1|\tau = H)) \\ &> P(\sigma|y_t = 1)P(y_t = 1|\tau = L) + P(\sigma|y_t = -1)(1 - P(y_t = 1|\tau = L)) \end{aligned} \tag{8}$$

Subtracting the left hand side of the inequality on both sides and combining like terms implies (8) is equivalent to

$$(P(\sigma|y_t = 1) - P(\sigma|y_t = -1))[P(y_t = 1|\tau = H) - P(y_t = 1|\tau = L)] > 0 \tag{9}$$

By assumption, $P(y_t = 1|\tau = H) > P(y_t = 1|\tau = L)$. Hence, it follows that (9) is satisfied if $P(\sigma|y_t = 1) - P(\sigma|y_t = -1) > 0$. Consequently, whenever $P(y_t = 1|\sigma) > \pi_y$, $P(\tau = H|\sigma) > \pi_\tau$. The case when $P(y_t = 1|\sigma) < \pi_y$ is symmetric. □

Proof of Theorem 1. Define $D(\sigma) \equiv \mathbb{E}(F(r)|\sigma, x_1 = \theta_1) - F(\sigma)$. The politician prefers $x_1 = \theta_1$ if $D(\sigma) \geq 0$ and prefers $x_1 = s_1$ if $D(\sigma) < 0$. Note that at $D(\sigma) = 0$, both alternatives give the politician equal re-election probabilities, and so she prefers to implement her proposed policy. The proof proceeds by showing that there is a critical value $\sigma_{pub} \in (0, 1)$ for which $D(\sigma_{pub}) = 0$ so that both implementation and inaction have equal expected probabilities of re-election. It is then shown that D is positive for σ less than this critical value, and negative for σ greater than this critical value, implying that implementation is preferred if and only if $\sigma \leq \sigma_{pub}$.

By substitution, $D(\sigma) = \sigma - F(\sigma)$. Note that $D(0) = 0 \cdot (1) - F(0) = 0$ and $D(1) = 1 \cdot (1) - F(1) = 0$. Differentiating D with respect to σ shows that $D'(\sigma) = 1 - f(\sigma)$. Hence, it must be the case that $f(\sigma) = 1$ for any stationary point of D. Suppose there exist at least two additional roots of D in the interval $(0, 1)$, σ^1 and σ^2, chosen arbitrarily if there are more than two, labeled such that $\sigma^1 < \sigma^2$. By Rolle's Theorem, there must exist a stationary point of D in each interval $(0, \sigma^1), (\sigma^1, \sigma^2)$, and $(\sigma^2, 1)$. Hence, there must exist at least three stationary points of D, each of which must satisfy $f(\sigma) = 1$. This situation is impossible by the strict quasi-concavity of f, and therefore there is at most one stationary point of D, and further, at most one root of D on $(0, 1)$.

Because $1 > f(1)$ and $1 > f(0)$, it follows that $D'(0) > 0$ and $D'(1) > 0$. Recall that $D(0) = 0$ and $D(1) = 0$. Therefore, for a positive σ located arbitrarily close to 0, $D(\sigma) > 0$. For $\sigma < 1$ but arbitrarily close to 1, $D(\sigma) < 0$. Thus, by the Intermediate Value Theorem, there must exist at least one point $\sigma_{pub} \in (0, 1)$ such that $D(\sigma_{pub}) = 0$. Hence, there is exactly one σ_{pub}.

Further, because $D(\sigma) < 0$ for σ arbitrarily close to 1 and σ_{pub} is the unique root of D on $(0, 1)$, it must be the case that $D(\sigma) < 0$ for every $\sigma > \sigma_{pub}$, and by a symmetric argument, $D(\sigma) > 0$ for every $\sigma < \sigma_{pub}$.

Because the politician prefers to implement her proposed policy if and only if $D(\sigma) \geq 0$ and the status quo if and only if $D(\sigma) < 0$, the politician has a strict preference for $x_1 = \theta_1$ when $\sigma \leq \sigma_{pub}$ and a strict preference for $x_1 = s_1$ when $\sigma > \sigma_{pub}$.

The second period and electoral behavior is established in the text. □

Proof of Corollary 1. This corollary is established in the text immediately preceding it. □

Proof of Lemma 2. Given σ, pick $r^c \in (0, 1)$. There are two cases. First, suppose $\sigma \geq r^c$ so that the politician is retained in the absence of further information. Then second period expected voter utility is $2\sigma - 1$. If the politician were to instead implement her proposed policy, then second period expected voter utility is $\sigma[1] + (1 - \sigma)[2r^c - 1]$. Note that the following inequalities are equivalent:

$$\sigma + (1 - \sigma)[2r^c - 1] > 2\sigma - 1 \tag{10}$$

$$(1 - \sigma)[2r^c - 1] > \sigma - 1 \tag{11}$$

$$2r^c - 1 > -1. \tag{12}$$

The last inequality is satisfied because $r^c > 0$.

Second, suppose $\sigma < r^c$ so that the politician is not retained in the absence of further information. Then second period expected voter utility is $2r^c - 1$. If the politician were to instead implement her proposed policy, then second period expected voter utility is $\sigma + (1-\sigma)[2r^c - 1]$. Note that the following inequalities are equivalent:

$$\sigma + (1-\sigma)[2r^c - 1] > 2r^c - 1 \tag{13}$$

$$\sigma - \sigma[2r^c - 1] > 0 \tag{14}$$

$$1 > 2r^c - 1. \tag{15}$$

The last inequality is satisfied because $r^c < 1$.

I now take the expectation over all possible realizations of r^c. If $r^c \leq \sigma$, then the politician will be retained in the election if $x_1 = s_1$, so I integrate both sides of the inequality (10) to establish that

$$\int_0^\sigma \big[\sigma + (1-\sigma)(2r^c - 1)\big] dF(r^c) > \int_0^\sigma (2\sigma - 1) dF(r^c). \tag{16}$$

If $r^c > \sigma$, then the politician will be replaced in the election if $x_1 = s_1$, so I integrate both sides of (13) to establish that

$$\int_\sigma^1 \big[\sigma + (1-\sigma)(2r^c - 1)\big] dF(r^c) > \int_\sigma^1 (2r^c - 1) dF(r^c). \tag{17}$$

Summing (16) and (17) yields

$$\int_0^1 \big[\sigma + (1-\sigma)(2r^c - 1)\big] dF(r^c) > \int_0^\sigma (2\sigma - 1) dF(r^c) + \int_\sigma^1 (2r^c - 1) dF(r^c) \tag{18}$$

or, equivalently,

$$\sigma + (1-\sigma)(2\mathbb{E}(r^c) - 1) > (2\sigma - 1)F(\sigma) + (1 - F(\sigma))[2\mathbb{E}(r^c | r^c > \sigma) - 1]. \tag{19}$$

Subtracting the right hand side of (19) on both sides implies that

$$\sigma + (1-\sigma)(2\mathbb{E}(r^c) - 1) - (2\sigma - 1)F(\sigma) - (1 - F(\sigma))[2\mathbb{E}(r^c | r^c > \sigma) - 1] > 0. \tag{20}$$

By the definition of $\Omega(\sigma)$ and $v_2(r)$, (20) is equivalent to

$$\sigma + (1-\sigma)(2\mathbb{E}(r^c) - 1) - \Omega(\sigma) > 0. \tag{21}$$

$\square$

Proof of Theorem 2. First, observe that $NB(0) = -1+(1-\gamma)\beta[0+(1-0)[2\mathbb{E}(r^c)-1]-\Omega(0)] = -1+(1-\gamma)[2\mathbb{E}(r^c)-1]$, because $\Omega(0) = 0$. Because $\mathbb{E}(r^c) < 1$ by the assumption that F has full support on $[0,1]$, $NB(0) < 0$. Further, $NB(\frac{1}{2}) > 0$, because by Lemma 2, $\sigma+(1-\sigma)(2\mathbb{E}(r^c)-1)-\Omega(\sigma) > 0$ and $\sigma \geq \frac{1}{2}$ implies $2\sigma - 1 \geq 0$. Hence, because $NB(\sigma)$ is continuous, there must exist at least one point, $\sigma_{opt} \in (0, \frac{1}{2})$, such that $NB(\sigma_{opt}) = 0$.

I now prove that there is at most one such point. Suppose there is any other point $\hat{\sigma} \neq \sigma_{opt}$ for which $NB(\sigma) = 0$. Then by Rolle's Theorem, there must exist at least two stationary points of $NB(\sigma)$. Recalling the definition of $NB(\sigma)$, and substituting for $\Omega(\sigma)$ shows that $NB(\sigma)$ is equivalent to:

$$\begin{aligned} &= 2\sigma - 1 \\ &+ \beta(1-\gamma)\Big[\sigma + (1-\sigma)(2\mathbb{E}(r^c) - 1) - [(2\sigma-1)F(\sigma) + (1-F(\sigma))[2\mathbb{E}(r^c|r^c > \sigma) - 1]\Big]. \end{aligned} \tag{22}$$

Using the definition of a conditional expectation, (22) is equivalent to

$$\begin{aligned} &2\sigma - 1 \\ &+ \beta(1-\gamma)\Big[\sigma + (1-\sigma)(2\mathbb{E}(r^c) - 1) - (2\sigma-1)F(\sigma) - 2\int_\sigma^1 r^c dF(r^c) + (1-F(\sigma))\Big]. \end{aligned} \tag{23}$$

Differentiating (23) expression with respect to σ implies

$$NB'(\sigma) = 2 + \beta(1-\gamma)\Big[1 - (2\mathbb{E}(r^c) - 1) - 2F(\sigma) - 2\sigma f(\sigma) + 2\sigma f(\sigma)\Big]. \tag{24}$$

Equation 24 simplifies to

$$NB'(\sigma) = 2 + \beta(1-\gamma)\Big[2 - 2\mathbb{E}(r^c) - 2F(\sigma)\Big]. \tag{25}$$

Consequently, $NB'(\sigma)$ is strictly decreasing in σ because $F(\sigma)$ is strictly increasing in σ. Therefore there is at most one point for which $NB'(\sigma) = 0$, contradicting the existence of multiple roots of $NB(\sigma)$. Hence, there is at most one σ_{opt}. Further, because $NB(0) < 0$, $NB(\frac{1}{2}) > 0$, and the only root is $\sigma_{opt} \in (0, \frac{1}{2})$, it must be that $NB(\sigma) < 0$ for all $\sigma < \sigma_{opt}$ and $NB(\sigma) > 0$ for all $\sigma > \sigma_{opt}$. $\square$

Proof of Proposition 1. This corollary is established in the text immediately preceding it. $\square$

Proof of Lemma 3. Substitution of the definitions of the expected values into $ER(\sigma^*)$ gives that

$$ER(\sigma^*) = \frac{\int_0^{\sigma^*} \sigma dG(\sigma) + \gamma \int_{\sigma^*}^1 \sigma dG(\sigma)}{G(\sigma^*) + \gamma(1 - G(\sigma^*))}. \tag{26}$$

Differentiation of (26) with respect to σ^* implies

$$ER'(\sigma^*) = \frac{1}{\big(G(\sigma^*) + \gamma(1 - G(\sigma^*))\big)^2}\Bigg[\big[g(\sigma^*)\sigma^* - \gamma g(\sigma^*)\sigma^*\big]\big(G(\sigma^*) + \gamma(1 - G(\sigma^*))\big) \\ - \big[\int_0^{\sigma^*} \sigma dG(\sigma) + \gamma \int_{\sigma^*}^1 \sigma dG(\sigma)\big]\big(g(\sigma^*) - \gamma g(\sigma^*)\big)\Bigg]. \tag{27}$$

Using the definition of $ER(\sigma^*)$, (27) simplifies to

$$ER'(\sigma^*) = \frac{\big[g(\sigma^*)\sigma^* - \gamma g(\sigma^*)\sigma^*\big] - ER(\sigma^*)\big(g(\sigma^*) - \gamma g(\sigma^*)\big)}{G(\sigma^*) + \gamma(1 - G(\sigma^*)\big)}. \tag{28}$$

Factoring out $(1-\gamma)g(\sigma^*)$ on the left hand side, it follows that

$$ER'(\sigma^*) = \frac{(1-\gamma)g(\sigma^*)\big(\sigma^* - ER(\sigma^*)\big)}{G(\sigma^*) + \gamma(1 - G(\sigma^*))}. \tag{29}$$

Let $\Delta(\sigma^*) \equiv \sigma^* - ER(\sigma^*)$, so that (29) may be written as

$$ER'(\sigma^*) = \frac{(1-\gamma)g(\sigma^*)}{G(\sigma^*) + \gamma(1 - G(\sigma^*))}\Delta(\sigma_{cuxt}). \tag{30}$$

Hence, ER is decreasing, stationary, or increasing as Δ is less than, equal to, or greater than 0.

I now show that Δ has a unique root. Note that

$$ER(0) = \frac{\gamma \int_0^1 \sigma dG(\sigma)}{G(0) + \gamma(1 - G(0))} = \frac{\int_0^1 \sigma dG(\sigma)}{1} = \mathbb{E}(\sigma) = \frac{1}{2} \tag{31}$$

and

$$ER(1) = \frac{\int_0^1 \sigma dG(\sigma)}{G(1) + \gamma(1 - G(1))} = \frac{\int_0^1 \sigma dG(\sigma)}{1} = \mathbb{E}(\sigma) = \frac{1}{2}. \tag{32}$$

Consequently, $\Delta(0) < 0$ and $\Delta(1) > 0$. Hence, there must exist at least one $\tilde{\sigma} \in (0,1)$ such that $\Delta(\tilde{\sigma}) = 0$ by the Intermediate Value Theorem.

Suppose there existed multiple solutions to $\Delta(\tilde{\sigma}) = 0$. Order these solutions from least to greatest as $\tilde{\sigma}_1, \tilde{\sigma}_2, ..., \tilde{\sigma}_n$. Differentiating reveals that $\Delta'(\sigma^*) = 1 - ER'(\sigma^*)$. If $\Delta(\tilde{\sigma}) = 0$, then $\sigma^* = ER(\sigma^*)$, and therefore $ER'(\sigma^*) = 0$. Consequently, $\Delta'(\tilde{\sigma}_1) = 1$. Therefore by Lemma 6, $\Delta(\sigma^*) > 0$ for any $\sigma^* \in (\tilde{\sigma}_1, \tilde{\sigma}_2)$. However, $\Delta'(\tilde{\sigma}_2) = 1$, so for $\sigma^* < \tilde{\sigma}_2$ but sufficiently close, $\Delta(\sigma^*) < 0$, contradicting the existence of $\tilde{\sigma}_2$. Hence, $\tilde{\sigma}$ is unique.

Therefore, $\Delta(\sigma^*) < 0$ for all $\sigma^* < \tilde{\sigma}$, and $\Delta(\sigma^*) > 0$ for all $\sigma^* > \tilde{\sigma}$. Consequently, $ER'(\sigma^*) < 0$

for all $\sigma^* < \tilde{\sigma}$, and $ER'(\sigma^*) > 0$ for all $\sigma^* > \tilde{\sigma}$. Further, by definition of Δ, it follows that $ER(\sigma^*) > \sigma^*$ for $\sigma^* < \tilde{\sigma}$, and $ER(\sigma^*) < \sigma^*$ for $\sigma^* > \tilde{\sigma}$. $\square$

Proof of Theorem 3. Because $ER(0) = \frac{1}{2}$ and $ER'(\sigma^*) < 0$ whenever $\sigma^* < \tilde{\sigma}$, it must be the case that at $\tilde{\sigma}$, $ER(\tilde{\sigma}) < \frac{1}{2}$. Because $ER(\tilde{\sigma}) = \tilde{\sigma}$, it must be that $\tilde{\sigma} < \frac{1}{2}$.

Now, note that $F^{-1}(0) - ER(0) < 0$. Further, because $F^{-1}(\sigma^*) > \sigma^*$ on $(0, \frac{1}{2})$, it must be the case that

$$F^{-1}(\tilde{\sigma}) - ER(\tilde{\sigma}) = F^{-1}(\tilde{\sigma}) - \tilde{\sigma} > 0. \tag{33}$$

Hence, by the Intermediate Value Theorem, there exists a $\sigma_{pri} \in (0, \tilde{\sigma})$ for which $F^{-1}(\sigma_{pri}) - ER(\sigma_{pri}) = 0$. Further, $\sigma_{pri} < \frac{1}{2}$.

Because $\tilde{\sigma}$ is the unique root of $\Delta(\sigma^*)$, and $\Delta(\sigma^*) > 0$ for every σ^* greater than $\tilde{\sigma}$ by Lemma 3, it must be the case that $\sigma^* > ER(\sigma^*)$. Because $F^{-1}(\sigma^*) > \sigma^*$ for $\sigma^* \in (0, \frac{1}{2})$, there is no possibility of a second point for which $ER(\sigma^*) = F^{-1}(\sigma^*)$ in $(\sigma^*, \frac{1}{2})$. Hence, there is a unique value of σ_{pri}, and it must lie in $(0, \frac{1}{2})$.

Because $F^{-1}(\sigma) < ER(\sigma_{pri})$ for every $\sigma < \sigma_{pri}$, a politician with such a signal prefers to maintain the status quo. Because $F^{-1}(\sigma) > ER(\sigma_{pri})$ for every $\sigma > \sigma_{pri}$, a politician with such a signal prefers to implement her proposed policy. $\square$

Proof of Lemma 4. When information is public, the voter's expected first period utility is given by

$$\int_0^{\frac{1}{2}} 2\sigma - 1 dG(\sigma). \tag{34}$$

When information is private, the voter's expected first period utility is given by

$$\int_{\sigma_{pri}}^{1} 2\sigma - 1 dG(\sigma). \tag{35}$$

Taking the difference of (35) and (34) gives

$$\int_{\frac{1}{2}}^{1} 2\sigma - 1 dG(\sigma) - \int_0^{\sigma_{pri}} 2\sigma - 1 dG(\sigma). \tag{36}$$

Note that $2\sigma - 1 > 0$ for all $\sigma \in (\frac{1}{2}, 1]$ and that $2\sigma - 1 < 0$ for all $\sigma \in [0, \sigma_{pri}]$. Hence, the first integral in (36) is positive, while the second is negative, making the difference positive. $\square$

Proof of Proposition 2. By definition, $\Omega(\sigma) > \tilde{\Omega}(ER(\sigma_{pri}), \sigma)$ if and only if

$$\begin{aligned}
&(2\sigma - 1)F(\sigma) + (1 - F(\sigma))[2\mathbb{E}(r^c|r^c > \sigma) - 1] \\
>&(2\sigma - 1)F(ER(\sigma_{pri})) + (1 - F(ER(\sigma_{pri})))[2\mathbb{E}(r^c|r^c > ER(\sigma_{pri})) - 1] \qquad (37)
\end{aligned}$$

Distributing the negative one on each side and simplifying, it follows that

$$\begin{aligned}
&2\sigma F(\sigma) + (1 - F(\sigma))[2\mathbb{E}(r^c|r^c > \sigma)] \\
>&2\sigma F(ER(\sigma_{pri})) + (1 - F(ER(\sigma_{pri})))[2\mathbb{E}(r^c|r^c > ER(\sigma_{pri}))]. \qquad (38)
\end{aligned}$$

Subtracting the left hand side of (38) from both sides and combining like terms, it follows that

$$\begin{aligned}
&2\sigma(F(\sigma) - F(ER(\sigma_{pri}))) + (1 - F(\sigma))2\mathbb{E}(r^c|r^c > \sigma) \\
&-(1 - F(ER(\sigma_{pri})))2\mathbb{E}(r^c|r^c > ER(\sigma_{pri})) > 0. \qquad (39)
\end{aligned}$$

Using the definitions of the conditional expectations and dividing by 2, (39) is equivalent to

$$\sigma\big(F(\sigma) - F(ER(\sigma_{pri}))\big) + \int_{\sigma}^{1} r^c dF(r^c) - \int_{ER(\sigma_{pri})}^{1} r^c dF(r^c) > 0 \qquad (40)$$

First assume $\sigma > ER(\sigma_{pri})$. Then the first term of (40) is positive. Further the integrals can be combined so that

$$\sigma\big(F(\sigma) - F(ER(\sigma_{pri}))\big) - \int_{ER(\sigma_{pri})}^{\sigma} r^c dF(r^c) > 0 \qquad (41)$$

which is equivalent to

$$\sigma\big(F(\sigma) - F(ER(\sigma_{pri}))\big) - \mathbb{E}(r^c|r^c \in [ER(\sigma_{pri}), \sigma])\big(F(\sigma) - F(ER(\sigma_{pri}))\big) > 0. \qquad (42)$$

Division of both sides of (42) by $F(\sigma) - F(ER(\sigma_{pri}))$ implies

$$\sigma - \mathbb{E}\big(r^c|r^c \in [ER(\sigma_{pri}), \sigma]\big) > 0, \qquad (43)$$

which is true.

Now assume $\sigma < ER(\sigma_{pri})$. Then the first term of (40) is negative. Further, the integrals can be combined so that

$$\sigma\big(F(\sigma) - F(ER(\sigma_{pri}))\big) + \int_{\sigma}^{ER(\sigma_{pri})} r^c dF(r^c) > 0 \qquad (44)$$

which is equivalent to

$$\sigma\big(F(\sigma) - F(ER(\sigma_{pri}))\big) + \mathbb{E}(r^c|r^c \in [\sigma, ER(\sigma_{pri})])\big(F(ER(\sigma_{pri})) - F(\sigma)\big) > 0. \tag{45}$$

Division on both sides of (45) by $F(\sigma) - F(ER(\sigma_{pri})$ implies

$$\sigma - \mathbb{E}\big(r^c|r^c \in [\sigma, ER(\sigma_{pri})]\big) < 0, \tag{46}$$

which is true. □

Proof of Lemma 5. Consider the response of σ_{pri} to changes in γ. It is known that σ_{pri} solves

$$ER(\sigma_{pri}) - F^{-1}(\sigma_{pri}) = 0. \tag{47}$$

The partial derivative of (47) with respect to γ is

$$\begin{aligned}\frac{\partial ER(\sigma_{pri})}{\partial \gamma} =& \frac{1}{\big(G(\sigma_{pri}) + \gamma(1 - G(\sigma_{pri}))\big)^2}\Bigg[\Big[\int_{\sigma_{pri}}^{1} \sigma dG(\sigma)\Big]\big(G(\sigma_{pri}) + \gamma(1 - G(\sigma_{pri}))\big) \\ & - \Big[\int_{0}^{\sigma_{pri}} \sigma dG(\sigma) + \gamma \int_{\sigma_{pri}}^{1} \sigma dG(\sigma)\Big]\big(1 - G(\sigma_{pri})\big)\Bigg],\end{aligned} \tag{48}$$

which simplifies to

$$\frac{\partial ER(\sigma_{pri})}{\partial \gamma} = \frac{\big[\int_{\sigma_{pri}}^{1} \sigma dG(\sigma)\big]G(\sigma_{pri}) - \big[\int_{0}^{\sigma_{pri}} \sigma dG(\sigma)\big]\big(1 - G(\sigma_{pri})\big)}{\big(G(\sigma_{pri}) + \gamma(1 - G(\sigma_{pri}))\big)^2}. \tag{49}$$

This derivative is positive if and only if

$$\Big[\int_{\sigma_{pri}}^{1} \sigma dG(\sigma)\Big]G(\sigma_{pri}) > \Big[\int_{0}^{\sigma_{pri}} \sigma dG(\sigma)\Big]\big(1 - G(\sigma_{pri})\big). \tag{50}$$

By dividing both sides of (50), it follows that

$$\frac{\int_{\sigma_{pri}}^{1} \sigma dG(\sigma)}{\big(1 - G(\sigma_{pri})\big)} > \frac{\int_{0}^{\sigma_{pri}} \sigma dG(\sigma)}{G(\sigma_{pri})}. \tag{51}$$

Using the definition of a conditional expectation, (51) is equivalent to

$$\mathbb{E}(\sigma|\sigma > \sigma_{pri}) > \mathbb{E}(\sigma|\sigma < \sigma_{pri}). \tag{52}$$

Hence, $\frac{\partial ER(\sigma_{pri})}{\partial \gamma}$ is positive. Further, the partial derivative of (47) with respect to σ_{pri} is

$$\frac{\partial ER(\sigma_{pri})}{\partial \sigma_{pri}} = \frac{\partial ER(\sigma_{pri})}{\partial \sigma_{pri}} - \frac{\partial F^{-1}}{\partial \sigma_{pri}} \tag{53}$$

Because it is known that $\sigma_{pri} < \tilde{\sigma}$, it must be that $\frac{\partial ER(\sigma_{pri})}{\partial \sigma_{pri}} < 0$. Further, because $\frac{\partial F^{-1}}{\partial \sigma_{pri}} > 0$, the entire derivative must be negative. Therefore, by the Implicit Function Theorem, σ_{pri} is continuously increasing in γ.

Recall that

$$ER(\sigma^*) = \frac{\int_0^{\sigma^*} \sigma dG(\sigma) + \gamma \int_{\sigma^*}^1 \sigma dG(\sigma)}{G(\sigma^*) + \gamma(1 - G(\sigma^*))}. \tag{54}$$

Taking the limit as γ approaches 0 reveals that $ER(\sigma^*)$ approaches $\mathbb{E}(\sigma|\sigma \leq \sigma^*)$ for any value of $\sigma^* > 0$:[3]

$$\lim_{\gamma \to 0} \frac{\int_0^{\sigma^*} \sigma dG(\sigma) + \gamma \int_{\sigma^*}^1 \sigma dG(\sigma)}{G(\sigma^*) + \gamma(1 - G(\sigma^*))} = \frac{\int_0^{\sigma^*} \sigma dG(\sigma)}{G(\sigma^*)} = \mathbb{E}(\sigma|\sigma \leq \sigma^*). \tag{55}$$

Choose any $\sigma^* > 0$. Because $\mathbb{E}(\sigma|\sigma \leq \sigma^*) < \sigma^*$, it follows that $\mathbb{E}(\sigma|\sigma \leq \sigma^*) < F^{-1}(\sigma^*)$ for any $\sigma^* \in (0, \frac{1}{2})$. Further, $ER(0) = \frac{1}{2} > F^{-1}(0)$ whenever $\gamma > 0$. Consequently, by the Intermediate Value Theorem, $\sigma_{pri} \in (0, \sigma^*)$. Because this holds for any choice of $\sigma^* > 0$, σ_{pri} must be arbitrarily small. □

Proof of Theorem 4. I now show that if γ is arbitrarily small, the voter's expected utility is higher in the second period under private information than under public information.

The voter's second period welfare under private information is

$$\int_0^{\sigma_{pri}} \tilde{\Omega}(ER(\sigma_{pri}), \sigma) dG(\sigma) + \gamma \int_{\sigma_{pri}}^1 \tilde{\Omega}(ER(\sigma_{pri}), \sigma) dG(\sigma) + (1 - \gamma) \int_{\sigma_{pri}}^1 \sigma dG(\sigma) \tag{56}$$

Taking the limit as $\gamma \to 0$, $\sigma_{pri} \to 0$ and $ER(\sigma_{pri}) \to 0$. Hence, (56) approaches

$$\int_0^0 \tilde{\Omega}(0, \sigma) dG(\sigma) + 0 \int_{\sigma_{pri}}^1 \tilde{\Omega}(0, \sigma) dG(\sigma) + (1 - 0) \int_0^1 \sigma dG(\sigma) = \mathbb{E}(\sigma) = \frac{1}{2} \tag{57}$$

The voter's second period welfare under public information is

$$\int_{\frac{1}{2}}^1 \Omega(\sigma) dG(\sigma) + \gamma \int_0^{\frac{1}{2}} \Omega(\sigma) dG(\sigma) + (1 - \gamma) \int_0^{\frac{1}{2}} \sigma dG(\sigma) \tag{58}$$

Taking the limit as $\gamma \to 0$, (58) approaches

$$\int_{\frac{1}{2}}^1 \Omega(\sigma) dG(\sigma) + \int_0^{\frac{1}{2}} \sigma dG(\sigma). \tag{59}$$

Because $\sigma > \Omega(\sigma)$, (59) must be strictly less than

$$\int_{\frac{1}{2}}^1 \sigma dG(\sigma) + \int_0^{\frac{1}{2}} \sigma dG(\sigma) = \mathbb{E}(\sigma) = \frac{1}{2} \tag{60}$$

□

3. If $\sigma^* = 0$, this limit is indeterminate.

B Extensions

B.1 Notation and Assumptions

For the more general versions of the models in the main text, I make use of the following new assumptions and notation.

1. **General Outcomes.** The possible outcomes of the policy are $y_t \in \{y_-, y_+\}$, with the restriction that $y_- < 0 < y_+$.

2. **Presence of Environmental Factors.** Let $P(y_t = y_+|\tau = H) = \alpha_H$ and let $P(y_t = y_+|\tau = L) = \alpha_L$, where $0 < \alpha_L < \alpha_H < 1$. The probability that an implemented policy has outcome y_+ is therefore $p(\sigma) = \sigma\alpha_H + (1-\sigma)\alpha_L$.

3. **Relevance of Competence.** I require that α_H and α_L are such that $p(0)y_+ + (1-p(0))y_- < 0$ and $p(1)y_+ + (1-p(1))y_- > 0$. That is, incompetent types cause deterioration of outcomes on average, while competent types cause improvement in outcomes on average.

4. **Reputational Signals.** Because the value of $P(\tau = H|\sigma)$ can be computed given $P(y_t = y_+|\sigma)$, for ease of exposition I assume that the public signal simply tells the recipient the politician's probability of competence directly — that is, $\sigma \equiv P(\tau = H|\sigma)$. This allows for easier comparisons with the main text.

5. **Partially Informative Policy.** The voter's beliefs are $r_+(\sigma) = \frac{\sigma\alpha_H}{\sigma\alpha_H + (1-\sigma)\alpha_L}$ when y_+ is observed, and $r_-(\sigma) = \frac{\sigma(1-\alpha_H)}{\sigma(1-\alpha_H)+(1-\sigma)(1-\alpha_L)}$ when y_- is observed. Importantly, these are both strictly increasing functions of σ. This is from the application of Bayes' rule when environmental factors are present.

6. **Convex Expected Utility.** The voter's second period expected utility, v_2, may be any strictly increasing and convex function that is unbounded above and below, including linear.

7. **Additive Valence.** The challenger, in addition to her reputation, may have an additive valence advantage over the politician $s^c \in \mathbb{R}$, so that the utility of electing a challenger with reputation r^c and valence s^c is $v_2(r^c) + s^c$. Let the challenger's *quality*, q^c, be defined as a

value of reputation such that $v_2(q^c) = v_2(r^c) + s^c$. Let q^c be distributed according to strictly unimodal CDF $F : \mathbb{R} \to \mathbb{R}_+$, with mode m. Note that the support of F is no longer only $[0, 1]$, and consequently, $F(1) < 1$ and $F(0) > 0$. The politician is preferred by the voter if and only if $r > q^c$. Hence, as in the main text,the re-election probability is given by $F(r)$.

Additive valence also captures a known valence advantage or policy advantage on other issues, either for the politician or challenger. In the event that the challenger has an a priori advantage over the politician, $m > \pi_\tau$. If the politician has the a priori advantage, then $m < \pi_\tau$.

Convexity of v_2 may arise if the politician is policy motivated as a secondary concern. For example, suppose that in the second period, the politician prefers to implement policy if and only if $\mathbb{E}(y_2|r) > 0$, and that as in the main text, $y_+ = 1$ and $y_- = -1$. Otherwise, the politician prefers to maintain the status quo. Further suppose that with probability ϵ, there is an emergency which forces the politician to implement a policy. In that case, expected second period utility is $\epsilon[2r - 1]$ whenever $r < \frac{1}{2}$ and $2r - 1$ whenever $r \geq \frac{1}{2}$, which is a convex function of r.

B.2 Generalization of Public Information Equilibrium

In this subsection, I maintain assumptions 1 thru 7. I also allow the possibility of strong (but not perfect) information about the attributes of the challenger. I show that the behavior of the politician is characterized by a cutoff, wherein the politician only implements her policy if the signal is sufficiently low.

There are two main ways in which the analysis differs when policy is only partially informative and valence is a factor, in comparison to the analysis in the main text. First, the reputation associated with each outcome is now a function of σ. Consequently, as σ changes, not only does the probability of each outcome change, but so do the reputations associated with each outcome. This dependency renders the direct approach used for the main text intractable. Second, $r_+(\sigma) < 1$ and $r_-(\sigma) > 0$, for any $\sigma \in (0, 1)$, so $F(r_+) < 1$ and $F(r_-) > 0$. Even if $r = 1$ or $r = 0$, it is no longer necessary that $F(0) = 0$ or that $F(1) = 1$. Due to valence shocks, even a politician certain to be competent may lose to a sufficiently well liked challenger, and even a politician certain to be incompetent may win against a sufficiently disliked challenger.

The proof proceeds in two major steps. First, I show that for any particular σ and corresponding $r_-(\sigma)$ and $r_+(\sigma)$, the politician prefers to implement her proposed policy if and only if σ is less than or equal to a critical value $\sigma_{\succeq}$. Hence, the politician's preference for implementation for any given σ is characterized by its relation to $\sigma_{\succeq}$. Second, I show that $\sigma_{\succeq}$ is a continuously decreasing function of σ. Consequently, there exists a critical value σ_{pub} so that the politician prefers to implement her proposed policy if and only if $\sigma < \sigma_{pub}$.

B.2.1 Characterizing Politician Preference

As in the main text, the politician may either keep her current reputation for sure by choosing inaction, or reveal additional information about herself with probability $(1-\gamma)$ by implementing policy. Also, the voter elects the politician in the election with the highest reputation, so that the probability of re-election is $F(r)$.

In the analysis that follows, consider a particular signal σ and the reputations associated with it, r_+ and r_-. Holding r_- and r_+ fixed, let $\sigma_{\succeq} \in [0,1]$ be a value of the signal for which the politician would be indifferent between implementation and inaction. Recall that, because the expectation of Bayesian posteriors is equal to the prior,

$$p(\sigma)r_+ + (1-p(\sigma))r_- = \sigma. \tag{61}$$

This is solved by $p(\sigma) = \frac{\sigma - r_-}{r_+ - r_-}$ Define

$$D(\sigma; r_-, r_+) \equiv \frac{\sigma - r_-}{r_+ - r_-}F(r_+) + (1 - \frac{\sigma - r_-}{r_+ - r_-})F(r_-) - F(\sigma). \tag{62}$$

This expression is positive if and only if the expected utility of implementing an proposed policy, given σ, exceeds the expected utility of the status quo given a *fixed* r_- and r_+.[4] Consequently, $\sigma_{\succeq}$ must solve $D(\sigma, r_-, r_+) = 0$.

To identify $\sigma_{\succeq}$, I begin my analysis by deriving properties of D given fixed values for r_+ and r_-. Because I only differentiate with respect to and evaluate at varying values of σ in the following lemmas, I write $D(\sigma) \equiv D(\sigma; r_-, r_+)$ as long as r_- and r_+ remain fixed. I first establish that D has exactly two stationary points, r' and r'', which characterize the intervals of increase and decrease.

4. Note that, as in the main text, $1-\gamma$ cancels out and does not influence the preference for θ_t relative to σ_t.

Lemma 7. *There exist values r' and r'', with $r' < r''$ such that*

(i) $D'(\sigma) < 0$ *if and only if* $\sigma \in (r', r'')$

(ii) $D'(\sigma) > 0$ *if and only if* $\sigma \notin (r', r'')$

(iii) $D'(\sigma) = 0$ *if and only if* $\sigma \in \{r', r''\}$

Further, $D(\sigma) \to \infty$ *as* $\sigma \to \infty$ *and* $D(\sigma) \to -\infty$ *as* $\sigma \to -\infty$

Proof. Differentiation of D implies

$$D'(\sigma) = \frac{F(r_+) - F(r_-)}{r_+ - r_-} - f(\sigma) \tag{63}$$

Hence, $D'(\sigma)$ is positive when $\frac{F(r_+)-F(r_-)}{r_+-r_-} > f(\sigma)$, negative when $\frac{F(r_+)-F(r_-)}{r_+-r_-} < f(\sigma)$, and zero when $\frac{F(r_+)-F(r_-)}{r_+-r_-} = f(\sigma)$. Because $\frac{F(r_+)-F(r_-)}{r_+-r_-}$ is a constant with respect to σ, the intervals of increasing and decreasing for D are lower and upper sets of f.

I first prove that the upper set, $L_u = \{\sigma \in \mathbb{R} | \frac{F(r_+)-F(r_-)}{r_+-r_-} < f(\sigma)\}$, is nonempty. Suppose L_u were empty. Then it must be the case that $\frac{F(r_+)-F(r_-)}{r_+-r_-} \geq \max_\sigma f(\sigma)$. Because f is unimodal, the maximum is attained at m. Consequently, it must be that $\frac{F(r_+)-F(r_-)}{r_+-r_-} \geq f(m)$. This implies $F(r_+) - F(r_-) \geq f(m)(r_+ - r_-)$, or equivalently $\int_{r_-}^{r_+} f(\sigma) d\sigma \geq \int_{r_-}^{r_+} f(m) d\sigma$. Since $f(m) > f(\sigma)$ for every $\sigma \neq m$, this is impossible. Hence $\frac{F(r_+)-F(r_-)}{r_+-r_-} < f(m)$, and therefore L_u is nonempty. By the strict quasiconcavity of f, the upper set is an interval, denoted (r', r''). Hence, for any $\sigma \in (r', r'')$, $D'(\sigma) < 0$. Strict quasiconcavity of f implies that $\frac{F(r_+)-F(r_-)}{r_+-r_-} > f(\sigma)$ for $\sigma \notin [r', r'']$. Hence, by continuity, $\frac{F(r_+)-F(r_-)}{r_+-r_-} = f(\sigma)$ at r' and r''. Consequently, $D'(\sigma) = 0$ if $\sigma \in \{r', r''\}$ and $D'(\sigma) > 0$ whenever $\sigma \notin (r', r'')$.

Lastly, to compute the limits of D as σ goes to infinity, note that (62) may be rewritten as

$$D(\sigma) = F(r_-) + \frac{\sigma}{r_+ - b-}[F(r_+) - F(r_-)] - \frac{r_-}{r_+ - r_-}[F(r_+) - F(r_-)] - F(\sigma). \tag{64}$$

Taking the limit as $\sigma \to \infty$, the second term becomes arbitrarily large, while $F(\sigma) \to 1$. Hence, $D(\sigma)$ becomes arbitrarily large. Taking the limit as $\sigma \to -\infty$, the second term becomes arbitrarily negative, while $F(\sigma) = 1$. Hence, $D(\sigma)$ becomes arbitrarily negative. □

I now more precisely define $\sigma_{\succeq}$. Let $\sigma_{\succeq}$ be a value of σ such that $D(\sigma_{\succeq}) = 0$ and either (i) $\sigma_{\succeq} \notin \{r_-, r_+\}$ or (ii) $\sigma_{\succeq} \in \{r_-, r_+\}$ and $D'(\sigma_{\succeq}) = 0$. That is, $\sigma_{\succeq}$ is a signal for which a politician would be indifferent between implementing the proposed policy and the status quo, and distinct from r_- and r_+ except in knife-edge cases. In those knife edge cases, either r_- or r_+ is a stationary point, and that value is chosen to be $\sigma_{\succeq}$. I now show that $\sigma_{\succeq}$ always exists, is unique, and that the politician prefers implementation if and only if $\sigma \leq \sigma_{\succeq}$.

Lemma 8. *Given σ and corresponding r_- and r_+, there exists a unique $\sigma_{\succeq}$ such that implementation is preferred if and only if $\sigma \leq \sigma_{\succeq}$ and inaction is preferred if and only if $\sigma > \sigma_{\succeq}$, for any $\sigma \in (r_-, r_+)$.*

Proof. Note that $D(r_-) = D(r_+) = 0$. By Rolle's theorem, there must exist a stationary point of D in (r_-, r_+). Because $r' < r''$, there are three cases to consider:

1. $r' \in (r_-, r_+)$ and $r'' \geq r_+$
2. $r' \leq r_-$ and $r'' \in (r_-, r_+)$
3. $r' \in (r_-, r_+)$ and $r'' \in (r_-, r_+)$

Because $D(\sigma_{\succeq}) = 0$, whenever $\sigma_{\succeq} \notin \{r_-, r_+\}$, Rolle's Theorem also implies the following necessary conditions:

(a) If $\sigma_{\succeq} > r_+$, there must be a stationary point of D in the open interval $(r_+, \sigma_{\succeq})$.

(b) If $\sigma_{\succeq} < r_-$, there must be a stationary point of D in the open interval $(\sigma_{\succeq}, r_-)$.

(c) If $r_- < \sigma_{\succeq} < r_+$, then $r' \in (r_-, \sigma_{\succeq})$ and $r'' \in (\sigma_{\succeq}, r_+)$.

(d) There is at most one $\sigma_{\succeq} \notin \{r_-, r_+\}$ such that $D(\sigma_{\succeq}) = 0$.

Recall that r' and r'' are the only stationary points of D. In the first case, it cannot be that $\sigma_{\succeq} \neq r_-$ and $\sigma_{\succeq} < r_+$, because neither (b) nor (c) hold. Further $D'(r_-) \neq 0$, because $r_- < r'$, and by Lemma 7, this implies $D'(r_-) < 0$, so it cannot be the case that $\sigma_{\succeq} = r_-$. If $r'' = r_+$, then $r_+ = \sigma_{\succeq}$. There cannot be another $\sigma_{\succeq} > r_+$ by requirement (a), so $\sigma_{\succeq}$ is unique. If $r'' > r_+$, then $D'(r_+) < 0$. Thus for $\sigma > r_+$ but arbitrarily close, $D(\sigma) < 0$. Further, Lemma 7 implies that as $\sigma \to \infty$, $D(\sigma) \to \infty$. Hence, by the Intermediate Value Theorem, there must exist $\sigma_{\succeq} \in (r_+, \infty)$

such that $D(\sigma_{\succeq}) = 0$. By (d), there cannot be another $\sigma_{\succeq} \neq r_-, r_+$, and neither $D'(r_+)$ nor $D'(r_-)$ is 0. Hence, $\sigma_{\succeq}$ must be unique. Note that $D(\sigma) > 0$ for all $\sigma \in (r_-, r_+)$, because by Lemma 6, $D'(r_-) > 0$ implies $D(\sigma) > 0$ for every $\sigma \in (r_-, r_+)$. Hence, in case one, $\sigma \leq \sigma_{\succeq}$ for any $\sigma \in (r_-, r+)$, and the politician prefers to implement her policy.

The second case is symmetric to the first.

In the third case, by (a) and (b) it must be that $\sigma_{\succeq} \in (r_-, r_+)$, because there are no stationary points of D outside of that interval. Note that $D'(r_-) > 0$ because $r_- < r'$, which implies for $\sigma > r_-$ but arbitrarily close, $D(\sigma) > 0$. Similarly, $D'(r_+) > 0$, which implies that for $\sigma < r_+$ but arbitrarily close, $D(\sigma) < 0$. Hence, by the Intermediate Value Theorem, there must exist $\sigma_{\succeq} \in (r_-, r_+)$ such that $D(\sigma_{\succeq}) = 0$. Because neither $D'(r_+)$ nor $D'(r_-)$ equal 0, and by (d) there cannot be another $\sigma_{\succeq} \notin \{r_-, r_+\}$, $\sigma_{\succeq}$ is unique. By Lemma 6, $D'(r_-) > 0$ implies $D(\sigma) > 0$ for all $\sigma \in (r_-, \sigma_{\succeq})$. Similarly, $D'(r_+) > 0$ implies $D(\sigma) < 0$ for all $\sigma \in (\sigma_{\succeq}, r_+)$. Consequently, implementation is preferred if and only if $\sigma \leq \sigma_{\succeq}$.

The three cases presented are exhaustive. Hence, $\sigma_{\succeq}$ is always defined and unique, and for any $\sigma \in (r_-, r_+)$, the politician prefers to implement her policy if and only if $\sigma \leq \sigma_{\succeq}$. □

B.2.2 The Critical Cutoff

What I have shown in Lemma 8 is that so for each σ and implied r_- and r_+, one can define a value $\sigma_{\succeq}$ that characterizes candidate preference. I now show that as σ increases, this cutoff decreases. Consequently, there is a cutoff σ_{pub} such that $\sigma \leq \sigma_{pub}$ implies a preference for action and $\sigma > \sigma_{pub}$ implies a preference for the status quo, for the policy lottery consistent with σ.

Formally, I now consider

$$\hat{D}(\sigma, r_+(\sigma), r_-(\sigma)) = \frac{\sigma - r_-(\sigma)}{r_+(\sigma) - r_-(\sigma)} F(r_+(\sigma)) + \left(1 - \frac{\sigma - r_-(\sigma)}{r_+(\sigma) - r_-(\sigma)}\right) F(r_-(\sigma)) - F(\sigma). \quad (65)$$

The function $\hat{D}$ gives the utility difference between proposed policy implementation and the status quo for the lottery faced by a politician with reputation σ. By Lemma 8, there exists a unique $\sigma_{\succeq}$ for this lottery such that the politician prefers $x_1 = \theta_1$ if and only if $\sigma \leq \sigma_{\succeq}$ and $x_1 = s_1$ if and only if $\sigma \geq \sigma_{\succeq}$. The following theorem shows that $\sigma_{\succeq}$ is a decreasing function of σ, so that if a lottery is accepted at reputation σ, it will also be accepted for any lower σ, and similarly, if the status quo is preferred at any σ, then it is also preferred for any greater σ. Hence, there exists a value of the signal, $\sigma_{pub} \in [0,1]$, that divides these cases.

Theorem 5. *There exists σ_{pub} such that $\sigma \leq \sigma_{pub}$ implies policy implementation is preferred and $\sigma \geq \sigma_{pub}$ implies the status quo is preferred.*

Proof. Because $\sigma_{\succeq}$ must satisfy $\hat{D}(\sigma_{\succeq}) \equiv 0$, I use the Implicit Function Theorem. An increase in σ increases both r_+ and r_-. In general, the increase in r_+ and r_- may have a positive or negative effect on the value of $\hat{D}$. However, I will show that the effect of an increase in $\sigma_{\succeq}$ is always of the same sign, so that the conditions of the Implicit Function Theorem required to show that $\sigma_{\succeq}$ is a decreasing function of σ are met.

Differentiation of (65) implies the following derivatives:

$$\frac{\partial \hat{D}}{\partial \sigma}\Big|_{\sigma=\sigma_{\succeq}} = \frac{F(r_+) - F(r_-)}{r_+ - r_-} - f(\sigma_{\succeq}) \tag{66}$$

$$\frac{\partial \hat{D}}{\partial r_+}\Big|_{\sigma=\sigma_{\succeq}} = \frac{-1}{r_+ - r_-}\frac{\sigma_{\succeq} - r_-}{r_+ - r_-}F(r_+) + \frac{\sigma_{\succeq} - r_-}{r_+ - r_-}f(r_+) + \frac{1}{r_+ - r_-}\frac{\sigma_{\succeq} - r_-}{r_+ - r_-}F(r_-) \tag{67}$$

$$\frac{\partial D}{dr_-}\Big|_{\sigma=\sigma_{\succeq}} = \frac{\sigma_{\succeq} - b^+}{(r_+ - r_-)^2}F(r_+) + \frac{r_+ - \sigma_{\succeq}}{(r_+ - r_-)^2}F(r_-) - \frac{r_+ - \sigma_{\succeq}}{r_+ - r_-}f(r_-) \tag{68}$$

The derivative with respect to σ, (66), is positive if and only if

$$\frac{F(r_+) - F(r_-)}{r_+ - r_-} > f(\sigma_{\succeq}) \tag{69}$$

or equivalently, if

$$\frac{dD}{d\sigma}\Big|_{\sigma=\sigma_{\succeq}} < 0. \tag{70}$$

The derivative with respect to r_+, (67), is positive if and only if

$$-\frac{\sigma_{\succeq} - r_-}{r_+ - r_-}F(r_+) + (\sigma_{\succeq} - r_-)f(r_+) + \frac{\sigma_{\succeq} - r_-}{r_+ - r_-}F(r_-) > 0. \tag{71}$$

Factoring out $(\sigma_{\succeq} - r_-)$ simplifies (71) to

$$(\sigma_{\succeq} - r_-)[f(r_+) - \frac{F(r_+) - F(r_-)}{r_+ - r_-}] > 0. \tag{72}$$

Dividing both sides by -1 and substituting the definition of D, it follows that (72) is equivalent to

$$(r_- - \sigma_{\succeq})[\frac{\partial D}{d\sigma}\Big|_{\sigma=r_+}] < 0. \tag{73}$$

Inequality (73) holds if $\sigma_{\succeq} > r_-$ and $\frac{\partial D}{d\sigma}\big|_{\sigma=r_+} < 0$, or if $\sigma_{\succeq} < r_-$ and $\frac{\partial D}{d\sigma}\big|_{\sigma=r_+} > 0$.

The derivative with respect to r_-, (68), is positive if and only if

$$\frac{\sigma_{\succeq} - r_+}{(r_+ - r_-)} F(r_+) + \frac{r_+ - \sigma_{\succeq}}{(r_+ - r_-)} F(r_-) + (r_+ - \sigma_{\succeq}) f(r_-) > 0. \tag{74}$$

Dividing on both sides of (74) by -1, it is equivalent to

$$\frac{r_+ - \sigma_{\succeq}}{(r_+ - r_-)} F(r_+) - \frac{r_+ - \sigma_{\succeq}}{(r_+ - r_-)} F(r_-) - (r_+ - \sigma_{\succeq}) f(r_-) < 0. \tag{75}$$

Factoring out $(r_+ - \sigma_{\succeq})$ simplifies (75) to

$$(r_+ - \sigma_{\succeq})[\frac{F(r_+) - F(r_-)}{r_+ - r_-} - f(r_-)] < 0. \tag{76}$$

Substituting the definition of D, it follows that (76) is equivalent to

$$(r_+ - \sigma_{\succeq})[\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_-}] < 0. \tag{77}$$

Inequality (77) satisfied if $\sigma_{\succeq} > r_+$ and $\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_-} > 0$ or if $\sigma_{\succeq} < b^+$ and $\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_-} < 0$.

I proceed by considering each possible case for the location of $\sigma_{\succeq}$, as in Lemma 8.

In case (i), $\sigma_{\succeq} \geq r_+ > r_-$, so $\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_+} \leq 0$ and $\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_-} > 0$. By (73) and (77), this implies $\frac{\partial \hat{D}}{\partial r_+}\big|_{\sigma=\sigma_{\succeq}} \geq 0$ and $\frac{\partial \hat{D}}{\partial r_-}\big|_{\sigma=\sigma_{\succeq}} > 0$. Further, because $\sigma_{\succeq} < r'$ in case (i), (70) implies that $\frac{\partial \hat{D}}{\partial \sigma}\big|_{\sigma=\sigma_{\succeq}} > 0$. Hence, by the Implicit Function Theorem, $\frac{d\sigma_{\succeq}}{d\sigma} < 0$, and $\sigma_{\succeq}$ varies continuously with σ.

In case (ii), $\sigma_{\succeq} \leq r_- < r_+$, $\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_+} > 0$ and $\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_-} \leq 0$. By (73) and (77), this implies $\frac{\partial \hat{D}}{\partial r_+} > 0$ and $\frac{\partial \hat{D}}{\partial r_-} \geq 0$. Further, because $\sigma_{\succeq} > r''$, (70) implies that $\frac{\partial D}{\partial \sigma}\big|_{\sigma=\sigma_{\succeq}} > 0$. Hence, by the Implicit Function Theorem, $\frac{d\sigma_{\succeq}}{d\sigma} < 0$, and $\sigma_{\succeq}(\sigma)$ varies continuously with σ.

In case (iii), $r_- < \sigma_{\succeq} < r_+$, $\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_-} > 0$, and $\frac{\partial D}{\partial \sigma}\big|_{\sigma=r_-} < 0$.By (73) and (77), this implies $\frac{\partial \hat{D}}{\partial r_+} < 0$ and $\frac{\partial \hat{D}}{\partial r_-} < 0$. Because $\sigma_{\succeq} \in (r_-, r_+)$, (70) implies that $\frac{dD}{d\sigma}\big|_{\sigma=\sigma_{\succeq}} < 0$. Hence, by the Implicit Function Theorem, $\frac{d\sigma_{\succeq}}{d\sigma} < 0$, and $\sigma_{\succeq}(\sigma)$ varies continuously with σ.

Hence, $\sigma_{\succeq}(\sigma)$ is a decreasing, continuous function of σ. If $\sigma_{\succeq}(0) \leq 0$, the politician prefers the status quo for any σ, and $\sigma^*_{\succeq} = 0$. If $\sigma_{\succeq}(1) \geq 1$, then the politician prefers to implement her policy for any σ, and $\sigma^*_{\succeq} = 1$. If $\sigma_{\succeq}(0) > 0$ and $\sigma_{\succeq}(1) < 1$, there is a unique point $\sigma_{pub} \in (0, 1)$ such that $\sigma_{\succeq}(\sigma_{pub}) = \sigma^*_{pub}$, and for all $\sigma < \sigma_{pub}$ it holds that $\sigma < \sigma_{\succeq}(\sigma)$ and the politician prefers to implement her proposed policy, while for all $\sigma > \sigma^*_{pub}$, it holds that $\sigma > \sigma_{\succeq}(\sigma)$, and the politician prefers the status quo. □

Theorem 5 shows that even if policy implementation becomes less informative of competence and additive valence plays a factor, the result that the politician prefers to implement her policy only when the expected outcome is sufficiently low remains. Further, $\sigma_{pub} \in (0, 1)$.

Corollary 2. *The cutoff σ_{pub} is strictly between* 0 *and* 1

Proof. As $\sigma \to 1$, $r_- \to 1$, and consequently, both r_- and r_+ must be on the concave portion of F. Because σ is the expected value of r_- and r_+, by Jensen's inequality, $F(\sigma)$ must be greater than the expected F from implementation. Hence for sufficiently high σ, inaction is preferred. Therefore, $\sigma_{pub} < 1$. Conversely, as $\sigma \to 0$, $r_+ \to 0$, and therefore both r_- and r_+ are on the convex portion of F. Again by Jensen's inequality, $F(\sigma)$ must be less than the expected F from implementation. Hence for sufficiently low σ, implementation is preferred. Therefore, $\sigma_{pub} > 0$. □

This corollary implies that, as long as F is strictly unimodal, there are some high signals for which the politician will not implement her policy, despite it being extremely likely to generate good outcomes, and simultaneously, low signals that induce the politician to implement a policy despite it being extremely likely to generate bad outcomes.

B.3 Generalization of Private Information Equilibrium

In this subsection, I show that the politician only implements her proposed policy when her private signal is sufficiently high in a more general context than the main text.

B.3.1 Behavior when action is observable

In this analysis, contrary to the main text, I assume the voter is capable of observing the politician's actions, so that $x_1 = s_1$ is a different information set from $x_1 = \theta_1$, even if the outcome is observed for neither. I make use of assumptions 1 thru 7. It is not necessary to assume F is symmetric for this analysis.

The voter prefers the politician to the challenger if and only if her expected second period utility from the politician, given his observation of the politician's action and its consequence, is greater than her expected second period utility from the challenger. Note that because the voter does not observe σ, he must take the expectation over the possible values of sigma. Hence, the voter prefers to re-elect the politician if

$$\mathbb{E}(v_2(r_y(\sigma)|x_1, y_1) > v_2(q^c), \tag{78}$$

or equivalently if

$$v_2^{-1}(\mathbb{E}(v_2(r)|x_1, y_1)) > q^c. \tag{79}$$

Consequently, the probability of re-election conditional on the politician's choice and its outcome is $F(v_2^{-1}(\mathbb{E}(v_2(r)|x_1, y_1)))$. If the politician chooses the status quo, then $x_1 = s_1$ and $y_1 = 0$, and her probability of re-election is $F(v_2^{-1}(\mathbb{E}(v_2(r)|s_1)))$. If the politician chooses to implement her proposed policy, then $x_1 = \theta_1$ for certain, but the outcome may be positive, negative, or unobserved. The expected probability of re-election across these outcomes is

$$\begin{aligned} &\gamma F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, 0))) + (1-\gamma)[p(\sigma)F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, 1))) \\ &+ (1 - p(\sigma)F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, -1))). \end{aligned} \tag{80}$$

Consequently, the politician prefers to implement her proposed policy if and only if

$$\begin{aligned} &\gamma F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, 0))) + (1-\gamma)[p(\sigma)F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, 1))) \\ &+ (1 - p(\sigma)F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, -1))). \\ &\geq F(v_2^{-1}(\mathbb{E}(v_2(r)|s_1))) \end{aligned} \tag{81}$$

Note that the only terms on the left hand side of (81) that depend upon σ are $p(\sigma)$ and $1 - p(\sigma)$; all other terms on the left hand side are constant with respect to the politician's realization of σ. Because $\mathbb{E}(v_2(r)|\theta_1, 1) > \mathbb{E}(v_2(r)|\theta_1, -1)$, the left hand side is strictly increasing in σ. Consequently, the equilibrium is characterized by a cut-off, σ^*, for the politician prefers the status quo whenever $\sigma < \sigma^*$, and prefers to implement her policy whenever $\sigma > \sigma^*$. Thus, it remains the case that the politician prefers to implement her proposed policy only when she has a sufficiently high signal under private information, even when I allow for a more general distribution, voter utility function, and partially informative results of policy implementation.

I now use this characterization of equilibrium behavior to derive an equilibrium. The conditional expectations can be written as follows:

$$\mathbb{E}(v_2(r)|\theta_1, 0) = \mathbb{E}(v_2(r)|\sigma \geq \sigma^*) = \frac{\int_{\sigma^*}^1 v_2(\sigma)dG(\sigma)}{1 - G(\sigma^*)} \tag{82}$$

$$\mathbb{E}(v_2(r)|\theta_1, 1) = \mathbb{E}(v_2(r)|\sigma \geq \sigma^*, 1) = \frac{\int_{\sigma^*}^1 v_2(r_+(\sigma))dG(\sigma)}{1 - G(\sigma^*)} \tag{83}$$

$$\mathbb{E}(v_2(r)|\theta_1, -1) = \mathbb{E}(v_2(r)|\sigma \geq \sigma^*, -1) = \frac{\int_{\sigma^*}^1 v_2(r_-(\sigma))dG(\sigma)}{1 - G(\sigma^*)} \tag{84}$$

$$\mathbb{E}(v_2(r)|s_1, 0) = \mathbb{E}(v_2(r)|\sigma \leq \sigma^*) = \frac{\int_0^{\sigma^*} v_2(\sigma)dG(\sigma)}{G(\sigma^*)} \tag{85}$$

Suppose that $\sigma^* = 0$. Then evaluating (82) thru (85), it follows that (81) is equivalent to

$$\begin{aligned}\gamma F(v_2^{-1}(\mathbb{E}(v_2(\sigma)))) + (1-\gamma)[p(\sigma)F(v_2^{-1}(\mathbb{E}(v_2(r)|1))) + (1-p(\sigma))F(v_2^{-1}(\mathbb{E}(v_2(r)|-1))\\ \geq F(v_2^{-1}(0)).\end{aligned} \tag{86}$$

Given that $r_-(\sigma) > 0$ for any $\sigma > 0$, it follows that every expectation on the left hand side of (86) exceeds $v_2^{-1}(0)$. Consequently, because F is strictly increasing, the left hand side of (86) must be strictly larger than the right, and there is an equilibrium in which $\sigma^* = 0$. Intuitively, when $\sigma^* = 0$, the politician implements her policy no matter the value of σ because if she chooses the status quo, she is believed to be incompetent. Because this discourages the politician from ever choosing to maintain the status quo, this suspicion is never disproven in equilibrium.

B.3.2 Behavior when action is observable with main text assumptions

I now revisit the private information model in the main text, but allow for x_1 to be observable. I otherwise maintain the main text assumptions. In this context, $\sigma_{pri} = 0$ is the unique equilibrium. Because the politician only chooses the status quo if $\sigma < \sigma^*$, $E(\sigma|s_1) = E(\sigma|\sigma < \sigma^*)$. Further, the politician only chooses to implement her policy if $\sigma > \sigma^*$, so $E(\sigma|\theta_1, 0) = E(\sigma|\sigma > \sigma^*)$. Hence, a politician prefers to implement her policy if

$$(1-\gamma)\sigma + \gamma F(\mathbb{E}(\sigma|\sigma \geq \sigma^*)) \geq F(\mathbb{E}(\sigma|\sigma \leq \sigma^*)). \tag{87}$$

Equivalently, she prefers to implement her policy if

$$(1-\gamma)[\sigma - F(\mathbb{E}(\sigma|\sigma \leq \sigma^*))] + \gamma[F(\mathbb{E}(\sigma|\sigma \geq \sigma^*)) - F(\mathbb{E}(\sigma|\sigma \leq \sigma^*))] \geq 0. \tag{88}$$

I now show that it must be the case that the politician prefers to implement her policy for any $\sigma \in [0,1]$. Note that $[F(\mathbb{E}(\sigma|\sigma \geq \sigma^*)) - F(\mathbb{E}(\sigma|\sigma \leq \sigma^*))] > 0$ because $\mathbb{E}(\sigma|\sigma \geq \sigma^*) > \mathbb{E}(\sigma|\sigma \leq \sigma^*)$. Recall that $\mathbb{E}(\sigma|\sigma \leq \sigma^*) \leq \frac{1}{2}$, and consequently, $F(\mathbb{E}(\sigma|\sigma \leq \sigma^*)) \leq \frac{1}{2}$. For $\sigma^* > \frac{1}{2}$, $[\sigma^* - F(\mathbb{E}(\sigma|\sigma \leq \sigma^*))] > 0$, and the left hand side of the inequality (88) is strictly positive. Hence, such a value of $\sigma^* > 0$ cannot be an equilibrium. For $\sigma^* \leq \frac{1}{2}$ but non-negative, the first term of the inequality (88) must be positive because $F(\mathbb{E}(\sigma|\sigma \leq \sigma^*)) < F(\sigma^*) \leq \sigma^*$ by convexity of F on $(0, \frac{1}{2})$. Consequently, $[\sigma - F(\mathbb{E}(\sigma|\sigma \leq \sigma^*))]$ is non-negative while $[F(\mathbb{E}(\sigma|\sigma \geq \sigma^*)) - F(\mathbb{E}(\sigma|\sigma \leq \sigma^*))]$ is positive. Hence, $\sigma^* = 0$ is the only solution, and the politician prefers to implement her policy for any $\sigma \in [0,1]$.

B.3.3 Behavior when action is unobservable

Returning to the main text assumption that x_1 is not observable, but making use of assumptions 1 thru 7, the politician would implement if and only if

$$\gamma F(v_2^{-1}(\mathbb{E}(v_2(r)|0))) + (1-\gamma)[p(\sigma)F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, 1))) + (1-p(\sigma)F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, -1))) \\ \geq F(v_2^{-1}(\mathbb{E}(v_2(r)|0))) \tag{89}$$

or equivalently

$$p(\sigma)F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, 1))) + (1-p(\sigma))F(v_2^{-1}(\mathbb{E}(v_2(r)|\theta_1, -1))) \geq F(v_2^{-1}(\mathbb{E}(v_2(r)|0))) \tag{90}$$

As in the case when action is observable, the left hand side is strictly increasing in σ and the right hand side is constant, and hence there exists a cut-off that characterizes the equilibrium strategies by the same argument.

B.4 Partially Asymmetric Information

In this modification of the main text version of the private information model, the politician observes σ, which contains both the public knowledge in the report about her policy and her own knowledge of her competence. However, the voter only observes the public information about her, which indicates the expected probability that she is competent, π_τ. Whenever $\pi_\tau > \pi'_\tau$, I assume that the distribution of σ given π_τ strictly first order stochastically dominates (FOSDs) the distribution given π'_τ on $[0,1]$. I also add the assumption that σ_{pri} is unique, as the proof of uniqueness used in the main text required that the expected σ be equal to $\frac{1}{2}$. All other assumptions are maintained from Section 4.

As π_τ increases, the voter expects the politician to have better signals, and consequently the expected signal for any given cutoff is higher.

Lemma 9. *If $\pi_\tau > \pi'_\tau$, $ER(\sigma^*|\pi_\tau) > ER(\sigma^*|\pi'_\tau)$.*

Proof. Let the distribution for σ given π_τ be g and the distribution given π'_τ be h. By assumption, g strictly FOSDs h on $[0,1]$. Using the definition of ER, I want to show

$$\frac{\int_0^{\sigma^*}\sigma dG(\sigma)+\gamma\int_{\sigma^*}^1\sigma dG(\sigma)}{G(\sigma^*)+\gamma(1-G(\sigma^*))} > \frac{\int_0^{\sigma^*}h(\sigma)\sigma d\sigma+\gamma\int_{\sigma^*}^1 h(\sigma)\sigma d\sigma}{H(\sigma^*)+\gamma(1-H(\sigma^*))} \tag{91}$$

Observe that because σ is a strictly increasing function of σ, First order stochastic dominance implies

$$\int_0^{\sigma^*}\sigma dG(\sigma) > \int_0^{\sigma^*} h(\sigma)\sigma d\sigma \tag{92}$$

and

$$\int_{\sigma^*}^1\sigma dG(\sigma) > \int_{\sigma^*}^1 h(\sigma)\sigma d\sigma \tag{93}$$

Consequently, the numerator of the left hand side must be larger than the numerator of the right hand side. Further, $G(\sigma^*) < H(\sigma^*)$ for any σ^* by First Order Stochastic Dominance. Hence, the denominator of the left hand side must be smaller than that of the right hand side as well, and the claim is shown. □

Recall that σ_{pri} solves $F^{-1}(\sigma_{pri}) = ER(\sigma_{pri})$. Hence, when the right hand side increases because of an increase in π_τ, $F^{-1}(\sigma_{pri})$ must also increase. Consequently, because $F^{-1}(\sigma)$ is strictly increasing, the value of σ_{pri} must be greater for π_τ than for π'_τ. Hence, as π_τ increases, the value of σ_{pri} increases. When the politician has a higher π_τ, so that the public's information about them is more favorable, she implements the policy only for larger realizations of σ. Because σ is the probability of success, the politician is effectively becoming more risk averse as π_τ increases, as a strictly higher probability is required for the lottery of policy implementation to be acceptable to them.

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