Accountability and Cheap Talk

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Abstract

This paper analyzes a cheap talk model with heterogeneous receivers who are accountable for the correctness of their actions, showing that there exists a truth-revealing equilibrium. This sheds new light on the important role played by elections in shaping politicians' and, more surprisingly, advisor's behaviors in a cheap-talk setting. In deciding which message to send, the advisor is aware that he could use this message to affect the electoral outcome, the *manipulation effect*, or to shape the first period policy, the *influence effect*. When the first effect dominates the second there exists an informative equilibrium. In addition, I show that the presence of heterogeneous politicians leads to an increase in voters' welfare as a result of better-informed decisions. I allow the politician to delegate authority to the expert, showing that due to the signaling value of the politician's delegation decision, only corrupt or incompetent incumbents will delegate the second-period decision. Finally, I generalize the results in a number of different directions.

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1 Introduction

Politicians often seek advice from experts to dispel uncertainty about the consequences of their decisions. The United States Congress regularly holds legislative hearings to gather information from academics, experts and interest groups on policy issues and one of the first actions of the newly elected President Obama was to nominate members of the Council of Economic Advisors to face the current economic crisis. In most cases, however, the preferences of the political leaders are different from those of the experts, opening up the possibility of information manipulation. Political leaders often have no way to verify the truthfulness of the information acquired from the experts, but they need to make policy choices on which they will be evaluated. Moreover, a political leader cannot blame his advisor for the choices he makes hence, he has to face public opinion, even when the decision taken is the wrong one. There might be a high political price to pay, such as a decrease in popularity, the loss of financial supporters or a defeat at the next election[1]. This means that political reputation crucially depends on the information and competence of others[2]. May an expert effectively use the information he provides to manipulate the politician's reputation? More generally, what is the relationship between electoral accountability and the information transmitted by an advisor to a politician?

The purpose of this paper is to analyze these interactions in a repeated *cheap talk* model with a career-concerned decision maker. Specifically, we provide a framework in which the presence of corrupt politicians induces more information revelation, which induces better policy choices made before the elections. The main result of the paper is that truth-revealing equilibria are possible in a cheap talk context with different types of policy makers and repeated interactions between a sender and a receiver. The model generates also some surprising insights about the effect of corruption on social welfare in fact, the presence of corrupt politicians may be welfare-improving through the information revelation channel.

The literature on cheap talk has widely investigated the possibility that an expert may reveal more information through his message to the decision maker when he is interested in building a

[1] President Bush, for instance, tried to blame the erroneous information provided by the CIA about Iraq's weapons of mass destruction, without success.

[2] The situation faced by politicians has some common features with those that can be traced in many other contexts. Corporate managers, for example, usually make their strategic decisions based upon the opinions and reports of accounting specialists, marketing experts and investment bankers. Their decisions will be assessed by the market, affecting their careers.

reputation [3]. However, the decision maker's concerns about his own reputation and the effect this could have on the amount of information revealed in equilibrium has not been analyzed in detail until now. I show the existence of a unique fully revealing equilibrium, in which the sender transmits a fully informative message if he believes he is dealing with his preferred decision maker with sufficiently high probability.

To illustrate the intuition behind the results of the paper, we frame our results in a political economy setting, but the mechanism may be applied to many other settings. Consider a world in which politicians may be either corrupt or honest and there exists a special interest group informed about a relevant economic fundamental that affects the outcome of policy. The first type of decision maker seeks to implement the best policy, given the state of the fundamental, while the corrupt decision maker is office-motivated and is biased in favor of the interest group's preferred policy. The introduction of the election stage in our context gives the politicians an incentive to build a reputation for honesty. We focus our attention on the effects that political accountability has on the information transmitted in equilibrium and on the possibility for voters to select the best leaders from among the politicians. This also gives us the opportunity to analyze the role played by interest groups in electoral competition. There is an incentive for an expert to reveal more information when the party he supports is in power, thus supporting its re-election. This is not directly due to the closeness of their preferences, but rather to the incentives of the expert to manipulate voter beliefs in favor of his preferred candidate. The expert engages in a communication stage with the politician, whose type is imperfectly observed, and after the realization of the outcome, there is an election. The voters do not observe the political leader's type, instead attempting to infer the type of the policy maker from the implemented policy.

The policy maker's incentives to build a reputation might impact the expert's strategy in two different ways. First, in a two-period model, the expert can be induced to reveal more information in the first period to increase the reputation of the politician, enhancing in this way his probability of being re-elected. Second, the honest politician might be tempted to exchange information for allowing the expert to influence the second-period policy choice. In my framework, I have the opportunity to analyze both settings. A frequent defense employed by politicians, when they face their mistakes, is to blame the expert who has advised them. Is this a reasonable defense? I show

[3] See, for example, Sobel (1985), Morris (2001), Prat (2005) and Ottaviani and Sorensen (2006a, 2006b). An examination of the related literature is provided in the next section.

that it is not.

The logic of my argument can be seen in the following example. Consider the problem of a President who has to decide whether to directly intervene in a financial crisis, bailing out a company in financial straits. The President may consult an economic advisor, who has expert knowledge about the financial situation of the company and the possible effects of a bankruptcy on the economy. However, assume that he is biased toward an intervention in favor of the company (due to, for example, his current investment in the company). Suppose that the President can be of two types: honest or corrupt. Consequently, the economic advisor has an incentive to describe the potential cost of the transaction as smaller when he believes that the politician is honest, while he might provide more accurate information if he believes that the incumbent is corrupt. In fact, while further information could induce the honest type to desist from the financial operation, it may not affect the corrupt type's decision. Furthermore, because the outcome of the crisis depends crucially on the information provided in equilibrium, and because the voters have preferences over the outcome, this also affects the incumbent's probability of re-election. Therefore, the advisor has an incentive to truthfully disclose his information, which derives from the effect that the information revealed in equilibrium has on the election outcome.

Having established the effect of elections and corruption on the information transmitted and on welfare, we then use the model to explore the effects of allowing the incumbent to delegate the second-period decision to the advisor. We show that only an honest but incompetent incumbent and a corrupt one are willing to delegate the second-period decision to the advisor. The first does so to exchange influence for information in the first period, and the second does so due to similar preferences over the policy choice set. Novel effects arise, as the delegation decision also has value as a signal, which is completely absent in the relevant literature. For instance, what happens in the case in which the information of the expert could lead to a decrease in the re-election probability of the politician? I show that a competent politician will never delegate his authority to a biased expert, due to the costs in terms of reputation that would ensue. I also allow for a different alignment of preferences between the corrupt incumbent and the expert, showing in this way that the informative equilibrium does not rely on this.

More generally, the results can be seen as a first step towards a complete analysis of the interaction among different accountability systems in an agency model with strategic information transmission. In Appendix B, I show that the receiver's accountability is a mechanism that is

robust in a much more general setting, with concave utility functions, a finite state space and an imperfectly informed expert. It provides a framework applicable to a number of different situations in which information revelation is endogenous.

In all of the studies that examine the interaction between policy makers and experts, there is one missing actor: the constituency. This paper sheds new light on the important role played by elections in shaping the behavior of politicians and, more surprisingly, that of experts, providing interesting and novel insights about political accountability and the benefits and associated costs. Even in a context in which an expert is biased, the accountability of the politician plays an important role.

There are two important features in our model representing the main departure from the cheap talk game introduced by Crawford and Sobel (1982) that will indeed drive our results. First, we consider a model in which there is a further stage after the communication phase, in which voters are able to evaluate the choices taken based upon the information revealed in equilibrium, trying to infer the politician's type. Second, the politician's preferences are unknown, so he can be biased toward the preferences of the experts or he can seek to maximize voters' welfare.

The paper is structured as follows. Section 2 is devoted to presenting in which directions we depart from the existing literature. Section 3 introduces the model. Section 4 characterizes the equilibrium and establishes that due to the signaling effect attached to the first-period policy, honest politicians may rationally ignore expert advice, which I shall term "ideological" decision making, while populism may arise among corrupt politicians. It also shows how voters' welfare can be thought of in terms of revelation, babbling and manipulation components. Section 5 discusses the implications of the model and extends it to examine the equilibrium in which the incumbent is allowed to delegate the second-period decision. Section 6 discusses the main assumptions and concludes. All of the proofs are contained in Appendix A, in Appendix B, we generalize the model and check the robustness of our findings.

2 Related Literature

This paper spans and borrows from several literatures. In its emphasis on the information transmitted between a sender and a receiver, our work belongs to the cheap talk literature started with the seminal contribution by Crawford and Sobel (1982), who analyze a communication game between a sender and a receiver in which the sender has private information about an economic fundamental,

showing that every equilibrium is a partition equilibrium: the sender partitions the support of the probability distribution of the variable that represents his private information. Our model departs from Crawford and Sobel in that we allow for multiple types of the receiver and a decision maker's evaluation stage. This generates new strategic considerations regarding the willingness of the expert to provide more accurate information to the policy maker.

Models of cheap talk communication have been employed in political science (e.g., Gilligan and Krehbiel, 1989; Austen-Smith, 1990; Krishna and Morgan, 2001, among others), in organizational economics (Gromb and Martimort, 2004; Aghion, Dewatripont and Rey, 2004; Rantakari, 2008; Calvo-Armengol and de Marti, 2009), in the analysis of the credibility of central banks (Stein, 1989; Moscarini, 2007), in bargaining (Farrell and Gibbons, 1989; Valley, Thompson and Gibbons, 2002), in finance (Scharfstein and Stein, 1990; Bommel, 2003; Stocken, 2000; Morgan and Stocken, 2003), and, recently, in the context of an arms race (Baliga and Sjorstrom, 2004; 2008). In this strand of the literature, the papers most close to ours are Morris (2001) and Ottaviani and Sorensen (2006b) because they introduce reputation concerns in a communication game. In the first one, the advisor cares about her reputation because she wants her advice to have an impact on the decision taken by the principal. Then if the decision maker thinks that the advisor might be biased in favor of a decision, he has an incentive to lie, even when he is unbiased, implementing as a result the action that a priori is most probably implemented by the unbiased advisor. These reputation concerns might prevent the advisor from conveying valuable information in equilibrium. Ottaviani and Sorensen (2006b), instead, employing a relatively general information structure provide an impossibility result: the expert's concerns about his reputation destroy every possibility of truthful equilibria [4]. Our result is in sharp contrast with the latter in fact, we show that informative equilibria are the outcome of a model with the *receiver* concerned about his reputation.

The main difference between the two papers is that while in Morris (2001) the reputation is built on preferences, in Ottaviani and Sorensen (2006b), the quality of information possessed differs across types. Introducing the reputation concerns of the decision maker connects two otherwise different approaches. In our model, in fact, reputation is built upon both competence and preferences, and

[4] In the cheap talk literature, many studies analyze the possibility of extracting full information from the experts. Some authors focus upon the possibility of extracting more information when there is more than one expert, as in Gilligan and Krehbiel (1989) or in Krishna and Morgan (2001). More recently, other studies have proposed relevant situations in which truth-revealing equilibria can be supported. Battaglini (2002), Levy and Raviv (2008) and Ambrus and Takahashi (2008) prove that the dimensionality of the uncertain variable has an important impact on the results: with more than one dimension, full transmission of information is typically possible.

the sender conveys information to the receiver to *influence* a certain decision and at the same time *manipulate* voters' beliefs about the receiver's type. Dur and Swank (2005) and Bennedsen and Feldman (2006) study how cheap talk communication may influence political action however, our model provides a completely novel channel: the expert is able to increase the re-election probability of his preferred party.

The expert's power to strategically employ his information has also been analyzed by Benabou and Laroque (1992). They extend Sobel's (1985) model of strategic communication to the case of noisy private signals, arguing that the noise allows opportunistic individuals to manipulate prices repeatedly. In our framework, instead, the expert is able to employ the information he possess to manipulate the politician's reputation and the election's outcome. In contrast to Blume, Board and Kawamura (2007), which shows that noise may be welfare improving, we show that it is optimal for the expert to fully disclose his signals without any noise.

The effects of the introduction of career concerns for the principal have been the main object of Levy (2004). She considers a principal who cares about both the appropriate decisions and her reputation and can consult with the agent before making the decisions. Levy (2004) shows that a more competent principal will consult less with the agent. To signal his competence to the evaluators, she will take the action that contradicts the agent's advice thus, in equilibrium, there will be too many contradictions, i.e., "anti-herding" behavior comes into play. The analysis of the information transmission problem is absent in Levy's (2004) work, as she assumes no possibility of misrepresentation, disregarding also the possibility of delegating the decision-making power to the expert. Her result is one possible outcome of our analysis, when the honest incumbent heavily weights the second-period decision. However, our focus is on how the receiver's accountability affects the policy quality through expert's incentive to disclose her information, which is absent in Levy (2004). The issue of official's accountability is also raised in Maskin and Tirole (2004). Their model captures the main benefits of political accountability. First, the re-election concerns induce the decision maker to act in the public interest, even in the presence of a divergence of preferences, through a so-called "moral-hazard-correcting" benefit. At the same time, the elections might be an instrument to select among the pool of politicians only those with preferences aligned with those of society. This can be considered as a sort of "adverse-selection-correcting" effect. Maskin and Tirole (2004) also highlight the possible drawbacks of accountability; in fact, an official may choose an action just because it is popular even if it is inefficient. Furthermore, the elections

might become a tool in the hands of the majority to shape the government. Although it shares the same interest in electoral accountability, our paper studies the effects of political liability on the information strategically transmitted by an adviser to the policy maker, identifying new costs and benefits. Political accountability is, in fact, a double-edged tool to control an official's action; it improves the quality of the information transmitted, but it leads to the inefficient delegation to non-accountable bureaucrats or to costly signaling - the incumbent can implement an action with a low probability of success to signal his type. Delegation is, instead, the main focus of Alesina and Tabellini (2007), who investigate the optimal task allocation between an independent bureaucrat and an elected politician. They show that it is optimal to delegate to a bureaucrat technical tasks for which ability is more important than effort. On this line, we add that a *competent* politician never exchanges information with influence over the second-period decision.

This paper is related to previous work analyzing the effect of transparency on the agent's optimal strategies. In an important contribution, Prat (2005) shows that while transparency regarding the consequences of the agent's action is beneficial, transparency regarding the action itself might present some severe drawbacks. The information about the agent's action, in fact, induces the latter to act according to how an able agent is expected to act a priori. In this way, the principal is not able to draw an inference about the agent's type and the agent's action might be less aligned with the principal interest. An analogous distortion is present in our model too, in which an honest politician may implement suboptimal policies to reveal his type. We share with Majumdar and Mukand (2004) the same assumptions about the voters' strategy and the focus on how the politician's concerns about his re-election possibilities affect the way in which he makes decisions while he is in office. Recent papers, such as Crawford (2003) and Kartik (2008), analyze cheap talk games with lying costs. In our framework, lying costs endogenously arise along with a lower re-election probability of the expert's most preferred politician.

Finally, our analysis of the principal's ability to credibly signal his type resembles the ideas provided in Cukierman and Tommasi (1998) and Kartik and McAfee (2007). The incumbent's ability to employ the chosen actions to signal his type to the voters is, in fact, the central question addressed by these papers.

3 The Model

The players and the action space. We study an agency model of elections with two periods: in each period, the politician in office makes decisions about government spending after a communication stage with an advisor. Between periods, there is an election in which a voter chooses between the incumbent and a challenger. The politician needs the advice of the expert to choose an action $a_t \in \{l, r\}$ for $t = 1, 2$, namely on whether to implement a new reform ($a = r$), or to maintain the status quo ($a = l$). The consequences of the first-period policy do not materialize until after the elections. The politician can be of two types $\theta \in \{h, c\}$, i.e., *honest* or *corrupt*. The incumbent can be an honest politician with probability ε which is distributed according to the cumulative distribution function $F(\varepsilon)$ and with density function $f(\varepsilon) > 0$ on $[0.5, 1]$[5]. The two types differ in the preferences over the action space: an honest politician aims to implement the best policy to maximize the voters' welfare. In contrast, a corrupt policy maker behaves strategically, choosing policies to maximize his rents, irrespective of the state of the world; moreover, he is office motivated. For instance, this is the case if he aims to favor the lobby's interests. Our definition of honesty is based on the difference in preferences among types, but this difference can be the result of a previous and un-modeled bribery attempt by a lobby[6]. Given the choice of the politician, the voters have the opportunity to re-elect the incumbent ($d = 1$) or to support a new policy maker ($d = 0$). After the election, the incumbent, if reappointed, or the new politician will engage in a new decision-making problem. Thus, an honest politician is a strategic agent in the reputational game we study.

The information structure. The efficiency of the policy in period t depends on an unknown state $\omega_t \in \{l, r\}$. A previously implemented policy or publicly available data about the economic situation can provide information about ω_t. Assume, without a loss of generality, that the body of previous politicians' actions indicates that the state is r and is accurate with probability $q \in \left(\frac{1}{2}, \frac{2}{3}\right)$[7]. The prior belief of the players about the state of the world is therefore $\Pr(\omega = r) = q$ and is common knowledge. The agents differ in the amount of private information they possess about ω_t.

(*i*) *The information possessed by the policy maker.* A corrupt politician does not possess any information other than the public prior. The honest politician observes, instead, a signal s_t^d, and the information of a more able policy maker is more likely to be reliable. In particular,

[5] A similar information structure has been used by Scharfstein and Stein (1990) in their formulation of reputational cheap talk and has also been analyzed by Ottaviani and Sorensen (2001)

[6] See Durbin and Iyer (2009) for a cheap talk model in which the expert may be bribed by a third party.

[7] We assume that range of values for q in order to clarify the results.

let ϕ be the *competence* of the policy maker, $\Pr\left(s_t^d = \omega_t \mid \omega_t, \phi\right) = \phi > \frac{1}{2}$[8], and assume that it is common knowledge. Given her own information, the decision maker forms the following beliefs:

$$\Pr\left(\omega_t = r \mid s_t^d, \phi, q\right) = \begin{cases} \frac{\phi q}{\phi q + (1-\phi)(1-q)} \text{ if } s = r \\ \frac{(1-\phi) q}{(1-\phi) q + \phi (1-q)} \text{ if } s = l \end{cases} \tag{1}$$

where $\Pr\left(\omega_t = l \mid s_t^d, \phi, q\right) = 1 - \Pr\left(\omega_t = r \mid s_t^d, \phi, q\right)$.

(*ii*) *The information possessed by the expert.* The expert receives a private signal $s_1^e \in \{l, r\}$ about the state of the world. We assume that the expert's signal is fully informative, but he can choose the amount of noise in the information transmission stage of the game. This assumption is aimed to capture a natural situation in which the expert fully observes the state of the world (or at least he can do so at zero cost) but is able to manipulate his message to the decision maker, choosing the accuracy of his report. The signal may comprise information that she obtains from a specialized analysis of the field or through lobbying activities. This is soft information in the sense that it is not verifiable. Moreover, we assume that he does not observe the politician's type, but gets a signal about it: $s_2^e \in \{h, c\}$ with $\Pr\left(s_2^e = \theta \mid \theta\right) = \lambda \in \left(\frac{1}{2}, 1\right)$. Then he knows that he is dealing with an honest politician with probability $\Lambda \equiv \Pr\left(\theta = h \mid f\left(\varepsilon\right), s_2^e, \lambda\right)$.

(*iii*) *The information possessed by the voter.* The representative voter observes neither the signal s_1^e of the expert nor the type θ of the politician. She observes the common prior about ε given by the distribution $F\left(\cdot\right)$, the prior over the state space q, the action chosen in the first period a_1 and the realized state of the world ω_1. I assume that when she has to decide whether to vote for the incumbent, she knows that the challenger can be honest with probability τ, distributed according to the cumulative distribution function $G\left(\tau\right)$ with density $g\left(\tau\right) > 0$ on $[.5, 1]$. In this way, the voter's choice is essentially based upon the comparison between his updated beliefs about the incumbent and the prior about the challenger's type.

Objectives of players, strategies and equilibrium. The honest politician's objective is to maximize the policy outcome

$$U_h\left(a_t, \omega_t\right) = \eta t_1 + t_2$$

[8] The perfect correlation between honesty and competence is not crucial to the main results; it only clarifies the voter's updating process. We can, in fact, assume that both types observe different informative signals about the state (even if the two signals are correlated). What is crucial for the main result is that the honest decision maker be better informed, even if only slightly.

where $\eta > 0$ is his outcome concern before the elections and $t_t = Pr\left(a_t = \omega_t \mid I_t^h\right)$ is the quality of the policy given his information set I_t^h. We assume that he does not have any office-seeking motive; this is done simply to further differentiate the two types and to do so without a loss of generality. The results, in fact, are robust to the introduction of concerns about reputation for the honest type, as long as they are not too strong. A corrupt politician wants to enhance his reputation and to implement action r, i.e., his utility is

$$U_c\left(a_t, \omega_t\right) = \left(Pr\left(a_1 = r \mid I_t^c\right) + Pr\left(a_2 = r \mid I_t^c\right)\right) + \gamma\pi\left(f\left(\varepsilon\right), \omega_1, a_1\right)$$

The parameter $\gamma \in [0, 1]$ measures the politician's reputational concerns. We allow a direct effect of reputation on the corrupt incumbent's payoff function to allow for a richer set of behaviors, including one in which the corrupt politician also does not take the expert's recommendations at face value. If $\gamma = 0$, this will make our main result more likely, as the corrupt politician is more easily influenced, as will be made clear in what follows. The strategy of the politician is to pick an action a_t given his available information; that is, it is a function $\psi_i : \left(s^d,\, s_1^e,\, q,\, m,\, p\right) \rightarrow \{l,\, r\}$ with $i = h, c$. The politician observes the prior, his type and his own signal and the expert's message $(m,\ p)$.

The voter rationally updates his beliefs about ε. The voter's posterior probability that the incumbent is honest is denoted by $\pi = \Pr\left(honest \mid f\left(\varepsilon\right), \omega_1, a_1\right)$, where $I^v \equiv \left(f\left(\varepsilon\right), \omega_1, a_1\right)$ is the information available to the voter. The voter's utility depends on the quality of the policy and on the politician's type. The objective of the voter is to correctly guess the type of the politician and to have the best policy implemented[9]:

$$U_v\left(\pi, a\right) = t_1 + \alpha E\left[t_2 \mid I^v\right]$$

Since the corrupt politician will always choose r in the second period, the voter endogenously prefers to elect an honest politician[10]. Hence, the voter's strategy is given by $\zeta : \left(q, \omega_1, a_1, f\left(\varepsilon\right)\right) \rightarrow \{0, 1\}$.

It is worth stating that it is possible to conduct our analysis with an isomorphic model. Consider that the expert is unbiased, that is, that he has no preferences over the outcome space. Moreover,

[9] For this case, we use a setting with fully strategic voters ($\alpha = 1$) and a context with myopic voters ($\alpha = 0$). This also gives us the ability to interpret the model as one in which there are infinitely many voters uniformly distributed on the unit interval with a proportion α of strategic voters and a fraction $(1 - \alpha)$ of naive or uninformed voters. They care about the policy outcome without recognizing that the policy outcome is not always a "good news" about the politician's type.

[10] The results are qualitatively equivalent - and even sharper- if we introduce a direct preference for an honest politician, like in Kartik and McAfee (2006). For simplicity, we restrict to $0 < \alpha < \frac{1}{2-3q}$ the relative weight that the voter places on the second-period policy outcome.

now the corrupt politician might be defined as one who is willing to pay an "information rent" to the expert, and the two types of politicians have ideological preferences about the action space. The expert's incentives are now endogenous and not determined *ex ante* by different preferences. This version of the model will be useful to interpret the results.

Finally, the expert has only outcome concerns, but because the setting we are analyzing is a two-period model, he has an incentive to deal with the corrupt politician in the second period to implement his preferred action. This increases endogenous concerns of the expert for the politician's reputation. Specifically, he has the following payoff function to maximize:

$$U_e = \beta Pr\left(a_1 = r\right) + Pr\left(a_2 = r\right)$$

where $\beta \geq 1$. As a result, the expert's strategy is to send a report according to the function $\sigma : (s_1^e, s_2^e, \lambda, f(\varepsilon)) \rightarrow (m, p)$. This choice is affected by an incentive not to be truthful, dictated by his preference for a right policy, as is usual in the cheap talk literature. At the same time, because he faces the problem of dealing with a "hostile" politician in the future, he tries to manipulate the voters' beliefs through the transmission of valuable information to the policy maker. To economize on notation, we write the expert's strategy $\sigma(\omega, \lambda)$. In this framework, elections serve a role in selecting appropriate incumbents for re-election in the second period. Moreover, as we shall see, elections may also provide incentives for the expert to send accurate information to the incumbent and then may lead the corrupt first-period incumbents to restrain themselves from implementing the wrong policy.

I use the concept of a perfect Bayesian equilibrium to solve the model. This means that the strategy profile (ψ_i, ζ, σ) is optimal and that the voters rationally update their belief function $\pi(\cdot)$ about the politician's type. I analyze only informative equilibria, i.e., when the strategy of the politician is responsive to the signal he receives from the expert. Moreover, I ignore the "mirror" equilibrium, i.e., an equilibrium that takes an original equilibrium and switches each action from l to r and vice versa.

The timing of the game:

1. The accuracy q of the prior is observed.

2. ω_1 is realized and the expert receives a private signal s_1^e about ω_1.

3. The expert writes a report (m, p) to the decision maker and the incumbent forms his beliefs.

4. The politician takes an action a_1.

5. ω_1 becomes observable, voters forms beliefs on ε and elections are held.

6. State ω_2 is realized and action a_2 is taken by the new incumbent.

4 Informative Equilibrium

This structure defines a game of incomplete information between the incumbent politician, the expert and the representative voter. As usual, the game is most easily solved by applying a type of backward induction.

In this section, our analysis focuses on the existence of an equilibrium in which the expert might influence the electoral outcome, transmitting more information to the politician, if he believes that the incumbent is corrupt. Formally,

Definition 1 *An equilibrium is informative if the expert sends a report* $(m, p) = \left(\omega, p \in \left(\frac{1}{2}, 1\right)\right)$ *to the politician.*

We will show that such an equilibrium exists if and only if $\Lambda < \Lambda^*$.

Let us start our analysis by noting that a babbling equilibrium is the only outcome of the second-period communication stage. Intuitively, if the incumbent is corrupt and is re-elected (or a corrupt challenger is elected), he will choose to implement the reform without any need for further information. Then the second-period expert's utility is maximized. However, if an honest policy maker is reappointed (or an honest challenger is elected) the expert might have an incentive to send an informative signal to influence his choice. The following lemma shows why this cannot be an equilibrium outcome:

Lemma 2 *In the second period, there is no separating equilibrium, i.e.,* $\sigma(\omega, \lambda) = (r, 1) \ \ \forall \omega, \lambda$.

The previous lemma also shows that in an environment with no receiver accountability, our model predicts that no informative transmission can be sustained in equilibrium. This, as we shall see, is in sharp contrast with the main result of this section.

The honest politician will choose the correct policy with probability

$$\mu_2 = \frac{\phi q}{\phi q + (1-\phi)(1-q)} + \frac{\phi(1-q)}{(1-\phi)q + \phi(1-q)}$$

which is increasing in the politician's competence. Define x_1 as the probability that the corrupt politician chooses the best policy in the first period then the incumbent is re-elected if and only if

$$\alpha\left(\pi\mu_2 + (1-\pi)\,q\right) + \pi\mu_1 + (1-\pi)x_1 \geq \alpha(\tau\mu_2 + (1-\tau)\,q)$$

where the first term is the voter's concern for the politician's honesty and the second term is given by the outcome payoff. The right hand side is instead the expected payoff deriving from the incumbent's defeat. This defines the probability of re-election:

$$G_\pi \equiv G\left(\pi + \left(\frac{1}{\mu_2 - q}\right)\frac{\pi\left(\mu_1 - x_1\right) + x_1}{\alpha}\right)$$

as a function of the politician's reputation. The reputation is endogenous, and it is not clear, ex ante, how this impacts probability of re-election. A correct policy implemented in the first period increases voters' welfare but is not always *good news* about the politician's type, as the voter expects that it could be the result of strategic information transmission between a corrupt politician and the expert, i.e., the effect on x_1, or the result of the politician's competence, i.e., the effect on μ_1. Key to our analysis is to understand how the probability of re-election changes with the voters' posterior beliefs. The following lemma characterizes the effect of π on G_π.

Lemma 3 *If the politician is competent, $\phi > \phi^*$, the probability of election G_π is increasing in his reputation π.*

It is only more likely that an honest incumbent will be re-elected if he is also believed to be competent; otherwise an honest politician is at a disadvantage in the electoral competition because a corrupt politician has the opportunity to please the voter by implementing the best policy more often in the first period. Lemma 2 identifies two cases according to the politician's competence.

To complete the characterization of the voter's behavior, we need to analyze how he updates his prior about the politician's type. We first need to derive the expert beliefs. In equilibrium the expert has the following beliefs about the politician's type:

$$\Lambda\left(s_2^e\right) = \begin{cases} \frac{\lambda\varepsilon}{\lambda\varepsilon + (1-\varepsilon)(1-\lambda)} & if\ s_2^e = h \\ \frac{(1-\lambda)\varepsilon}{(1-\lambda)\varepsilon + \lambda(1-\varepsilon)} & if\ s_2^e = c \end{cases}$$

Observe that because $\lambda > \frac{1}{2}$, he will never send an informative report if $s_2^e = h$. We can then define the probability of babbling as

$$\kappa\left(\lambda\right) = \int_{\Lambda^*}^{1} \frac{\left(1-\lambda\right)z}{\left(1-\lambda\right)z + \lambda\left(1-z\right)} dF\left(z\right)$$

where Λ^* is the cutoff at which he is indifferent between transmitting truthfully and babbling. If $\Lambda^* < 1$, indicates that the advisor has to be almost sure that the politician is corrupt to write an informative report.

The voter has one piece of information to form his beliefs π, the first-period policy. He uses Bayes' rule to update the prior ε. In the second period, a corrupt politician will choose $a_2 = r$ for sure, which is correct with probability q. The voter observes the policy implemented in the first period, compares it to the state and updates to

$$\pi = \begin{cases} \frac{\varepsilon\mu_1}{\varepsilon\mu_1+(1-\varepsilon)(1-\kappa)} & \text{if } a_1 = \omega_1 \\ \frac{\varepsilon(1-\mu_1)}{\varepsilon(1-\mu_1)+(1-\varepsilon)\kappa(1-q)} & \text{otherwise} \end{cases}$$

that is, if the policy implemented is the best one, the voter knows that the politician was honest and competent or that he is corrupt but informed by the advisor. If the first-period policy is in fact the wrong one, the politician may be honest but incompetent, or he is corrupt and uninformed. He will then implement $a_1 = r$, which is a mistake with probability $(1 - q)$. The best choice is to implement $a_1 = r$, as it is the most preferred and the most likely to match the state. Note also that $E[\pi|a_1 \neq \omega_1] > E[\pi|a_1 = \omega_1]$, i.e., making a mistake is a good signal for the politician's honesty, but these gains crucially depend on his competence.

We can now separately analyze the two cases identified by Lemma 2.

4.1 Competent Politicians

We define a politician as being *competent* if and only if $\phi > \phi^*$. In an informative equilibrium, the expert does not transmit any valuable information to the politician if he believes that he is honest with a high enough probability. Then, the honest incumbent will choose the policies based upon his own information, and he has the following payoff:

$$U_h = \eta\mu_1 + (\mu_2 G_\pi + (1 - G_\pi)(\tau\mu_2 + (1 - \tau)q))$$

where the first term is the first-period payoff and the second term is the expected payoff in the case in which he is re-elected and the gains in the event that the challenger is appointed.

A corrupt politician's utility is

$$U_c = \gamma\pi + (q(1 - \kappa) + \kappa + G_\pi) + (1 - G_\pi)(\tau q + (1 - \tau))$$

that is, with probability $(1 - \kappa)$, he gets an informative signal and will choose $a_1 = \omega$, which is r

with probability q, while if he does not get any report, he will choose r for sure as well as when he is re-elected.

Let us now check if there are profitable deviations from the informative equilibrium.

Ideological deviations. The honest incumbent might strategically decide to implement the wrong policy to signal his honesty to the voter. This case represents situations in which the implementation of a certain policy is not based upon the state but is just a way to signal a certain attitude. For example, a politician may be against bailing out an investment bank, even if it would be beneficial for the economy as a whole, just to show to the electorate that he does not prefer to allocate resources to Wall Street at the expense of Main Street. The following result identifies when this is not optimal and fully characterizes honest behavior:

Lemma 4 *If $\eta < \eta^*$, the politician behaves ideologically. There exists a region $[\eta^*, \eta^{**}]$ in which the honest politician will not consult the expert, while he will seek advice if $\eta > \eta^{**}$.*

The previous lemma identifies a sufficient condition, related to the politician's concerns for the pre-election policy, such that the honest politician does not want to contradict his own information just to be re-elected. When politicians care enough about the policy quality, they will not use it simply as an instrument to be re-elected.

Populist deviations. The only profitable deviation for the corrupt politician is to ignore the report received in the first period from the advisor, simply to enhance his chances of getting re-elected. That is, he may behave like a populist leader, choosing to increase the probability of wrong implementation just to pool with the honest types. The difference with the honest incumbent's deviation is that while the corrupt tries to be re-elected by *pooling* himself with the good politician to implement his preferred choice in the second period, the honest is trying to *separate* from the corrupt elite to maximize the voter's welfare. The expected payoff of the corrupt politician when he makes the decision according to the information transmitted by the expert is denoted by

$$E\left[U_c|a=m\right] \equiv \gamma E\left[\pi|a_1=\omega_1\right] + \left(q\left(1-\kappa\right)+\kappa+G_\pi\right) + \left(1-G_\pi\right)\left(\tau q+\left(1-\tau\right)\right)$$

and similarly, the expected utility when he does not consult the expert is defined as

$$E\left[U_c|a\neq m\right] \equiv \gamma E\left[\pi|a_1\neq\omega_1\right] + \left(\left(1-\kappa\right)\left(1-q\right)+G_\pi^d\right) + \left(1-G_\pi^d\right)\left(\tau q+\left(1-\tau\right)\right)$$

we can restate the condition $E\left[U_c|a=m\right] \geq E\left[U_c|a\neq m\right]$ in the following result.

Lemma 5 *If $\gamma < \gamma^*$ the corrupt politician is manipulated by the expert.*

Moreover, one interesting aspect of the condition above is that even when $\gamma > \gamma^*$, an informative equilibrium can still exists in fact, when the corrupt politician behaves contrary to the information transmitted by the expert, the honest politician has less of an incentive to behave ideologically because the corrupt politician is too making mistakes in equilibrium and the expert's incentive compatibility remains the same[11].

It is left to analyze the advisor's incentives to perfectly reveal his information. In determining the content of his report, the advisor is aware that he could use it to affect the elections' outcome - the *manipulation effect* - or to shape the first-period policy - the *influence effect*. When the first effect dominates the second one, there exists an informative equilibrium. He might deviate from an informative equilibrium writing an uninformative report, that is, one in which he recommends $a_1 = r$ for every signal s_1^e, or a noise report in which his recommendation is truthful with probability strictly less than one. In principle, he could also choose to write an informative report irrespective of the signal about the politician's type. This would correspond to a situation in which $\Lambda^* = 1$; thus if we find that $\Lambda^* < 1$, this will rule out this deviation as well.

Babbling deviation. Let us define $Eu_e^{nr} \equiv (\tau q \mu_2 + (1 - \tau)) < 1$, the expected payoff for the expert in the case of the incumbent's defeat, which is independent of the advisor's strategy. Hence, the indifference condition that defines the threshold Λ^* in the case of $\eta > \eta^{**}$ is given by

$$E\left[U_e\left(\Lambda^*\right) \mid m = \omega_1\right] = E\left[U_e\left(\Lambda^*\right) \mid m \neq \omega_1\right]$$

The trade-off is between implementing the reform in the first period and increasing the probability of the re-election of the corrupt politician. The threshold is given by:

$$\Lambda^* = \frac{\beta\left(1-q\right) + \left(G_\pi^d - G_\pi\right)\left(1 - Eu_e^{nr}\right)}{\beta\left[\left(1-q\right) + \left(\Pr\left(\omega_1 = r|\cdot\right) - \Pr'\left(\omega_1 = r|\cdot\right)\right)\right] + \left(G_\pi^d - G_\pi\right)\left(1 - \Pr\left(\omega_2 = r|\cdot\right)\right)} \tag{2}$$

The babbling deviation increases the reputation of the politician, $G_\pi^d > G_\pi$ because he will implement the wrong policy more often than the threshold $\Lambda^* > 0$. Notice that Λ^* is a function of the politician's optimal strategy and then of η. It remains to check how Λ^* and η relate to each other; in fact, Λ^* depends on the optimal strategy of the honest politician.

[11] Note that when there are no direct gains from reputation, $\gamma = 0$, the corrupt decision maker always seeks expert advice.

Lemma 6 *The threshold identified by condition (2) is unique and sufficient.*

Intuitively, he will have less of an incentive to support the incumbent if all of the elite is corrupt, Eu_e^{nr} is increasing in $(1-\tau)$, in which case he could acquire the same benefits from someone else. The incentives to lie are greatest when the honest take into consideration what the expert reports. The previous lemma completely characterizes the expert incentives and then his optimal strategy. Observe that there exists a range of parameters for which $\Lambda^* > 1$, that is, he will always be informative when $\eta < \eta^{**}$ and $\Pr(\omega_2 = r|\cdot) > Eu_e^{nr}$. This translates to a condition on ϕ : the leaders' competence beneficially impacts the informativeness of the expert's reports. Even if it is just suggestive, it is an interesting result; indeed, it means that selecting competent politicians not only is important for the advisor's own decisions but also may shape the institutions' efficiency and the general effectiveness of government.

Noise talk. To prove that the informative equilibrium identified above is indeed the unique equilibrium, we also have to rule out the possibility of noise communication, that is, that of mixed strategies. In principle, the expert might send a message (ω, p) with $p < 1$ doing this increases the probability of getting the corrupt politician re-elected, but it lowers the probability that the reform will be implemented in the first period. If $\eta > \eta^{**}$, the honest politician follows the reports and introducing noise thus lowers the probability of having the reform approved; if $\eta < \eta^{**}$, the expert's report has no effect on the honest politician's decisions. Let us see if there are benefits from doing this: introducing noise means that in the first period, the corrupt politician may commit some errors and then the voter may infer that he is honest; however, the gains in reputation are lower because now $\pi^d = \frac{\varepsilon(1-\mu_1)}{\varepsilon(1-\mu_1)+(1-\varepsilon)\kappa'(1-q)} < 1$, where κ' takes into account the expert's strategy and then the noise in the communication. Thus, if the expert sends a report, it does not have any element of noise. He will mix between lying and telling the truth, but when he tells the truth, he does it without any manipulation.

We can summarize the results of the analysis above in the following proposition:

Proposition 7 *If the politician is competent, there exists an informative equilibrium in which:*

(*i*) *The expert sends a fully informative message if* $\Lambda < \Lambda^*$ *and babbles otherwise.*

(*ii*) *Populism does not arise if* $\gamma < \gamma^*$.

(*iii*) *The honest politician seeks advice if* $\eta > \eta^{**}$.

This is in sharp contrast with the result in the first lemma. Thus, our model predicts that political accountability and the competence of politicians influence advisors' incentives. This result applies beyond the political economy context in which this model is framed. A CEO of a public company, for example, usually seeks advice from accounting analysts, investment bankers and marketing experts. This result points out a reason why shareholders ought to select the best managers, that doing so also induces the hired experts to reveal more information. Thus, holding the CEO accountable disciplines the advisors.

It also follows the following interesting result:

Corollary 8 *When the honest politician does not take into account the received information* $\eta < \eta^{**}$ *and* $\phi > \phi^*$, *the expert's report is always informative.*

Being competent lowers the politician's incentives to use that policy as a signaling device to be re-elected. Thus, the incumbent -if honest- will not be influenced by the expert's report, but the corrupt will be perfectly informed. Note also that the case of a behavioral type (who myopically maximizes the policy quality in each period) for the honest politician is equivalent to the case $\eta > \eta^*$. Hence, the analysis above also suggests that when the honest type is strategic, other types of inefficiencies may arise in equilibrium, given by the signaling feature of our model.

4.2 Incompetent Politicians

Now I turn to the case of an incompetent incumbent, that is, to the case where $\phi < \phi^*$. We have established that in this case, the probability of re-election is not increasing in π; having a reputation for being honest but incapable of making good decisions does not help one's chances for re-election. Suppose that the expert sends an informative report (m, p) like the one identified in the previous case. An analysis similar to the one in the previous case establishes that the thresholds η^* and η^{**} are both negative; then, as long as the honest politician cares about the first-period policy, he will follows the expert's report. This is intuitive; if he seeks to maximize the quality of the policy but does not have useful private information, he will try to do it by employing the expert's suggestions.

Given the loss in reputation if he deviates, i.e., $G_\pi^d < G_\pi$, the corrupt politician will be less inclined to behave like a populist leader, and we then have another threshold $\gamma^{**} > \gamma^*$ such that for every $\gamma < \gamma^{**}$ he will not deviate.

We now need to analyze the expert's incentives to tell the truth: the relevant threshold is $\Lambda^* = \frac{\beta(1-q)+\left(G_\pi^d-G_\pi\right)(1-Eu_e^{nr})}{\beta(1-q)+(\Pr(\omega_1=r|\cdot)-\Pr'(\omega_1=r|\cdot))+(G_\pi^d-G_\pi)(1-\Pr(\omega_2=r|\cdot))}$ for each value of η, but then we can establish the following result:

Proposition 9 *When the incumbent is incompetent the expert babbles more often, i.e.,* $\kappa^I > \kappa^c$.

When he deals with incompetent politicians, the expert has more of an incentive to lie because both honest and corrupt types will follow his suggestions. We identify a relationship between the politicians' competence and what can be interpreted as the efficiency of bureaucracy. Incompetence leads the leaders to follow the experts' recommendations more often, but the corrupt politician will do the same because he will pay a much lower cost in terms of reputation. There then is a much stronger incentive for the experts to manipulate their transmitted information to maximize the probability of implementing their preferred policy. The decision maker's incompetence carries a new cost, the influence that the expert has on policy decisions. This sheds new light on another reason why the selection of political leaders is important: the effect that this has on the effectiveness of the agents who deal with the incumbent.

INSERT TABLE 1

While only suggestive, our results are consistent with some rudimentary facts gleaned from cross-sectional data. Egger and Winner (2005), for example, find a positive relationship between corruption and foreign direct investment, suggesting that corruption may sometimes be welfare enhancing. Many studies have observed that there is a cross-country link between corruption and bureaucratic efficiency, which may be interpreted as a cascade effect of the corrupt elite on political institutions in general, the type of effect also present in our model, in which the corruption and incompetence of the incumbent have perverse effects on the information transmitted by the expert. To the extent that corruption is symptomatic of bad politicians being in office, our model is consistent with this finding. Two other findings are presented in Table 1. The table shows that the accountability and polarization of political leaders are correlated with the quality of government, with corruption and with the perceived efficiency of the implemented policy. We observe that an increase in the accountability of the incumbents has a positive and significant effect on the effectiveness of government as well on the quality of his policies. It has instead a negative effect on

the bribes paid by firms to government officials, which suggests that voters' ability to monitor the executive induces the payment of fewer bribes; interest groups are then not as influential as they are in countries where the politicians are not effectively monitored. New insights also come from the observation that electoral competitiveness has beneficial effects on the quality of government, particularly on the degree of corruption existing in political institutions. In our model, this effect is captured by the relative strength in terms of the reputation of the challenger; to an increase in the perceived quality of the challenger and then of his competitiveness corresponds to a lower incentive to manipulate the first-period policy to be re-elected, ultimately promoting discipline in the advisor as well.

While this evidence is crude and cannot be interpreted causally, it is encouraging to the theory that these basic cross-country facts are consistent with the results of the previous section.

4.3 Welfare Implications

We seek to identify the implications for the voter's welfare of the introduction of a corrupt politician in the political arena. The probability of getting the right policy in the first period is μ_1 or 1 in informative equilibrium and that of implementing the right second-period policy has a probability μ_2 or q, weighted by the probability of the incumbent's being corrupt. We assume that the total welfare is given by the probability in each period of a correct policy choice, that is,

$$EW(a,\omega) = \Pr(a_1 = \omega_1) + \Pr(a_2 = \omega_2)$$

where for simplicity, we assume that $\alpha = 1$.

If the elite is composed of honest politicians the voter's value function is given by

$$EW^h = \mu_1 + \mu_2$$

Here, the honest politician will use all available information to maximize the quality of policy. Let us now analyze how the policy's efficiency is affected by the introduction of corrupt politicians.

$$\begin{aligned} EW^c = \kappa &\left[(\varepsilon\mu_1 + (1-\varepsilon)\,q) + (\varepsilon\mu_2 + (1-\varepsilon)\,q)\right] \\ &+ (1-\kappa)\left[1 + (\varepsilon\mu_2 + (1-\varepsilon)\,q)\right] \end{aligned}$$

where κ is, as before, the probability of babbling in equilibrium. The policy quality is lower in the second period because the corrupt politician will choose r irrespective of the state, but in the first

period the presence of corrupt politicians will induce the expert to reveal more information; in an informative equilibrium, the first-period policy is therefore always the right one.

The expected gains (or losses) of the introduction of corrupt politicians can be expressed as:

$$\Delta W = \underbrace{(1-\kappa)(1-\mu_1)}_{information\ disclosure\ effect} + \underbrace{\kappa(1-\varepsilon)(q-\mu_1)}_{babbling\ effect} + \underbrace{(1-\varepsilon)(q-\mu_2)}_{manipulation\ effect}.$$

The first term is positive and represents the *information disclosure effect*, the second term is negative and represents the *babbling effect*, and the third term represents what we call the *manipulation effect.* The presence of corrupt politicians induces the expert to disclose more information in the first period - the *information disclosure effect*- but with a positive probability that he will not reveal any information, and the corrupt incumbent has a lower probability of maximizing the policy quality - the *bubbling effect*. Finally, the expert has a perverse effect on elections, strategically, revealing his information to support the corrupt politician - the *manipulation effect*.

We can identify the set of conditions under which the information disclosure effect dominates, leading to increased expected welfare. We know that if $\eta < \eta^{**}$ and $\Pr(a_2 = \omega_2) < Eu_e^{nr}$, the unique equilibrium is a fully informative one $(\Delta^* > 1)$; thus $\kappa = 0$ and the change in welfare is always positive:

$$(1-\mu_1) > (1-\varepsilon)(\mu_2 - q)$$

as long as $\mu_1 = \mu_2 < \frac{5}{6}$, which is always verified in the case of an incompetent politician (because $\mu < \frac{2}{3}$). It indicates that when the honest politician is not well informed about the state, the introduction of corrupt politicians induces the expert to reveal useful information. Intuitively, the benefits from the increased information disclosure increase with the incumbent's incompetence. Moreover, even when the expert babbles with positive probability, we can find a sufficient condition under which the presence of a corrupt politician is welfare improving. Hence we have

Proposition 10 *There exists a $\widehat{\kappa}$ such that for every $\kappa < \widehat{\kappa}$, the voters' welfare is greater with a positive mass of corrupt politicians.*

To interpret this, recall that κ is the probability with which the expert babbles in equilibrium. What the proposition really points out is not that corruption is welfare improving but that the information channel identified in this model may have some relevant and surprising implications

for the policy quality. This highlights the importance of the receiver's accountability as a truth-revealing mechanism. Then as long as the presence of corrupt politicians induces the disclosure of truthful information, the manipulation and babbling effects are lower than the benefits of having more information in the first-period.

5 Comparative Statics and Extensions

We now briefly discuss a few implications of the model. The first is a simple observation.

Remark 11 *A competent politician is more likely to get elected, i.e.,* $\frac{dG_\pi}{d\phi} > 0$.

This is an immediate consequence of the fact that a competent politician is more likely to maximize the policy quality in the first period, which increases the voters' welfare. It follows from the fact that both the probability of a correct policy and the politician's reputation are increasing in ϕ, i.e., $\frac{d\mu}{d\phi} > 0$ and $\frac{d\pi}{d\phi} > 0$ (because $\frac{d\pi}{d\mu} > 0$), which, with the result of the lemma 2, shows that $\frac{dG_\pi}{d\phi} > 0$, if $\phi > \phi^*$.

From the inspection of the cutoff η^* and noting that $\frac{\partial Eu^{nr}}{\partial \tau} < 0$, it follows that:

Remark 12 *Ideological behavior is more likely when the elite is more corrupt.*

When the elite is more corrupt there is a higher probability of correct implementation in the first period; this increases the benefits arising from a mistake for two reasons. First, when the elite is more corrupt, an honest politician has a stronger incentive to get re-elected because he knows that the challenger will choose his preferred policy; there is thus a direct channel through his reputation. Second, behaving ideologically is less costly because the information transmitted by the advisor is incorrect with higher probability, which represents an indirect effect due to the expert's incentives. Formally:

Remark 13 *The expert will babble more often when the challenger is corrupt.*

It follows immediately from the observation that the threshold Λ^* is negatively correlated with τ, the challenger's honesty. A lower τ corresponds with a lower *influence effect,* that is, the advisor rationally expects that in the future, a corrupt politician will be in office with higher probability, thus decreasing his incentives to affect the voter's beliefs with his information.

Alignment. We have supposed a perfect alignment between the expert's preferences and those of the corrupt politician, but we can easily show that our result does not rely on this. Even if it is well known that games with common interest also have more than one equilibrium (other than truth-telling equilibria), here we shall show how our equilibrium is robust to different preference alignments between the corrupt politician and the advisor. We can assume that the corrupt politician implements r in the second period when he gets $s = r$ and does so with probability ρ when he observes $s = l$. Consequently, ρ becomes the alignment index between the two agents; when $\rho = 1$ we are in the perfectly correlated case, and when $\rho = 0$, the incumbent is uninformed but is not corrupt[12]. This means that a corrupt politician will implement the best policy with probability $h \equiv q\rho + \frac{(1-\rho)}{2} < q$. There exists a new threshold $\eta^*(\rho)$, which is a decreasing function of the alignment of interest between the expert and the corrupt incumbent. Thus, ideological behavior is less likely when the preferences are not perfectly aligned. Analyzing the expert's incentives, it is apparent that there is a new cutoff $\Lambda^*(\rho) \equiv \frac{\beta(h-q)+\left(G_\pi^d - G_\pi\right)(h-Eu_e^{nr})}{\beta(h-q)+(\Pr(\omega_1=r|\cdot)-\Pr'(\omega_1=r|\cdot))+(G_\pi^d-G_\pi)(h-\Pr(\omega_2=r|\cdot))}$ and as expected

Remark 14 *The sender will truthfully disclose his information with higher probability if ρ increases, i.e., $\forall\eta$, we have $\frac{\partial\Lambda^*(\rho)}{\partial\rho} > 0$ as long as $Eu_e^{nr} > \Pr(\omega_2 = r|\cdot)$.*

That is, the sender reveals the state for the same range of parameters as in the perfect alignment case when $\eta < \eta^{**}$; his incentives are not affected by the difference in the preferences with the corrupt incumbent when the honest politician disregards his reports. Moreover, as the corrupt politician becomes more inclined to be influenced by the expert, as shown by a higher ρ, the equilibrium is fully revealing with higher probability. This shows that our result still holds in this more general case. It also shows that introducing heterogeneous agents, but in the absence of any alignment between the sender and the receiver, does not affect the information transmitted in equilibrium.

Delegation. Let us now allow the politician to commit himself to delegating the second-period decision. The main question that would be interesting to answer is: who has the greatest incentive to delegate, an honest politician or a corrupt one? While I want to leave a more detailed analysis of allowing delegation in this framework for future research, here I just show that there exists a particular equilibrium:

[12] Remember that the corrupt incumbent gets an uninformative signal about the state, i.e., $\phi_c = \frac{1}{2}$.

Proposition 15 *A corrupt politician and an incompetent incumbent, $\phi < \underline{\phi}$, commits to delegate the second-period decision to the expert.*

Since the competence of the political elite is known to the voters[13], if $\phi > \underline{\phi}$, a corrupt politician will also choose not to delegate to avoid signaling his type. Given the incumbent's competence, both the corrupt politician and the honest politician choose to delegate, meaning that the voter is not able to update his beliefs about the incumbent's type using the delegation decision. Then delegation is costless in terms of reputation for a corrupt politician. On the other hand, if the incumbent is incompetent, he has an incentive to delegate to maximize the policy quality in the first period and is also the best choice for the second period payoff, since with his own information he won't be able to choose the right second-period policy. This result suggests that delegation may be used in two different situations. The first is when a corrupt politician exchanges influence with information. The second is when an honest but incompetent politician delegates to avoid implementing the wrong policy in the first period and the resulting effect that this would have on his chances of getting re-elected.

6 Discussion

Here I discuss some of the assumptions and highlight some avenues for future research.

Expert accountability. First, this paper does not consider any accountability system for the expert, in contrast to Alesina and Tabellini (2007), because the literature has already studied how an expert might be induced to reveal more information if he is willing to improve his career. Abstracting from any advisor's career concerns is a strong assumption, but it gives us the ability to focus on the effect that *indirect* accountability has on information transmission. The interaction among the two forms of accountability and its effect on the information transmitted in equilibrium is studied by Di Maggio (2009), which shows that the expert may babble if he is imperfectly informed to protect against revealing potentially low ability.

Expert appointing decision. We have assumed throughout the paper that the expert remains the same for the two periods, without allowing the decision maker to appoint the advisor in the first place. Although this captures many situations in which the informed party is not nominated by the decision maker, such as public officials or judges, let us briefly discuss what would happen if

[13] Note that the results are robust to the voters knowing the incumbent's type θ in fact, as long as there is a small probability of a coup, the corrupt incumbent is induced to maximize the quality of the policy.

we were to extend the model in this direction[14]. If the choice of the expert is not observed by the voter and the experts are heterogeneous only with respect to their biases, then an honest politician will choose an unbiased expert to avoid manipulation, while a corrupt politician will appoint an advisor with similar preferences. If, instead, the appointing decision is observed and then is possibly used as a signal of honesty, both types of decision makers will appoint an unbiased expert, making this choice uninformative for voters. To gain some new insights, we would need to endogenize the information-acquisition stage as in Dur and Swank (2005); instead we leave it for future research. A related question is what happens if the decision maker can fire the expert after period 1 when the information revealed is not correct. Even for an honest politician, this is not an optimal strategy in fact, the expert would have no ability to use his information to manipulate the voters' beliefs and thus would exclusively try to influence the first-period policy choice. Although exploring these issues may be promising, we believe that the main mechanism identified by the model is consistent with many situations in which the expert has opinions about the optimal course of actions that are different from those held by the decision maker, but has no private interests in the decision.

Multidimensionality. We restrict our attention to a single political action, but since the electoral outcome can be influenced when different politicians announce their political platforms, this would lead us to extend the model to a setting in which voters have ideological preferences. I conjecture that a corrupt incumbent would have a higher probability of being re-elected, as the voter may prefer to elect a corrupt politician of his preferred party instead of an honest one from the opposing party.

Single sender. We do not consider the case with multiple senders, seeking to avoid the main results being driven by the possibility that the decision maker compares the senders' reports, as in Chakraborty and Harbaugh (2007). However, the main results of the paper are robust to this case, as the latter paper provides conditions under which competition among senders generally leads to more information disclosure.

Message space. As in all the cheap talk literature, the message space is endogenous and should be rich enough to contain the state space. In our model we depart from previous papers, allowing the advisor to send a message that contains not only the state but also the precision with which

[14] Six Democrats on the House Intelligence Committee of the U.S. Congress, for example, sent CIA Director Leon Panetta a letter dated June 26 that said "recently you testified that you have determined that top CIA officials have concealed significant actions from all members of Congress, and misled members for a number of years from 2001 to this week. This is similar to other deceptions of which we are aware from other recent periods." (from Reuters article "Someone at the CIA lied and Congress is not happy," July 2009).

he assesses the probability of that state. The idea is to capture a different way for the expert to provide coarse information to the decision maker. However, we can also interpret it as allowing the sender to voluntarily introduce vagueness in communication as in Blume and Board (2009).

7 Conclusion

The model seeks to capture the role played by the decision maker's accountability for the information transmitted by an expert to a receiver. The binary action set simplifies the analysis without precluding the analysis of a fairly general model in which we have decision makers differ along two dimensions: honesty and competence. Furthermore, Appendix B shows that the truth-telling result does not rely on the binary structure of the model.

This paper provides a new framework to understand how information is transmitted between an informed party and an uninformed decision maker. It points out that while the sender's reputational concerns do not lead to more informative reports, the receiver's accountability is a much stronger mechanism. It requires heterogeneous decision makers differing along two dimensions: competence - information about the state- and preferences -alignment with the sender's ideal action. As shown in Section 5, if receivers are homogeneous along one of these two dimensions, the receiver's accountability has no effect. However, as long as, there exists a type closely aligned to the sender and a type with better information, an evaluator who will sort them will also effectively induce the sender to report truthfully.

Finally, another interesting new insight provided by our model - in the context of political agency- is that having a corrupt politician in the political arena may be, surprisingly, welfare improving due to this informational channel. That is, the advisor's incentives are affected by the incumbent's type and by his competence, which leads us to conclude that there is yet another important reason why voters should select "good incumbents": to discipline the experts as well.

References

1. **Aghion, Philippe, Mathias Dewatripont, and Patrick Rey.** 2004. "Transferable Control." *Journal of the European Economic Association*, 2(1): 115-138.

2. **Alesina, Alberto and Guido Tabellini.** 2007. "Bureaucrats or Politicians? Part I: A Single Policy Task." *American Economic Review*, 97(1), 169-179.

3. **Ambrus, Attila and Satoru Takahashi.** 2008. "Multi-sender cheap talk with restricted state space." *Theoretical Economics* (3):1–27.

4. **Austen-Smith, David.** 1990. "Information transmission in debate." *American Journal of Political Science*, 34(1), 124-152.

5. **Baliga, Sandeep and Tomas Sjöström**. 2004. "Arms Races and Negotiations." *Review of Economic Studies*, 71(2): 351-369.

6. **Baliga, Sandeep and Tomas Sjostrom.** 2008. "Strategic Ambiguity and Arms Proliferation." *Journal of Political Economy*, 116(6): 1023-1058.

7. **Battaglini, Marco.** 2002. "Multiple Referrals and Multidimensional Cheap Talk." *Econometrica*, 70(4), 1379-1401.

8. **Benabou, Roland and Guy Laroque.** 1992. "Using Privileged Information to Manipulate Markets: Insiders, Gurus, and Credibility," *The Quarterly Journal of Economics*, 107(3), 921-58.

9. **Bennedsen, M. and S. E. Feldman.** 2006. "Informational lobbying and political contributions." *Journal of Public Economics* 90: 631–656.

10. **Blume, Andreas and Oliver Board.** 2009. "Intentional Vagueness," Working Papers 381, University of Pittsburgh, Department of Economics, revised May 2009.

11. **Blume, Andreas , Oliver J. Board, and Kohei Kawamura.** 2007. "Noisy talk." *Theoretical Economics*, 2(4), 395-440.

12. **Bommel, van Jos.** 2003. "Rumors." *Journal of Finance,* 58(4): 1499 - 1520.

13. **Calvo-Armengol, Antoni and Joan de Marti.** 2009. "Information Gathering in Organizations: Equilibrium, Welfare, and Optimal Network Structure." *Journal of the European Economic Association*, 7(1): 116-161.

14. **Chakraborty, Archishman and Rick Harbaugh.** 2007. "Comparative Cheap Talk." *Journal of Economic Theory*, 132(1), 70-94.

15. **Crawford, Vince and Joel Sobel.** 1982. "Strategic Information Transmission." *Econometrica*, 50(6), 1431-51.

16. **Crawford, Vincent.** 2003. "Lying for Strategic Advantage: Rational and Boundedly Rational Misrepresentation of Intentions." *American Economic Review,* 93: 133-149.

17. **Cukierman, Alex and Mariano Tommasi.** 1998. "When Does It Take a Nixon to Go to China." *American Economic Review*, 88(1), 180-97.

18. **Di Maggio, Marco**. 2009. "Two-Sided Accountability and Cheap Talk." *mimeo MIT*.

19. **Dur, Robert, and Otto H. Swank.** 2005. "Producing and Manipulating Information." *Economic Journal*, 115(500): 185-199.

20. **Durbin, Erik and Ganesh Iyer**. 2009. "Corruptible Advice." *American Economic Journal: Microeconomics*, 1(2), 220-42.

21. **Farrell, Joseph, and Gibbons, Robert.** 1989. "Cheap talk can matter in bargaining." *Journal of Economic Theory*, 48(1): 221-237.

22. **Gilligan, W. Thomas and Keith Krehbiel.** 1989. "Asymmetric Information and Legislative Rules with Heterogenous Committees." *American Journal of Political Science*, 33(2), 459-490.

23. **Gromb, Denis and David Martimort.** 2004. "The Organization of Delegated Expertise." CEPR Discussion Paper No. 4572.

24. **Kartik, Navin.** 2009. "Strategic Communication with Lying Costs." *The Review of Economic Studies*, 76(4): 1359-1395.

25. **Kartik, Navin and R. Preston McAfee.** 2007. "Signaling Character in Electoral Competition." *American Economic Review*, 97(3), 852-870.

26. **Krishna, Vijay and John Morgan.** 2001. "A Model of Expertise." *The Quarterly Journal of Economics*, 116(2), 747-775.

27. **Levy, Gilat.** 2004. "Anti-Herding and Strategic Consultation." *European Economic Review*, 48(3): 503-525.

28. **Levy, Gilat and Ronny Ravin.** 2008. "Multidimensional cheap talk." *Econometrica*.

29. **Majumdar, Sumon and Sharun W. Mukand.** 2004. "Policy Gambles." *American Economic Review*, 94(4), 1207-1222.

30. **Maskin, Eric and Jean Tirole.** 2004. "The Politician and the Judge: Accountability in Government." *American Economic Review*, 94(4), 1034-1054.

31. **Morgan, John and Phillip C. Stocken.** (2003). "An Analysis of Stock Recommendations." *The RAND Journal of Economics*, 34(1): 183-203.

32. **Morris, Stephen.** 2001. "Political Correctness," *Journal of Political Economy*, 109(2), 231-265.

33. **Moscarini, Giuseppe.** 2007. "Competence Implies Credibility." *American Economic Review*, 97(1): 37-63.

34. **Olszewski, Wojciech.** 2004. "Informal Communication." *Journal of Economic Theory*, 117(2): 180-200.

35. **Ottaviani, Marco and Peter N. Sorensen.** 2000. "Herd Behavior and Investment: Comment." *American Economic Review*, 90(3): 695-704.

36. **Ottaviani, Marco and Peter N. Sorensen.** 2006a. "Professional Advice." *Journal of Economic Theory*, 126(1), 120-142.

37. **Ottaviani, Marco and Peter N. Sorensen.** 2006b. "Reputational Cheap Talk." *RAND Journal of Economics*, 37(1), 155-175.

38. **Prat, Andrea.** 2005. "The Wrong Kind of Transparency." *American Economic Review*, 95(3), 862-877.

39. **Rantakari, Heikki.** 2008. "Governing Adaptation." *Review of Economic Studies*, 75(4): 1257-1285.

40. **Scharfstein, David S., and Stein, Jeremy C.** 1990. "Herd Behavior and Investment." *American Economic Review*, 80(3): 465-79.

41. **Sobel, Joel.** 1985. "A Theory of Credibility." *Review of Economic Studies*, 51(3), 557-73.

42. **Stein, Jeremy C**. 1989. "Cheap Talk and the Fed: A Theory of Imprecise Policy Announcements." *American Economic Review*, 79(1): 32-42.

43. **Stocken, C. Phillip.** 2000. "Credibility of Voluntary Disclosure." *RAND Journal of Economics*, 31(2): 359-374.

44. **Valley, Kathleen, Thompson, Leigh and Robert Gibbons**. 2002. "How communication improves efficiency in bargaining games." *Games and Economic Behavior*, 38(1):127-155.

8 Appendix A

Proof of Lemma 1. To constitute an equilibrium, the expert must be indifferent between the messages that he sends on the equilibrium path. In our framework, he can also deliberately choose the amount of noise in these messages, so I think it is more instructive to proceed in the following way. Suppose by contradiction that the expert writes an informative report (m, p) with $m = s_1^e$, and the decision maker updates his beliefs about the state accordingly:

$$\Pr\left(\omega_t = r \mid s_t^d,\, m,\, \phi,\, q,\, p\right) = \begin{cases} \frac{\phi q p}{\phi q p + (1-\phi)(1-p)(1-q)} & \text{if } s^d = r \,and\, m = r \\ \frac{(1-\phi) q p}{(1-\phi) q p + \phi (1-p)(1-q)} & \text{if } s^d = l \,and\, m = r \\ \frac{\phi q (1-p)}{\phi q (1-p) + (1-\phi) p (1-q)} & \text{if } s^d = r \,and\, m = l \\ \frac{(1-p)(1-\phi) q}{(1-\phi)(1-p) q + p \phi (1-q)} & \text{if } s^d = l \,and\, m = l \end{cases}$$

Step 1. Consider an equilibrium in which there is no noise, i.e., $p = 1$. To have a separating equilibrium the following condition has to hold

$$(1-\Lambda) + \Lambda \Pr\left(\omega_t = r \mid s_t^d,\, m,\, \phi,\, q,\, 1\right) > (1-\Lambda) + \Lambda \Pr\left(\omega_t = r \mid s_t^d,\, m',\, \phi,\, q,\, 1\right)$$

where $m = \omega$ and $m' \neq \omega$. The probability of implementing the reform when he sends an informative signal must be greater than the probability of doing so when he babbles. Since the corrupt politician prefers to implement the reform and does not face any electoral accountability, he will always choose $a_2 = r$ for any (m, p). Similarly, when $s_1^e = r$, the expert will always send $m = r$ and $p = 1$, i.e., $\Pr\left(\omega_t = r \mid s_t^d,\, r,\, \phi,\, q,\, 1\right) > \Pr\left(\omega_t = r \mid s_t^d,\, l,\, \phi,\, q,\, 1\right)$. I have to check where there exists an incentive to truthfully report when the state is $\omega = l$, but $\Pr\left(\omega_t = r \mid s_t^d,\, l,\, \phi,\, q,\, p\right) < \Pr\left(\omega_t = r \mid s_t^d,\, r,\, \phi,\, q,\, p\right)$ for any $p > \phi$. Then, given a certain precision $p > \phi$, there is an incentive to always report $m = r$, as this maximizes the probability of getting the reform approved in the second period moreover, $\frac{\partial \Pr\left(\omega_t = r \mid s_t^d,\, r,\, \phi,\, q,\, p\right)}{\partial p} > 0$. This also rules out any other strategy, such as $(m, p) = (r, 1)$ if $s_1^e = r$ and $s_1^e = l$ with probability δ, and $(m, p) = (l, 1)$ if $s_1^e = l$ with probability $(1-\delta)$. Therefore, the politician's best response is to ignore the expert's message. This result shows that truth-telling cannot be an equilibrium. ■

Step 2. I also have to rule out all of the equilibria with noise, given by $(m, p) = (\omega, p \in [\phi, 1])$. To be an equilibrium we should have:

$$(1-\Lambda) + \Lambda \Pr\left(\omega_t = r \mid s_t^d,\, m,\, \phi,\, q,\, p\right) > (1-\Lambda) + \Lambda \Pr\left(\omega_t = r \mid s_t^d,\, m',\, \phi,\, q,\, p'\right)$$

but it is straightforward to see that

$$m = \begin{cases} r \text{ with } p' > p \\ l \text{ with } p' < p \end{cases}$$

constitutes a profitable deviation. This completes the proof.■

Proof of Lemma 2. Taking the derivative of G_π with respect to π, we have:

$$\frac{\partial G_\pi}{\partial \pi} = 1 + \left(\frac{\mu_1 - x_1}{\alpha\left(\mu_2 - q\right)}\right)$$

then

$$sign\left(\frac{\partial G_\pi}{\partial \pi}\right) = sign(\alpha\left(\mu_2 - q\right) + \mu_1 - x_1)$$

where $\mu_2 > q$, as the decision maker's signal s_2^d is always informative, i.e., $\phi > q$. Note that x_1 is bounded above by 1, that is, when the sender writes a full informative report for the corrupt politician. Thus, a sufficient condition would be:

$$\alpha\left(\mu_2\left(\phi\right) - q\right) + \mu_1\left(\phi\right) - 1 > 0 \tag{1}$$

The LHS is a continuous function and strictly increasing in ϕ, starting at zero for $\phi = 0$ and equal to one if $\phi = 1$. We know by lemma 1 that $\mu_1 \geq \mu_2$. In the case where there is no information transmission by the expert $\mu_1 = \mu_2$, there exists a unique ϕ^*. In fact, the previous condition implicitly defines a cutoff for the politician's competence when it holds with equality:

$$\frac{\phi^* q}{\phi^* q + \left(1 - \phi^*\right)\left(1 - q\right)} + \frac{\phi^*\left(1 - q\right)}{\left(1 - \phi^*\right) q + \phi^*\left(1 - q\right)} = \frac{1 + \alpha q}{1 + \alpha}$$

uniqueness follows from the fact that the RHS is less than 1. ■

In the case where $\mu_1 = 1$, (1) always holds. The existence of a threshold in the no-communication case implies that a cutoff exists even when $\mu_2 \leq \mu_1 < 1$, due to the monotonicity of the LHS of condition (1). ■

Proof of Lemma 3. The two cutoffs are defined by two incentive compatibility constraints. The honest politician will only behave ideologically, ignoring the information transmitted by the expert, if this increases his probability of re-election. The utility in the second period is the same except for the probability of being re-elected that is, the honest politician will maximize the policy quality in the first period if and only if:

$$\begin{aligned}
\eta\mu_1 + \left(\mu_2 G_\pi + \left(1 - G_\pi\right)\left(\tau\mu_2 + \left(1 - \tau\right) q\right)\right) &\geq \eta\left(1 - \mu_1\right) + \left(\mu_2 G_\pi^d + \left(1 - G_\pi^d\right)\left(\tau\mu_2 + \left(1 - \tau\right) q\right)\right) \\
\Leftrightarrow \eta &\geq \frac{\mu_2\left(G_\pi^d - G_\pi\right) + \left(G_\pi - G_\pi^d\right)\left(\tau\mu_2 + \left(1 - \tau\right) q\right)}{2\mu_1 - 1} \\
\Leftrightarrow \eta &\geq \frac{\left(G_\pi^d - G_\pi\right)\left(1 - \tau\right)\left(\mu_2 - q\right)}{2\mu_1 - 1} \equiv \eta^*
\end{aligned}$$

that is, the deviation is more profitable when the gains in reputation $\left(G_\pi^d - G_\pi\right)$ are higher and when it is more likely to deal with a corrupt challenger. We know that $\left(G_\pi^d - G_\pi\right) > 0$ because the deviation probability of re-election is computed using $\pi^d = \frac{\varepsilon(1-\mu_1)}{\varepsilon(1-\mu_1)+(1-\varepsilon)\kappa(1-q)} > \frac{\varepsilon\mu_1}{\varepsilon\mu_1+(1-\varepsilon)(1-\kappa)} = \pi$ and Lemma 1 shows that $\frac{\partial G_\pi}{\partial \pi} > 0$; therefore, as $\mu_1 > \frac{1}{2}$ and $\mu_2 > q$, it follows that η^* is a positive threshold. Now we can compute the second threshold. Indeed, the politician seeks advice from the expert if and only if: ■

$$\begin{aligned}
\eta\mu_1 + \left(\mu_2 G_\pi + \left(1 - G_\pi\right)\left(\tau\mu_2 + \left(1 - \tau\right) q\right)\right) &\geq \eta + \left(\mu_2 G_\pi^{d'} + \left(1 - G_\pi^{d'}\right)\left(\tau\mu_2 + \left(1 - \tau\right) q\right)\right) \\
\Leftrightarrow \eta &\geq \frac{\left(G_\pi'^d - G_\pi\right)\left(1 - \tau\right)\left(\mu_2 - q\right)}{1 - \mu_1} \equiv \eta^{**}
\end{aligned}$$

where $G_\pi^{d'}$ is the probability of re-election in the case in which the politician does not follow the expert's suggestions. Note that $G_\pi^{d'} > G_\pi^d$, as he deviates, ignoring valuable information, increasing the probability of mistakes and then increasing his reputation. Moreover, $\eta^{**} > \eta^*$ because the denominator of the first threshold is greater, as long as $\mu_1 > \frac{1}{3}$, which is always true.■

Proof of Lemma 4. The corrupt politician's incentive compatibility constraint becomes

$$\gamma < \frac{2(q+\kappa-\kappa q)-1-\left(G_\pi^d - G_\pi\right)(1-q)}{E\left[\pi|a_1 \neq \omega_1\right] - E\left[\pi|a_1 = \omega_1\right]}$$

the gains are bounded, as when the honest politician is competent, the voter expects him to choose the wrong policy with lower probability:

$$\Delta G_\pi \equiv \left(G_\pi^d - G_\pi\right) = G\left(\pi^d - \pi + \frac{(\pi^d - \pi)}{\mu_2 - q}\frac{(\mu_1 - x_1)}{\alpha^r}\right)$$

and we can define the maximum reputational gain as

$$\Delta^{\max}\pi \equiv \pi^d - \pi = \frac{(1-\varepsilon)}{\varepsilon\mu_1 + (1-\varepsilon)}$$

that is, the increase in the voter's posterior belief is greatest when $\kappa = 0$, the expert knows perfectly the type of the politician. As a result the implementation of a wrong policy is a perfect signal about the politician's type. This means that we can find a threshold

$$\gamma^* \equiv \frac{2q - 1 - G\left(\frac{(1-\varepsilon)}{\varepsilon\mu_1+(1-\varepsilon)}\left(1+\frac{(\mu_1-x_1)}{(\mu_2-q)\alpha^r}\right)\right)(1-q)}{1-E\left[\pi|a_1=\omega_1\right]} > 0$$

such that $\forall\gamma < \gamma^*$, the corrupt politician has no profitable populist deviations.■ ■

Proof of Lemma 5. The threshold that makes the expert indifferent between sending an informative signal and babbling crucially depends on the optimal strategy of the honest politician. Notice that as shown by Lemma 1, there exists a unique continuation equilibrium in the second period this means that the probability assigned to $\omega_2 = r$ is the same for every (m, p). We can write condition 2 and the corresponding threshold for the case in which the probabilities assigned to the state by the honest politician are affected by the expert's optimal strategy:

$$\Lambda^* = \frac{\beta(1-q) + \left(G_\pi^d - G_\pi\right)\left(1 - Eu_e^{nr}\right)}{\beta\left[(1-q) + \left(\Pr(\omega_1 = r|\cdot) - \Pr'(\omega_1 = r|\cdot)\right)\right] + \left(G_\pi^d - G_\pi\right)\left(1 - \Pr(\omega_2 = r|\cdot)\right)}$$

We have identified three regions of the parameters to which there correspond different optimal strategies in the first period: ■

(*a*) If $\eta > \eta^{**}$, the honest will use the expert's report to update the probability assigned to the state $\omega_1 = r$, then $\Pr(\omega_1 = r|\cdot) > \Pr'(\omega_1 = r|\cdot) = \Pr(\omega_2 = r|\cdot)$.

(*b*) If $\eta \in [\eta^*, \eta^{**}]$, we have $\Pr(\omega_1 = r|\cdot) = \Pr'(\omega_1 = r|\cdot) = \Pr(\omega_2 = r|\cdot)$.

(c) If $\eta < \eta^*$, we have that $\Pr(\omega_1 = r|\cdot) = \Pr'(\omega_1 = r|\cdot) < \Pr(\omega_2 = r|\cdot)$.

As a result, condition (2) is indeed sufficient. Uniqueness then follows from direct computation.■

Proof of Proposition 1. Follows from the Lemmas 1-4. We need to check that $\pi^d > \pi$ because we have used it in the construction of the equilibrium. This is true, as $1 - \kappa > k(1 - q)$ is the sufficient condition, and we have found that $\kappa = 0$ on the equilibrium path (if $\Lambda < \Lambda^*$); so that condition is always verified.■ ■

Proof of Proposition 2. It follows from the observation that in the competent case, Λ^* is the relevant threshold only for a subset of the values of η, that is, for every $\eta > \eta^{**}$, while for the remaining range of values, the threshold is higher and can also be greater than one. This means that when $\Lambda^* > 1$, the fully revealing equilibrium is the only outcome of the game. In the case with the incompetent politician, Λ^* is the threshold $\forall\eta$ this means that the range of parameters providing the existence of an informative equilibrium is smaller.■ ■

Proof of Proposition 3. Note that ΔW is a continuous and monotonically decreasing function of the babbling probability κ. This means that a necessary condition to have $\Delta W > 0$ is that it is true when $\kappa = 0$. For the range of parameters we are considering, this is true. Consequently,, we know that there exists a $\widehat{\kappa}$, such that $\Delta W(\widehat{\kappa}) = 0$. The cutoff $\widehat{\kappa}$ is defined as:

$$\widehat{\kappa} \equiv \frac{(1-\mu) - (1-\varepsilon)(\mu - q)}{(1-\varepsilon)(\mu - q) + (1-\mu)}$$

which belongs to the unit interval. Hence, for every $\kappa < \widehat{\kappa}$, introducing corrupt politicians increases social welfare.■ ■

Proof of Proposition 4. First note that the corrupt incumbent's payoff is not affected by his delegation decision as long as he pools with an honest incumbent. An honest politician will delegate if and only if the following inequality holds:

$$\eta\mu_1 + (\mu_2 G_\pi + (1 - G_\pi)(\tau\mu_2 + (1-\tau)q)) \geq \eta + \left(qG_\pi^d + \left(1 - G_\pi^d\right)(\tau\mu_2 + (1-\tau)q)\right)$$

where the RHS shows both the gains of delegation - appropriate implementation in the first period from μ_1 to $1-$ and his cost due to the lower probability of the best policy being implemented in the second period - from μ_2 to q. That inequality will determine a threshold:

$$\underline{\mu} = \frac{\eta + \left(G_\pi - G_\pi^d\right) q (2 - \tau)}{\eta + (1-\tau)\left(G_\pi - G_\pi^d\right)}$$

that implicitly defines a unique cutoff for the incumbent competence, such that for every $\phi < \underline{\phi}$, the incumbent delegates the second-period decision to the expert.■ ■

9 Appendix B

In this appendix, I generalize the truth-telling result of the paper in three directions. First, we assume a finite state space and a finite action space. Second, the expert has imperfect information about the state ω. Third, we consider strictly concave utility functions for all the agents. This shows that the main mechanism through the receiver's accountability is robust, and relevant, in a more general context.

This also constitutes a novel theoretical result; in fact, while Ottaviani and Sorensen (2006b) shows that truth-telling in the presence of expert's career concerns is impossible, we show that the decision maker's reputation is a more effective incentive. The framework is similar to Olszewski (2004), with the main difference being the focus on the role played by the receiver's accountability.

I will embed the model of Section III in a game where the expert receives a signal s from $S = \{s_1, ..., s_m\}$, and the decision maker receives a signal r from $R = \{r_1, ..., r_n\}$ about state $\omega \in \Omega$. The probability that the sender receives $s = s_i$ and the decision maker receives $r = r_k$ is defined as p_i^k, and the prior is given by

$$P = \begin{bmatrix} p_1^1 & p_1^2 & ... & p_1^n \\ p_2^1 & p_2^2 & ... & p_2^n \\ ... & ... & & ... \\ p_m^1 & p_m^2 & ... & p_m^n \end{bmatrix}$$

The sender's type is defined by $t_i \equiv (s_i, p_i)$. He sends a message $\overline{s} \in S$ and the receiver after observing the message, chooses an action $a \in A$ where A is a finite set. It is essential that the set of messages contains all of the signals from the sender; the assumption that there are no other messages is made only for the sake of simplicity. Players are allowed to use mixed strategies. A mixed strategy for the sender is denoted by $\sigma : S \times S \to [0,1]$ where $\sigma(\overline{s}_j, s_i)$ stands for the probability that the sender with signal s_i sends message $\overline{s}_j$. A mixed strategy for the receiver is $\alpha : A \times R \times S \to [0,1]$, where $\alpha(a, \overline{s}_j, r_k)$ stands for the probability of taking action a by the receiver, with signal r_k when the sender sends message $\overline{s} = s_j$.

There are two types of receivers. There is a probability ε that the receiver is honest (a behavioral type i.e. $\eta > \eta^*$) and a probability $1-\varepsilon$ that the receiver is corrupt and strategic. As in the text, the sender receives a signal about the receiver's type and updates the probability of the incumbent's being honest to Λ. The honest receivers always implement the best action given the available information, and the strategic receivers maximize their payoff. Moreover, honest politicians receive an informative signal r_k, while corrupt receivers do not have any valuable information besides the sender's message, that is, $p_i^k = p_i^z$ for every k and z. The decision payoff for the corrupt receiver is represented by u_r^c−a real-valued function of the action and the state. Thus, the expected payoff is given by:

$$E[u_r^c \mid I_t^c] \equiv U_r^c = \sum_{t=1}^{2} \sum_{a_t \in A} \sum_{j=1}^{m} \gamma^{2-t} \alpha_t(a_t, \overline{s}_j, r_k) \sigma_t(\overline{s}_j, s_i) u_r^c(a_t, s_i)$$

where we assume, for simplicity, that the signals are independently distributed across periods. The payoff for an honest receiver is instead given by

$$E\left[u_r^h \mid I_t^h\right] \equiv U_r^h = \sum_{t=1}^{2} \sum_{a_t \in A} \sum_{j=1}^{m} \eta^{2-t} \alpha_t\left(a_t, \overline{s}_j, r_k\right) \sigma_t\left(\overline{s_j}, s_i\right) \pi_t\left(s_i | r_k\right) u_r^h\left(a, s_i, r_k\right)$$

where $\pi_t\left(s_i|r_k\right)$ stands for the probability assigned by the receiver with signal r_k to the event that the sender has obtained signal s_i. Notice that

$$\pi_t\left(s_i|r_k\right) = \frac{p_i^k}{\sum_{j=1}^{m} p_j^k}$$

I assume that the voter's preferences coincide with those of the honest type, that is,

$$E\left[u^v \mid I^v\right] \equiv U_v = \sum_{t=1}^{2} \sum_{a_t \in A} \sum_{j=1}^{m} \sum_{k=1}^{n} \alpha_t\left(a_t, \overline{s}_j, r_k\right) \sigma_t\left(\overline{s_j}, s_i\right) u_r^h\left(a, s_i, r_k\right)$$

Finally, we have to define the expert's expected payoff:

$$U_e = \sum_{t=1}^{2} \sum_{a_t \in A} \beta^{2-t} \left[\sum_{j=1}^{m} \Lambda \alpha_t\left(a_t, \overline{s}_j, r_k\right) \sigma_t\left(\overline{s_j}, s_i\right) u_e\left(a_t, s_i\right) + \left(1-\Lambda\right) u_e\left(a_t, s_i\right)\right]$$

where $\beta > 1$. We make the following assumption:

Assumption 1. There exists in each state a unique maximizer of U_e, that is, $\overline{s}_j = \arg\max_{\overline{s}_j} E\left[U_e\left(s_i, a_i^*, \overline{s}_j\right)\right]$ where a_i^* is the receiver's best response. Define $\overline{U}_e\left(\overline{s}_j\right) = \max_{\overline{s}_j} U_e\left(s_i, \overline{s}_j, a_i^*\right)$.

Note that $\overline{s}_j$ may well be different from the true state; in this case $\overline{U}_e\left(\overline{s}_j\right)$ can be interpreted as the payoff from lying.

I assume that having in office a corrupt politician in the second period gives the sender, in expectation, a higher payoff than when a challenger chooses the action:

Assumption 2. We assume that $\overline{U}_e\left(\overline{s}_j\right) > Eu_e^{nr}$ and we normalize the utility range to the unit interval.

This assumption ensures that the problem is interesting and supposes that the expert has an incentive to deal with a corrupt incumbent.

Assumption 3. We suppose that the re-election probability G_π is increasing in the incumbent's reputation.

This assumption reflects a more primitive assumption on the matrix P, analogous to the condition $\phi > \phi^*$ in the text.

First, we can characterize the second-period equilibrium:

Lemma 16 *In the second period, the unique equilibrium is a babbling equilibrium.*

Proof. Suppose that in some equilibrium the sender depending on the state revealed to him sends at least two different reports, s_1 and s_2, and a_1 and a_2 are the actions in response to those two reports. It must be that $a_1 = a_2$. Presume that this is not the case, note that $u_e(a_1) \neq u_e(a_2)$ due to Assumption 1, and take the case $u_e(a_1) > u_e(a_2)$. Observe that it is not rational to send report s_2, as s_1 induces a more favorable decision. Then, this contradicts that both s_1 and s_2 are sent in equilibrium. ■

We can now state the main result:

Proposition 17 *If the voter's beliefs are continuous in the pair* (s_i, a_i)*, we can find a sequence of thresholds* $\{\Lambda^*\}_{i=1}^m$*, such that if* $\Lambda < \Lambda^*$ *the expert truthfully reports his signal in the first period.*

The intuition for this result is that, if it is true that the expert must receive the same expected payoff from all the messages sent in equilibrium, and if the decision payoff has a unique maximizer for each state, the difference in payoff generated by the optimal action given a truthful revelation and the action chosen in the case of a lie may be compensated by the difference in the probability of the corrupt incumbent's re-election. This means that the expert faces a trade-off between being truthful in the first period -increasing the corrupt chances of being reelected- or lying but decreasing in this way the probability of being influential in the second period.

The existence of a separating equilibrium does not require that every type t can be separated from *all* other types, but rather that it be only separated from types that strictly prefer to be misidentified as type t. Assumption 1 simplifies the analysis, restricting attention for the sender to one incentive compatibility.

Proof. Define $U_e^*(\overline{s}_j)$ as the maximum payoff he can achieve by truthfully revealing the state. Since for each state there is only one message that maximizes the expert's payoff, he will compare the expected payoff of lying - sending that message- with the expected payoff in the case of truthful disclosure. Suppose that the state is s_i and $\overline{s}_j = \arg\max_{\overline{s}_j} U_e(s_i, a_i, \overline{s}_j)$;in general, the expert will truthfully reveal the state if the following incentive compatibility constraint holds:

$$E[U_e|\overline{s} = s_i] \geq E[U_e|\overline{s} = s_j]$$

Let us suppose that the receiver will follow the sender's suggestions (remember that the honest incumbent is a behavioral type) and note that we can rewrite the previous condition as:

$$\begin{aligned} \beta U_1^* + G_\pi U_2^* + (1 - G_\pi) Eu_e^{nr} &\geq \beta \overline{U}_1 + G_\pi^d \overline{U}_2 + \left(1 - G_\pi^d\right) Eu_e^{nr} \\ \Leftrightarrow \left(G_\pi - G_\pi^d\right) U_2 - \beta \left(\overline{U}_1 - U_1^*\right) &\geq \left(G_\pi - G_\pi^d\right) Eu_e^{nr} \end{aligned}$$

where

$$U_1^* = \Lambda\alpha(a_t, \overline{s}_j, r_k)\,\sigma(\overline{s_j}, s_i)\,u_e^*(a_t, s_i) + (1 - \Lambda)\,u_e^*(a_t, s_i)$$

and

$$\overline{U}_1 = \Lambda\alpha(a_t, \overline{s}_j, r_k)\,\sigma(\overline{s_j}, s_i)\,\overline{u}_e(a_t, s_i) + (1 - \Lambda)\,\overline{u}_e(a_t, s_i)$$

are the expected payoff of the sender, respectively, in the case of truthful revelation and when he sends his most preferred message. In the first period, assume that the receiver is influenced by the

expert's message. He will then choose an action a^*, which, by assumption 1, is less preferred than action $\overline{a}$, which would be implemented by a corrupt politician in an uninformative equilibrium. Consequently, $\overline{U}_1 > U_1^*$ for every Λ. However, the second-period expected payoff is the same, ceteris paribus, for any message $\overline{s}_j$ sent in the first period. This is a consequence of lemma A.1: in the second period the honest will choose the best policy given his signal r_k, while the corrupt decision maker chooses the expert's most preferred policy. The only difference is in the re-election probability G_π, which is greater in the case of truth-telling in the first period than in the case of babbling, as G_π is increasing in π by assumption 3. However, the expected payoff in the second period is a continuous function of Λ. This means that we can find a threshold $\Lambda^*(s)$ such that for every $\Lambda < \Lambda^*(s)$ the equilibrium is separating and the receiver optimally follows his suggestions. The cutoff for each state is defined as:

$$U_2(\Lambda^*) = Eu_e^{nr} + \frac{\beta \Delta U_1(\Lambda^*)}{(G_\pi - G_\pi^d)} \tag{2}$$

Assumptions 1 and 2 assure his existence, as the right-hand side of equation (2) belongs to the unit interval. If the difference in the re-election probability continuously changes with the state and the action implemented; i.e., if the voters assign to each pair (s_i, a_i) a different belief π_i, we can easily find a sequence of thresholds, $\{\Lambda^*(s_i)\}_{i=1}^m$ -one for each signal, that satisfies (2). The normalization ensures that each of these cutoffs is less than one. ■

The result then crucially depends on the voter's updating process: if the voter after each pair of action and state assigns different beliefs to the incumbent, this disciplines the expert's behavior. On the other hand, if voters interpret a set of actions in the same way, the expert is induced to send the message that corresponds to the implementation of his most preferred policy among these actions.

The proposition highlights, in a more general context, the role played by political accountability on the expert's incentives to be truthful. This is a central and novel result in the cheap talk literature, which may be applied to a variety of settings.

Table 1
The Relationship between Corruption, Accountability and Polarization.

	(1) *Government Effectiveness*	*(2)* *Control of Corruption*	*(3)* *Quality of Government*	*(4)* *Bribe Payments*	*(5)* *Influence on Executive*
Accountability	0.6945	0.7635	0.0313	-0.5156	-0.0655
Polarization	0.1625	0.2198	0.3294	-0.3372	-0.1346

Note: All data are computed for a consistent sample of 80 countries for which all data are available. Accountability and the measures of government effectiveness as well as of control of corruption are from the Worldwide Governance Indicators (WGI) project. They range between -2.5 and 2.5 with higher values corresponding to better outcomes. Bribes payments is the percent of sales paid by firms in bribes and Influence on the Executive ranges from 1 to 6 and is an increasing measure of the influence that firms have on government executive.