POLITICAL ACCOUNTABILITY AND MISINFORMATION

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Political Accountability and Misinformation[*]

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Abstract

What are the impacts of misinformation on political accountability? We address this question in a political career concerns framework with belief misspecification. In our model, an incumbent politician of an unknown ability seeks to maximize reelection chances by putting costly effort into a provision a public good. Citizens agree *ex-ante* on how to interpret the outcomes of the incumbent's effort. However, some of them disagree on how to interpret other signals. Specifically, some voters incorrectly believe that a confounding signal is informative of about the incumbent's ability, while others correctly understand that they are completely uninformative. This misspecification on this signal leads to *ex-post* disagreement on how successful the incumbent should be in providing the public good to secure a reelection. We consider both an intensive margin and an extensive margin of informational disagreement, that is, (i) how much the beliefs of citizens with learning misspecification differ from the beliefs of citizens with a correct learning model, and (ii) how much misspecified citizens represent in the composition of society. We characterize the impact of informational disagreement on effective accountability (the effort provided by the incumbent in equilibrium). Our analysis not only identifies situations in which misinformation impacts negatively the social contributions of elected governments, but also – perhaps counter-intuitively, situations in which misinformation increases political accountability.

Keywords: political accountability; information; model misspecification.

JEL Classification: D72; D82; D83.

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1   Introduction

> *The democratic citizen is expected to be well informed about political affairs.*
> *He is supposed to know what the issues are, what their story is, what the rele-*
> *vant facts are, what alternatives are proposed, what the party stands for, what*
> *the likely consequences are. By such standards the voter falls short.* (Berelson,
> Lazarsfeld, McPhee, 1958,)

The act of politicians kissing babies and taking pictures in the U.S. has long been a common trope in political campaigns.[1] In Brazil, it is a tradition for politicians in campaigns to eat local delicacies in cheap places, and, of course, use this as a visually appealing photo opportunity for the media.[2] But if such 'pseudo-events' are pervasive among all politicians, there is nothing to learn about the politicians' character and values.[3]Yet, some voters are influenced by these acts. Some infer that the politician is more humane, thus increasing their likelihood to vote for the politician; some infer that the practice is too staged, thus decreasing their likelihood to vote for the politician.[4] Because some voters believe that there is something to learn about a politician through uninformative signaling, a politician may use this political misperception into his favor. In particular, if the politician is in office, he may engage in more or less effort on activities throughout his mandate that are really informative of their attributes, for instance, fighting corruption or handling effectively health crises. How does the presence of misguided voters impact political accountability?

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[1]See for instance https://shorturl.at/nqEM4.

[2]See for instance https://shorturl.at/nyASZ.

[3]Boorstin (1992) coined the term 'pseudo-events' to refer to events lacking real news value, produced by politicians to generate media attention. Such events lack informational content, but nevertheless appeal to people's desire to be informed. The phenomenon differs from propaganda, although both may result in public misinformation. While propaganda is a form of political communication to distort facts and influence voters' learning, pseudo-events provides the public with artificial facts that are perceived as real (Kaid and Holtz-Bacha, 2007).

[4]Pseudo-events may backfire and reduce the politician chances of being reelected. A recent example happened in U.S elections with the Republican Pennsylvania Senate nominee Mehmet Oz, after sharing a video of a visit to a local supermarket aiming to evidence the inflation brought by the Democrats' administration. His attempt to connect with poor and working-class people had the opposite effect, costing him the election. More details on https://shorturl.at/sENQ4.

To address this question, in this paper, we develop a model of political career concerns with belief misspecification. More specifically, there is an incumbent politician competing with a challenger politician over votes from electors, some of them misguided. Each politician has intrinsic features which we summarize through one of two states of the world: high or low. Think of this as a politician's ability to deliver a public good while in office. This provision of the public good not only depends on the incumbent's ability, but also on the amount of costly effort to deliver such good. We assume that the realization of the public good is always informative about the incumbent's ability. We also assume that whoever is in power does not care about maximizing social welfare by providing the public good, or about implementing their personal policy position. They want to increase their vote share to secure staying in power.[5]

Voters have a preference heterogeneity for the politician to be in office, no matter whether they are misguided. We model this as a preference shock. If it is positive, it is as if they become more inclined to vote for the incumbent. If it is negative, it is as if they become less inclined to vote for the incumbent. No matter the shock, they all have a higher payoff from electing a politician with a reputation of being highly capable.

Some voters are misguided, in a specific meaning: they incorrectly believe that another public signal is informative about the incumbent´s ability. Correct voters know that there is nothing to learn from observing this confounding public signal. Technically, misguided voters are learning in addition from a misspecified model of public information.

Standard electoral accountability models usually consider that citizens are well-informed about political affairs. But voters can be ill-informed about what "the relevant facts are" (Berelson, Lazarsfeld and McPhee, 1986). The concern is that this may lead voters to fall short on performing when they are called upon to make reasonable choices on which politician to choose. We provide sufficient conditions under which the presence of misguided voters decrease accountability.

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[5]We highlight that this is not a signalling game, because we assume that the incumbent politician does not know his type. As such, the incentives to change behavior given people that incorrectly learn from them are different from the incentives for low-virtue politicians to separate themselves from high-virtue politicians.

Intuitively, these conditions are about preference heterogeneity being relatively small and misinformation being perceived as revealing. Under such conditions, without misguided voters, the outcomes of the incumbent's actions (the realization of the public good) dictate the election. With misguided voters, there is distortion in the public inference. For instance, a failure in the provision of the public good may not so be much "bad news" about the incumbent's ability. As such, there are less incentives to engage in higher effort.

We also evidence the possibility of misguided voters having a positive influence on accountability, however. Therefore, our analysis identifies a more complex, and perhaps novel, mechanism through which misinformation and political accountability are intertwined. It is not the existence of misguided voters *per se* that impact negatively accountability. It also matters the polarization in preferences, either through a bias favoring the incumbent or the challenger. We present an example in which it favors the incumbent. Correct voters may be inclined to vote for the incumbent even after a failure, but misguided voters may swing votes towards the challenger, through misspecified signals. We show that the possibility of misguided voters shifting votes raises the impact of effort on the incumbent's probability of retention, and triggers incentives for higher effort.

Related literature

Political scientists have been concerned with the consequences of voter competence on democracy for decades. Yet, it is not clear how it impacts political accountability. It is not always true that better informed voters' would improve authors voters welfare, for example. Ashworth and De Mesquita (2014) show that, when the strategic interaction between voters and politicians is taken into account, better informed voters may lead to higher or lower voter welfare. We connect with the literature on ambiguous effects of information on political accountability, but we innovate by studying the impact of information misspecification. In our framework, the true information structure is unrevealing, but it affects democratic performance as long as some voters wrongly believe that it reveals the incumbent's ability.

Voters may be misinformed for a variety of reasons. Voters may hold biased beliefs because they are partisan (D'Amico and Tabellini, 2022), because they wrongly consider biased media outlets in social networks (Kuklinski, Quirk, Jerit, Schwieder and Rich, 2000), because they neglect the correlation of news sources (Levy and Razin, 2015, 2019) or even because voters have preferences over information acquisition that generate a behavioral bias (Herrera and Sethi, 2022).We focus on voters that may have a misspecified model of learning – they do not know what "the relevant facts are". For example, voters may wrongly consider information that should be irrelevant to learn about the incumbent´s quality, by paying attention to 'pseudo-events' (Boorstin, 1992).

We want to answer how voters misspecified models of learning can impact effective accountability and electoral selection. For this, we analyze a political economy model with a career concerned candidate seeking reelection (much in line with Camargo and Degan, 2023, but also related to Barro, 1973; Ferejohn, 1986; Ashworth, 2005; and Ashworth, de Mesquita and Friedenberg, 2017). The incumbent politician chooses how hard to work on one task that depends on the quality of the politician and, therefore, should be used as a learning signal for voters. Voters, however, can misinterpret a quality-independent signal as also being informative about the incumbent's quality. In order words, voters hold a misspecified model of one information structure , as in Bohren and Hauser (2021).

2 Model

In this section, we present our baseline model, define equilibria, and make some remarks about our modelling choices. A key element of our baseline model is the amount of belief polarization in society, measured by the (ex-ante) dispersion in the probability misguided voters assign to the incumbent being high-ability. Belief polarization is exogenous in our baseline model.

Agents. There are two politicians, the incumbent and the challenger, and a continuum of risk voters. Politicians can be of one of two types: a low-ability type and a high-ability type. We denote a politician's type by τ, where $\tau = L$ if the politician is of low ability and $\tau = H$ if the politician is of high ability. The politicians' types are unknown to all agents, including the politicians themselves, and are independent of each other. Each politician has the same probability of being of high type, which we assume is $1/2$ without loss. Voters are either correct or misguided. We describe these two types of voter below, when we discuss voter learning. The fraction of misguided voters in the population is $\mu \in [0, 1]$.

Output. The incumbent's output depends on their private choice of effort $a \in A = [0, \bar{a}]$ and on their type τ, and is either $y = h$, a success, or $y = \ell$, a failure.[6] The probability an incumbent of type τ who exerts effort a succeeds is $p(a, \tau) > 0$, where p is a twice continuously differentiable, strictly increasing, and strictly concave function of a. Moreover, $p(a, H) > p(a, L)$ for all $a \in A$, so high-ability incumbents are more likely to succeed than low-ability ones no matter their choice of effort. We let $p(a) = \frac{1}{2}[p(a, H) + p(a, L)]$ denote the ex-ante probability the incumbent succeeds when their effort is a.

Learning. The incumbent's performance in office is observable, and so is used by voters to update their beliefs about the incumbent's type. Voters also observe a (potentially) confounding public signal. Its true distribution is independent of the incumbent's type, and so this signal does not provide any information about the incumbent's ability. Correct voters know this. Misguided voters, however, believe that z is correlated with the incumbent's type and so is informative about the incumbent's ability. Let F be the c.d.f. describing the distribution of the misguided voters' posterior belief that the incumbent is of high ability—the incumbent's reputation for short—after observing the confounding public signal. We assume that F has mean $1/2$, a density f, and support $[\underline{\sigma}, \overline{\sigma}]$ with $0 < \underline{\sigma} < 1/2 < \overline{\sigma} < 1$.[7]

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[6]The binary output assumption simplifies the exposition without changing our message; see Camargo and Degan (2023) for details.

[7]The assumption that F has mean $1/2$ is consistent with the idea that misguided voters are Bayesian updaters with a misspecified model about the distribution of the public signal z. Indeed, following Smith and Sørensen (2000), if we let $f_H(\sigma) = 2\sigma f(\sigma)$ and $f_L(\sigma) = 2(1 - \sigma)f(\sigma)$ and define $F_\tau : [0, 1] \to \mathbb{R}$,

In particular, misguided voters do not become dogmatic after observing the confounding public signal, and so their belief about the incumbent's ability responds to the incumbent's performance in office.

Preferences. The incumbent's payoff depends on their effort and vote share. The payoff to an incumbent who exerts effort a and obtains a vote share $s \in [0, 1]$ is $s - c(a)$. The function c is twice continuously differentiable, increasing and convex, and satisfies the 'Inada' conditions $c(0) = c'(0) = 0$ and $c'(\overline{a}) > p'(a)$. Let $\iota \in \{\text{incumbent, challenger}\}$ be the identity of a politician. The payoff to a voter when politician ι is in office is $\pi + \xi \mathbb{I}(\iota)$, where π is the probability the voter assigns to the politician being high-ability, $\xi \in \mathbb{R}$, and $\mathbb{I}$ is an indicator function equal to one (respectively, zero) if ι is the incumbent (respectively, the challenger). The parameter ξ is a shock to the voters' preference and is distributed among them according to a c.d.f. Γ with a density γ and support $[\underline{\xi}, \overline{\xi}]$, where $\underline{\xi} < 0 < \overline{\xi}$. The c.d.f. Γ describes preference heterogeneity among voters.

Timing. Action takes place in two periods. In the first period, the incumbent privately chooses their effort, output is realized, and voters observe the confounding public signal. In the second period, voters choose on which politician to vote and vote shares are determined.

Strategies and Equilibria. A symmetric strategy profile is a list consisting of the incumbent's effort and probabilities of a voter voting for the incumbent given the observation of the incumbent's output, the preference shock and the belief induced by the confounding public signal. A belief system consists of maps $\pi_y : [\underline{\sigma}, \overline{\sigma}] \times A \mapsto [0, 1]$, $y \in \{h, \ell\}$, such that $\pi_y(a^e, \sigma)$ is the probability a voter assigns to the incumbent being of high ability given belief σ after observing the confounding public signal, the realization of the incumbent's output y and a conjectured effort a^e. We consider symmetric pure-strategy sequential equilibria.[8]

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with $\tau \in \{L, H\}$, to be such that $F_\tau(\sigma) = \int_0^\sigma f_\tau(s)ds$, then each F_τ is a c.d.f. (since $\mathbb{E}[\sigma] = 1/2$) and $F = \frac{1}{2}[F_L + F_H]$. If misguided voters believe that z is distributed according to F_τ when the incumbent's type is τ, then, by Bayes' rule, the incumbent's reputation among the misguided voters is σ if $z = \sigma$.

[8]The restriction to symmetric equilibria is without loss of generality given the assumption that the preference shock ξ is continuously distributed—the only scope for asymmetry of behavior among voters is when

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Remarks. The assumption that there exists no effort choice by politicians in the second period and that voters base their voting decision on the politicians' reputations (together with the preference shock ξ) simplifies the exposition without changing the substance of our results. We would obtain the same results if the politician elected for office in the second period had an effort choice to make and voters ranked the politicians based on their expected output in office. Indeed, since there are no future concerns for politicians in the second period, they have no incentive to exert effort in office, and so the ranking of politicians is based on their respective reputations with voters.

We assume the incumbent cares only about their vote share in the second period. We can introduce reelection concerns by assuming that the incumbent's payoff when they exert effort a and obtain vote share s is $B(s) - c(a)$, where $B(s)$ is a continuously differentiable function of s with $B'(s) > 0$ for all $s \in (0, 1)$. Reelection concerns are captured by assuming that $B'(s)$ is maximized at $s = 1/2$. We can show that reelection concerns do not change the substance of our results.

3 Accountability with Misguided Voters

In this section, we study how misguided voters affect political accountability. Our main results are Propositions 2 and the example on subsection 3.2.1, both describing how belief polarization interacts with preference polarization to affect political accountability.

3.1 Equilibrium Characterization

We begin by characterizing the equilibria of the baseline model. We proceed by backward induction. First, we consider the voters' behavior in the second period. Then, we consider the incumbent's effort choice in the first period. The main result is a characterization of the incumbent's equilibrium choice of effort, which forms the basis of our subsequent analysis.

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they are indifferent between the incumbent and the challenger, a zero-probability event. Consistency of beliefs is guaranteed by Bayes' rule since both output realizations are possible regardless of the incumbent's effort.

3.1.1 Voting

Consider a voter who assigns probability π to the incumbent being high-ability. The voter chooses the incumbent if, and only if,

$$\pi + \xi \geq 1/2 \Leftrightarrow \xi \geq 1/2 - \pi;$$

since the c.d.f. Γ is continuous, it is without loss to assume that the voter chooses the incumbent if indifferent between the incumbent and the challenger. We define $\Psi(\pi) = 1 - \Gamma(1/2 - \pi)$ as the probability a voter with belief π about the incumbent being high-ability prefers the incumbent.

3.1.2 Incumbent's Effort

We now consider the incumbent's choice of effort. We first determine how voters update their beliefs about the incumbent's type based on the incumbent's performance and on the confounding public signal. This belief updating process depends on the voters' conjecture about the incumbent's effort. We then determine the incumbent's payoff given the incumbent's effort and the voters' conjecture about the incumbent's effort. To conclude, we characterize the incumbent's equilibrium effort using the fact that in equilibrium the incumbent's optimal choice of effort must coincide with the conjecture about their effort.

Belief Updating. Let a^e be the voters' conjecture about the incumbent's effort and denote by $\pi_y(a^e, \sigma)$ the probability a voter assigns to the incumbent being of high ability if the incumbent's output is y and the voter believes the incumbent is high-ability with probability π after observing the confounding public signal. Note that $\sigma = 1/2$ if the voter is correct and σ is drawn from the c.d.f. F if the voter is misguided. Bayes' rule implies that

$$\pi_h(a^e, \sigma) = \frac{p(a^e, H)\sigma}{p(a^e, H)\sigma + p(a^e, L)(1 - \sigma)},$$

$$\pi_\ell(a^e, \sigma) = \frac{[1 - p(a^e, H)]\sigma}{[1 - p(a^e, H)]\sigma + [1 - p(a^e, L)](1 - \sigma)}.$$

Since $p(a, \tau)$ is a continuous function of a for each τ and $f(a, H) > f(a, L) > 0$ for all $a \in A$, it follows that, as long as a voter is not dogmatic, i.e., does not assign probability either one or zero to the incumbent being high-ability, the voters' assessment about the incumbent's ability responds to the incumbent's output regardless of the conjecture a^e.

Moreover, although both belief functions are increasing in σ, $\pi_h(a^e, \sigma)$ is concave, while $\pi_\ell(a^e, \sigma)$ is convex. This implies that, on average, misguided voters always hold lower beliefs about the incumbent being of high-ability relative to correct voters, after a success; and higher beliefs about the incumbent being of high-ability relative to correct voters. Figure 1 below illustrates this comparative statics.
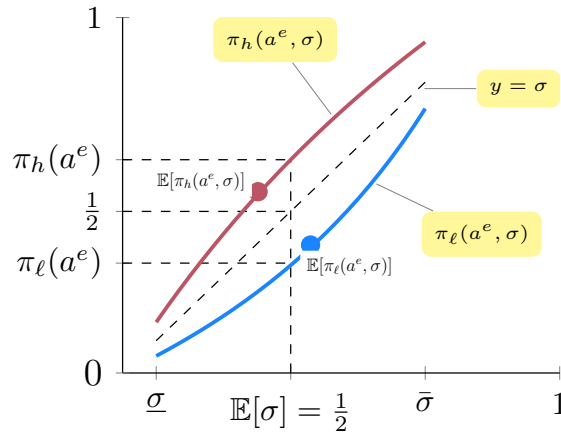

Figure 1: Posterior belief functions. The red line represents the belief updating after a successful provision of a public good, and the blue line the belief updating after a failure to provide the public good. The expected posterior of misguided voters is always lower than the expected posterior of correct voters ($\sigma = 1/2$ with probability one) after a success; and higher than the expected posterior of correct voters after a failure.

Incumbent's Payoff. The incumbent's payoff depends not only on their effort a but also on the conjecture about their effort a^e. Indeed, as just discussed, the conjecture about the incumbent's effort determines how voters update their beliefs about the incumbent's type based on the incumbent's performance given the realization of the confounding public signal. Let the function below be the incumbent's expected vote share when the incumbent's output is y and the incumbent's conjectured effort is a^e.

$$s(y, a^e) = (1 - \mu)\Psi(\pi_y(a^e)) + \mu \int_{\underline{\sigma}}^{\overline{\sigma}} \Psi(\pi_y(a^e, \sigma))f(\sigma)d\sigma$$

To visualize how misguided voters impact the probability of reelection of the incumbent, we plot the vote shares for correct and misguided voters in figure 2 below. In the left graph, the red area is the vote share of the incumbent among correct voters after a success and the blue area is the vote share of the incumbent among correct voters after a failure. We will see that the the colored are, that is, the difference between the vote share after a success and a failure, is what matters for our analysis Note as well that $s(a^e, h) > s(a^e, \ell)$ regardless of a^e.[9]

The figure on the right represents the shares if there were only misguided voters in the interaction. After a successful provision of a public good, the confounding signal may shift the posterior up, thus increasing the vote share of the incumbent. But the confounding signal may also shift the posterior down, thus decreasing the vote shares for the incumbent. The same logic holds for the distribution of inferences after a failure to provide the public good. The lighter the colors of the areas in the graph, the lower the mass of misspecified beliefs, thus lower the weight that is assigned to those areas when the incumbent computes the expected vote shares.

The figures evidence that, in this specific distribution of confounding public signals, misguided voters are shifting mass towards the center of the distribution. As such, they are reducing the difference in the vote shares. We will see that, whenever the presence of misguided voters reduces the difference in vote shares for a given effort, the incumbent has incentives to provide a lower effort in equilibrium.

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[9]By definition, $\Psi(1/2) = 1 - \Gamma(0)$. Given that the c.d.f. Γ has support in an interval containing 0, it follows that $\Psi(\pi) < \Psi(\pi')$ for all $\pi < 1/2 < \pi'$.
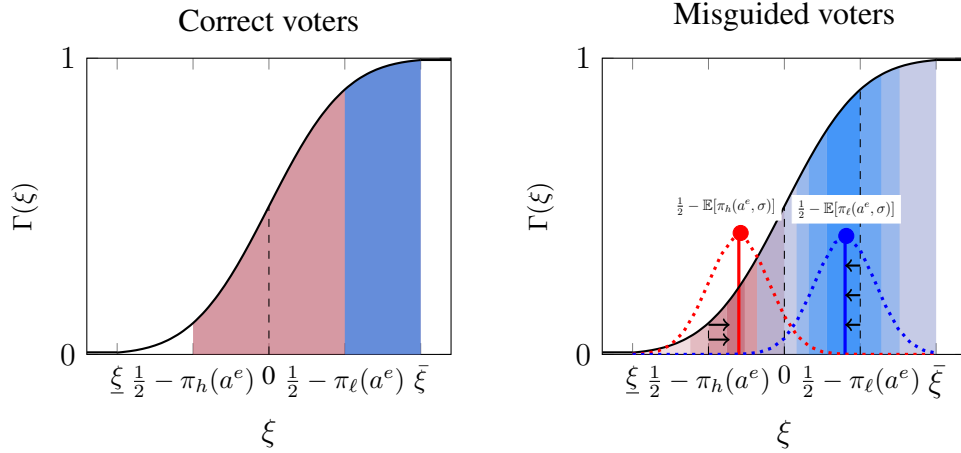
Figure 2: Incumbent's vote shares. The figures are plotted assuming $\xi \sim N(0,2)$, truncated at upper and lower values, as well as $\sigma \sim \beta(10,10)$. The red area represents the vote shares after a success, the blue area the vote shares after a failure. Lighter and darker areas on the right graph represent lower and higher masses of misguided voters voting for the incumbent, respectively.

The incumbent's payoff given a and a^e is then given by

$$U(a, a^e) = p(a)s(h, a^e) + [1 - p(a)]s(\ell, a^e) - c(a).$$

Note that $U(a, a^e)$ is strictly concave in a regardless of a^e.

Equilibrium Effort. The effort a^* is an equilibrium choice of effort for the incumbent if $U(a^*, a^*) \geq U(a, a^*)$ for all $a \in A$, i.e., if a^* is an optimal choice of effort for the incumbent when voters conjecture that the incumbent's choice of effort is a^*. Let

$$
\begin{aligned}
MB(a, \mu, F) &= p'(a)[s(h, a) - s(\ell, a)], \\
&= p'(a)\left\{ (1 - \mu)\left[\Psi(\pi_h(a)) - \Psi(\pi_\ell(a)) \right] + \mu \int_{\underline{\sigma}}^{\overline{\sigma}} \left[\Psi(\pi_h(a, \sigma)) - \Psi(\pi_\ell(a, \sigma)) \right] f(\sigma) d\sigma \right\}
\end{aligned}
$$

be the marginal increase in the incumbent's payoff following a marginal increase in the incumbent's effort when this effort is a and voters correctly anticipate it; note that when voters conjecture that the incumbent's effort is a, the difference $s(h, a) - s(\ell, a)$ is the increase in the incumbent's vote share if the incumbent's output changes from a failure to a success.

We highlight the dependence of the incumbent's marginal benefit on the fraction of misguided voters and on the distribution of beliefs σ among misguided voters since this is useful when we investigate the effect of misguided voters on political accountability. The next result provides a characterization of the incumbent's equilibrium choices of effort.

Proposition 1. *A necessary and sufficient condition for the effort a^* to be an equilibrium choice of effort for the incumbent is that*

$$c'(a^*) = MB(a^*, \mu, F). \tag{1}$$

Proof. Since $U(a, a^e)$ is strictly concave in a, the first-order condition (1) is sufficient for a^* to maximize $a \mapsto U(a, a^*)$. Clearly, $\overline{a}$ is not an equilibrium choice of effort for the incumbent since $\partial U(\overline{a}, a^e)/\partial a \leq p'(\overline{a}) - c'(\overline{a}) < 0$ regardless of a^e. On the other hand, $s(h, 0) > s(\ell, 0)$ and $c'(0) = 0$ imply that $\partial U(0, a^e)/\partial a > 0$ for all $a^e \in A$, and so 0 cannot be an equilibrium choice of effort for the incumbent as well. So, the first-order condition (1) is also necessary for a^* to maximize $a \mapsto U(a, a^*)$. $\square$

Since $\Psi(\pi_y(a, \sigma))$ is a continuous function of a for all $y \in \{\ell, h\}$ and $\sigma \in (\underline{\sigma}, \overline{\sigma})$, the dominated convergence theorem implies that $MB(a, \mu, F)$ depends continuously on a. So, by the intermediate value theorem, the equilibrium condition (1) always has a solution. Moreover, given that $c'(0) = 0 < MB(0, \mu, F)$ and $c'(\overline{a}) > p'(\overline{a}) \geq MB(\overline{a}, \mu, F)$, any solution to (1) is interior. Proposition 1 thus admits the following corollary.

Corollary 1. *An equilibrium choice of effort for the incumbent always exists and is interior.*

3.2 Comparative Statics

We now study how the presence of misguided voters affects political accountability. In general, the equilibrium condition (1) can have more than one solution. Indeed, while the marginal probability of success, $p'(a)$, is strictly decreasing with a, the increase in the incumbent's vote share when the incumbent's output changes from a failure to a success,

$s(h, a) - s(\ell, a)$, need not be strictly decreasing with a.[10] Thus, $MB(a, \mu, F)$ need not be decreasing with a, which opens the scope for equilibrium multiplicity. Given this, we focus our analysis on the highest-effort equilibria. Such equilibria are well-defined since $c'(a)$ and $MB(a, \mu, F)$ are continuous functions of a, so that the set of solutions to (1) is always closed (and thus compact). Since we take the c.d.f. F as fixed in our comparative statics analysis, in what follows we let $a^*(\mu)$ be the incumbent's (highest) equilibrium choice of effort when the fraction of misguided voters is μ.

We begin our comparative statics analysis by showing that if preference heterogeneity among voters is sufficiently small, then the presence of misguided voters unambiguously reduces political accountability. Suppose $\inf_{a \in [0, \bar{a}]} \pi_h(a) \geq 1/2 - \underline{\xi}$. Then

$$\pi_h(a) + \xi > \inf_{a \in [0, \bar{a}]} \pi_h(a) + \underline{\xi} \geq 1/2$$

for all $\xi \in (\underline{\xi}, \bar{\xi}]$, so that $\Psi(\pi_h(a)) = 1$. Similarly, suppose $\sup_{a \in [0, \bar{a}]} \pi_\ell(a) \leq \frac{1}{2} - \bar{\xi}$. Then $\Psi(\pi_\ell(a)) = 0$. In words, when the distribution of the preference shock ξ among voters is sufficiently concentrated around zero, the incumbent's vote share among correct voters is one after a success and zero after a failure regardless of the voters' conjecture about the incumbent's effort. Now observe that if $\mu = 0$, then the incumbent's equilibrium choice of effort is the unique solution $a_{\max} \in (0, \bar{a})$ to

$$c'(a) = p'(a).$$

Since $MB(a, \mu, F) \leq p'(a)$ for all $\mu \in [0, 1]$ and any c.d.f. F, the next result is a consequence of the fact that any solution to the equilibrium condition (1) is bounded above by $a_{\max}$ and is smaller than $a_{\max}$ whenever $MB(a, \mu, F) < p'(a)$ for all $a \in A$.

Proposition 2. *Suppose* $\inf_{a \in [0, \bar{a}]} \pi_h(a) \geq \frac{1}{2} - \underline{\xi}$ *and* $\sup_{a \in [0, \bar{a}]} \pi_\ell(a) \leq \frac{1}{2} - \bar{\xi}$. *Then the presence of misguided voters weakly decreases accountability. It does strictly so if either* $\inf_{a \in [0, \bar{a}]} \pi_\ell(a, \bar{\sigma}) > \frac{1}{2} - \bar{\xi}$ *or* $\sup_{a \in [0, \bar{a}]} \pi_h(a, \underline{\sigma}) < \frac{1}{2} - \underline{\xi}$.

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[10]For instance, $s(h, a) - s(\ell, a)$ is strictly increasing with a in the natural case in which $\frac{p(a, H)}{p(a, L)}$ is strictly increasing with a and $\frac{1 - p(a, H)}{1 - p(a, L)}$ is strictly decreasing with a.

Proof. The proposition follows immediately from Proposition 1 and the fact that if either $\inf_{a \in [0,\bar{a}]} \pi_\ell(a, \bar{\sigma}) > \frac{1}{2} - \bar{\xi}$ or $\sup_{a \in [0,\bar{a}]} \pi_h(a, \underline{\sigma}) < \frac{1}{2} - \underline{\xi}$, then

$$\int_{\underline{\sigma}}^{\overline{\sigma}} \left[\Psi(\pi_h(a, \sigma)) - \Psi(\pi_\ell(a, \sigma)) \right] f(\sigma) d\sigma < 1. \qquad \square$$

The intuition for Proposition 2 is straightforward. The incumbent has the highest incentive to exert effort if the incumbent's vote share is one after a success and zero after a failure. When $\inf_{a \in [0,\bar{a}]} \pi_h(a) \geq \frac{1}{2} - \underline{\xi}$ and $\sup_{a \in [0,\bar{a}]} \pi_\ell(a) \leq \frac{1}{2} - \bar{\xi}$, preference heterogeneity among voters is small enough that, in the absence of a confounding public signal, the incumbent's reputation after the incumbent's output is realized is the sole factor determining whether a voter chooses the incumbent or the challenger. The confounding public signal can reduce the incumbent's incentive to exert effort by inducing heterogeneous behavior on voters: a misguided voter can vote for the challenger after a success and vote for the incumbent after a failure. Note that Proposition 2 holds regardless of the equilibrium-selection criteria we employ.

We now derive conditions under which the presence of misguided voters can *increase* political accountability. We begin by presenting a useful result. Lemma 1 states the intuitive fact that if a change in the fraction of misguided voters always increases the incumbent's marginal benefit of effort when voters correctly anticipate the incumbent's behavior, then the incumbent's effort in the highest-effort equilibrium increases with this change in the fraction of misguided voters.[11]

Lemma 1. *Let $\mu^0, \mu^1 \in [0,1]$ be different values for the fraction of misguided voters. If $MB(a, \mu^0, F) \leq MB(a, \mu^1, F)$ for all $a \in A$, then $a^*(\mu^0) \leq a^*(\mu^1)$, with strict inequality if $MB(a, \mu^0, F) < MB(a, \mu^1, F)$ for all $a \in A$.*

Proof. Suppose $MB(a, \mu^0, F) < MB(a, \mu^1, F)$ for all $a \in A$ but $a^*(\mu^0) \geq a^*(\mu^1)$. Now let $\Delta(a, \mu) = c'(a) - MB(a, \mu, F)$. Since $\Delta(a, \mu^1) > 0$ for all $a > a^*(\mu^1)$, we have that

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[11]It is straightforward to adapt the proof of Lemma 1 to show that the lowest-effort equilibria respond in the same way to the type of change in $MB(a, \mu, F)$ described in the statement of the lemma. So, the comparative statics results derived in the second part of this section also hold for the lowest-effort equilibria.

$0 \leq \Delta(a^*(\mu^0), \mu^1) < \Delta(a^*(\mu^0), \mu^0)$, contradicting the fact that $a^*(\mu^0)$ is the incumbent's equilibrium choice of effort when the fraction of misguided voters is μ^0. Likewise, one can show that $a^*(\mu^0) \leq a^*(\mu^1)$ if $MB(a, \mu^0, F) \leq MB(a, \mu^1, F)$ for all $a \in A$. $\qquad\square$

The next result presents sufficient conditions for the presence of misguided voters to increase political accountability. Let F^0 be the c.d.f. on $[\underline{\sigma}, \bar{\sigma}]$ such that $F^0(\sigma) = 0$ if $\sigma < 1/2$ and $F^0(\sigma) = 1$ if $\sigma \geq 1/2$. The c.d.f. F^0 describes the distribution of beliefs σ among the correct voters. Having only misguided voters with $F = F^0$ is then equivalent to having no misguided voters.

Lemma 2. *The presence of misguided voters increase political accountability whenever* $MB(a, 1, F) > MB(a, 1, F^0)$ *for all* $a \in A$.

Proof. The desired result follows from Lemma 1 together with the fact that the linearity of $MB(a, \mu, F)$ with respect to μ implies that

$$\begin{aligned} MB(a, \mu, F) &= (1 - \mu)MB(a, 0, F) + \mu MB(a, 1, F), \\ &= (1 - \mu)MB(a, 1, F^0) + \mu MB(a, 1, F). \qquad\square \end{aligned}$$

We can use the arguments in Camargo and Degan (2023) to establish the following strengthening of Lemma 2: (*i*) Political accountability never decreases with misguided voters if $MB(a, 1, F) \geq MB(a, 1, F^0)$ for all $a \in A$; and (*ii*) if $MB(a, 1, F) \geq MB(a, 1, F^0)$ for all $a \in A$ with strict inequality for at least one $a \in A$, then there exists a choice of the cost function for which misguided voters increase political accountability. We can also use the arguments in Camargo and Degan (2023) to establish the following converse to Lemma 2. Suppose that $MB(a, 1, F) < MB(a, 1, F^0)$ for some $a \in (0, \bar{a})$. There exists a choice for the cost function such that a is the highest-effort equilibrium without misguided voters and the highest-effort equilibrium in the presence of misguided voters has the incumbent exerting less effort than a.

We know from the discussion leading to Proposition 2 that political accountability can increase with misguided voters only if either the incumbent's vote share after a success is less than one or the incumbent's vote share after a failure is greater than zero (or both). In other words, preference heterogeneity among voters must be sufficiently large for political accountability to increase with the presence of misguided voters. We use this observation to construct a simple example in which misguided voters increase accountability.

3.2.1 Misguided voters may increase accountability: an example

Suppose that Γ is a two-point distribution with $\mathbb{P}\{\xi = \underline{\xi}\} = 1 - \lambda$ and $\mathbb{P}\{\xi = \bar{\xi}\} = \lambda$, $\lambda \in (0, 1)$—the argument that follows extends to the case in which Γ has a continuous distribution function as we can smooth Γ around the two points $\underline{\xi}$ and $\bar{\xi}$; note that our equilibrium characterization extends to the case in which Γ has finite support. We assume that correct voters vote for the incumbent after a success, and the support of misspecified beliefs is low enough so that even misguided voters vote for the incumbent after a success.[12]

Consider first the correct voters and suppose their mass is one. Regardless of the effort a of the incumbent, they vote for the incumbent after a success. Moreover, the voters with $\xi = \underline{\xi}$, i.e., the 'opposers', vote for the challenger after a failure. Now choose $\bar{\xi}$ to satisfy

$$\pi_\ell(a^*) + \bar{\xi} = \frac{1}{2}.$$

for some $a^* \in (0, \bar{a})$ and assume that, when indifferent, voters choose the incumbent.[13] If the equilibrium choice of effort for the incumbent is a^*, then voters with $\xi = \bar{\xi}$, i.e., the 'supporters', vote the incumbent after a failure. Using the same argument as in Camargo and Degan (2023), we can choose the cost function c to be such that a^* is the unique equilibrium choice of effort for the incumbent when the mass of correct voters is one. Since $s(h, a^*) = 1$ and $s(\ell, a^*) = \lambda$ - recall that $s(y, a^*)$ is the incumbent's vote share after output y and equilibrium effort a^*—, we have that a^* is such that

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[12]Formally, that $\inf_{a \in [0, \bar{a}]} \pi_h(a, \underline{\sigma}) \geq \frac{1}{2} - \underline{\xi}$.

[13]We can dispense with this assumption by considering the case in which the left-hand side of the above equation is slightly larger than the right-hand side.

$$c'(a^*) = p'(a^*)[1 - \lambda].$$

The analysis of the example so far for the correct voters in depicted on the left graph of figure 3 below. Now suppose that a fraction $\mu \in (0, 1]$ of the voters is misguided and consider the behavior of the latter type of voter when voters conjecture that the incumbent's effort is a^*—the behavior of the correct voters is as described above. By picking the difference $\overline{\sigma} - \underline{\sigma}$ to be sufficiently small, we can ensure that the misguided voters vote for the incumbent after a success regardless of whether their are opposers or supporters. So it is still true that $s(h, a^*) = 1$ regardless of μ. The small enough support of F ensures misguided voters behave in the same way as correct voters after the incumbent succeeds.

Finally, consider the behavior of the misguided voters after the incumbent fails. By reducing the support of F even further if necessary, we can ensure that they vote for the challenger if they are opposers. This is done by considering $\pi_\ell(a^*, \overline{\sigma}) < \frac{1}{2} - \underline{\xi}$. On the other hand, if they are supporters, they vote for the challenger if, and only if $\sigma < 1/2$. This is done by considering $\pi_\ell(a^*, \sigma) \geq \frac{1}{2} - \overline{\xi}$ if and only if $\sigma \geq 1/2$. Note that there is a decrease in the incumbent's vote share among misguided voters, since it is $\lambda[1 - F(1/2)]$. We depict this decrease in the right graph of figure 3 below.
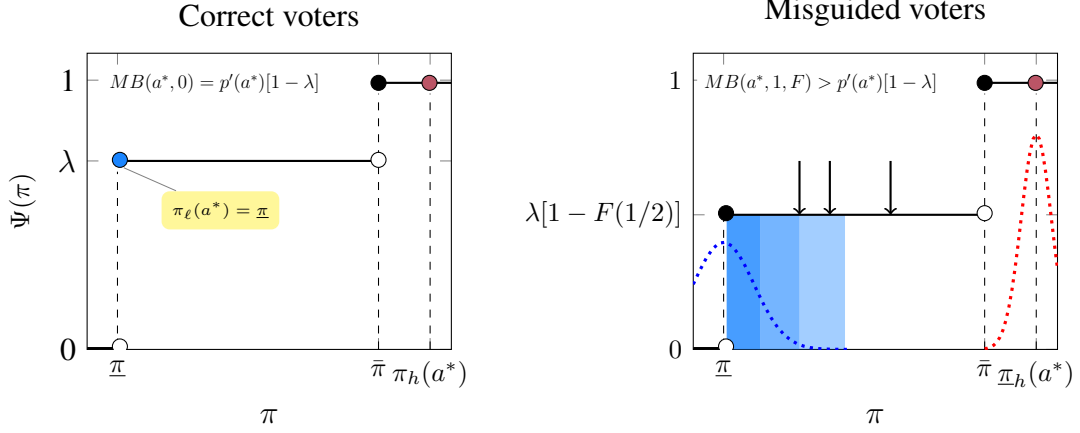
Correct voters

Misguided voters

Figure 3: Visual representation of an example for which the presence of misguided voters increase accountability. The distribution of preferences is binary, with $\mathbb{P}[\bar{\xi}] = \lambda$. The choice of $\bar{\xi}$ is made such that $\pi_\ell(a^*) = \frac{1}{2} - \bar{\xi} := \underline{\pi}$, for some $a^* \in (0, \bar{a})$. This is depicted in the left figure, which represents the analysis under existence of correct voters only. The parameters and functions are also chosen to satisfy $\pi_h(a) > \frac{1}{2} - \bar{\xi} := \bar{\pi}$, so that the incumbent always gets elected among correct voters after a success. The marginal benefit under $\mu = 0$ is then $p'(a^*)[1 - \lambda]$. Among misguided voters, we assume an information structure regarding misspecified beliefs in a way that the incumbent is also reelected after a success, but with lower probability after a failure (some misguided voters prefer to vote for the challenger even under $\xi = \bar{\xi}$). As such, the vote share among misguided voters after a failure is lower than among correct voters, while it keeps unchanged after a success. This ensures that a^* is not anymore a solution to the incumbent's problem, as the marginal benefit increases.

Given the assumption that F has a density, we obtain

$$s(\ell, a^*) = (1 - \mu)\lambda + \mu\lambda\left[1 - F(1/2)\right] < \lambda,$$

as $F(1/2) \in (0, 1)$ by assumption. Thus,

$$MB(a^*, \mu, F) = p'(a^*)[s(h, a^*) - s(\ell, a^*)] > p'(a^*)[1 - \lambda] = c'(a^*).$$

The Inada conditions on the cost function then ensure that an equilibrium in which the incumbent exerts more effort than a^* exists. Indeed, we know that $c'(\bar{a}) > p'(\bar{a}) \geq MB(\bar{a}, \mu, F)$, and so, by continuity, there exists $a^{**} \in (a^*, \bar{a})$ such that

$$MB(a^{**}, \mu, F) = c'(a^{**}).$$

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4 Concluding remarks

Voters pay attention to politicians' behavior to infer competencies. An incumbent politician seeking to stay in power may respond optimally to voters' attention by controlling the provision of information through tasks performed while in office. But some voters may be respond to information that is orthogonal to the politician's duties, or even artificial information that they wrongly believe is real. How does the presence of this type of misinformation affect political accountability?

We develop a model of political career concerns with some misguided voters. More specifically, there is an incumbent politician of an unknown ability, exerting costly, hidden effort on a public good while in power, to secure reelection. Every voter agrees *ex-ante* on what a successful provision of a public good might be, so they hold the same inference given the output of the politician's conjectured effort. But some voters incorrectly learn from another channel of public information. This implies that they disagree *ex-post* on how successful the incumbent should in the provision of the public good to be reelected.

We show that, if preference heterogeneity among voters is small, and misspecified information is believed to be revealing enough, misguided voters decrease effective accountability, that is, the incumbent's equilibrium effort on the provision of the public good (Proposition 2).

We also show that it is not the presence of belief misspecification *per se* that decreases accountability. In particular, when preference heterogeneity significantly favors the incumbent, and belief misspecification is not too strong, misguided voters may increase accountability (Section 3.2.1). This happens because misguided "supporters" of the incumbent are more likely to swing away their support towards the challenger, depending on what they incorrectly infer from uninformative signals about the incumbent. As such, the incumbent politician responds by increasing the equilibrium effort to convince even the misguided voters that he has high competencies.

A natural further step in this research is endogenizing the confounding public signal to be also a function of the incumbent's effort. Technically, this means that we treat the confounding public signal as a second task in the politician's problem, one that requires costly effort as well, but it is independent of the incumbent's ability and is payoff-irrelevant to voters. In this multitasking model, the fact that some voters incorrectly learn from 'pseudo-events' may induce the incumbent to substitute socially beneficial to socially wasteful effort. However, our analysis with exogenous public confounding signals evidences that the opposite effect might happen: when misguided voters respond more aggressively to bad realizations of pseudo-events, the incumbent may be more inclined to ensure a successful provision of the socially beneficial good, to compensate for the misguided voters' skepticism. The result is more, not less, political accountability. We are working on this extension and we aim to update the paper soon.

References

Ashworth, S., 2005. Reputational dynamics and political careers. Journal of Law, Economics, and Organization 21, 441–466.

Ashworth, S., De Mesquita, E.B., 2014. Is voter competence good for voters?: Information, rationality, and democratic performance. American Political Science Review 108, 565–587.

Ashworth, S., de Mesquita, E.B., Friedenberg, A., 2017. Accountability and information in elections. American Economic Journal: Microeconomics 9, 95–138.

Barro, R.J., 1973. The control of politicians: an economic model. Public choice , 19–42.

Berelson, B.R., Lazarsfeld, P.F., McPhee, W.N., 1986. Voting: A study of opinion formation in a presidential campaign. University of Chicago Press.

Bohren, J.A., Hauser, D.N., 2021. Learning with heterogeneous misspecified models: Characterization and robustness. Econometrica 89, 3025–3077.

Boorstin, D.J., 1992. The image: A guide to pseudo-events in America. Vintage.

Camargo, B., Degan, A., 2023. Accountability and Political Competition. Working paper .

D'Amico, L., Tabellini, G., 2022. Disengaging from reality: Online behavior and unpleasant political news. Available at SSRN 4305223 .

Ferejohn, J., 1986. Incumbent performance and electoral control. Public choice , 5–25.

Herrera, H., Sethi, R., 2022. Identity-based elections. CEPR Discussion Paper No. DP17203 .

Kaid, L.L., Holtz-Bacha, C., 2007. Encyclopedia of political communication. SAGE publications.

Kuklinski, J.H., Quirk, P.J., Jerit, J., Schwieder, D., Rich, R.F., 2000. Misinformation and the currency of democratic citizenship. The Journal of Politics 62, 790–816.

Levy, G., Razin, R., 2015. Correlation neglect, voting behavior, and information aggregation. American Economic Review 105, 1634–1645.

Levy, G., Razin, R., 2019. Echo chambers and their effects on economic and political outcomes. Annual Review of Economics 11, 303–328.

Smith, L., Sørensen, P., 2000. Pathological outcomes of observational learning. Econometrica 68, 371–398.