Media Access, Bias and Public Opinion

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May 4, 2020

ABSTRACT

I develop an electoral competition model in which an incumbent seeks to influence public opinion by strategically controlling the media's access to information. I show that the incumbent's optimal access strategy balances her demand for positive coverage with the public's demand for credible coverage. The media's access increases with the competence of politicians over issues under public focus. Controlling media's access can be instrumental in influencing public opinion, especially in the hands of popular incumbents. Persistence of key election issues, however, decreases the effectiveness of media access control by incumbents.

Keywords: Electoral competition, access control, media bias, key issue, public opinion.

JEL Codes: D72, D83, L82.

*Southern Methodist University, Department of Economics. E-mail: ozerturk@smu.edu. This is a substantially revised and expanded new version of previous work circulated under the title "Information Gatekeeping and Media Bias" (joint with Hülya Eraslan) and I would like to thank Hülya for her contribution. I would also like to thank Bo Chen, Klaus Desmet, James Lake, Chris Li, Atara Oliver, Santiago Oliveros, Nathaniel Pattison, Maria Petrova, Andrea Prat, Santanu Roy, Tim Salmon, Jesse Shapiro, Daniel Stone and participants of 3rd Summer Workshop on Political Economy at Stony Brook University, Econometric Society 2017 North America Meeting in St. Louis, AEA 2017 Meeting, Texas Theory Workshop at Texas A&M, Third Economics of Media Bias Workshop at University of Cologne, University of Montreal, and Ryerson University for many useful comments.

1 Introduction

Most news is born from the interaction between reporters and sources in high places. In particular, to produce political news, access to what Schlesinger (1990) refers to as "the halls of power" is crucial.[1] Those halls, however, do not welcome everyone since inviting the media's scrutiny exposes politicians and public officials to the "pitiless probing eye" (Jones (1993)). Casual observation suggests that politicians actively manage such scrutiny by selectively granting, and at times completely denying, access. When Margaret Thatcher challenged Edward Heath for the party leadership in 1975, her media strategist Gordon Reece advised her about which television programs she should - and should not - appear during the contest.[2] The Labour government under Tony Blair encouraged positive coverage by providing privileged access and discouraged negative coverage by denying access to the media.[3] President Nixon asked his entire White House staff "not to see anybody from The Washington Post or return any calls to them."[4]

To secure and maintain access, the media, in turn, needs to be perceived as sufficiently friendly in the eyes of those who control access. Walter Karp, the former editor of Harper's Magazine, concedes this point when he writes: "It is a bitter irony of source journalism, that the most esteemed journalists are precisely the most servile. For it is by making themselves useful to the powerful that they gain access to the best sources."[5]

Servility, though, comes with its own costs. Shapiro (2016) offers the reporting of the New York Times (NYT) on the presence of weapons of mass destruction (WMD) in Iraq as an example, and points out that "this was especially costly because of the appearance that the Times had tilted its reporting in order to maintain access to administration sources." Foer (2004) illustrates how the NYT reporter Judith Miller's coverage of WMD relied heavily on the Office of Special Plans, an intelligence unit established beneath the Undersecretary of Defense Douglas Feith, charged with uncovering evidence of Al Qaeda links to Saddam Hussein. Foer argues that "No other reporter had managed to win the trust of the administration hawks and could so consistently deliver scoops. Miller kept printing the neocon party line and the neocons kept coming to her with huge stories and great quotes, constantly expanding her access."[6]

[1]In an early classic study, Sigal (1973) shows that as much as three quarters of all published political news originate from government-initiated channels such as official proceedings, press releases, press conferences and background briefings. See also Shudson and Waisbord (2005).

[2]Famously, Reece approved Thatcher's participation in the Granada Television programme which preceded the first ballot, and then vetoed her appearance on Panorama before the next ballot. See Reece's obituary in The Telegraph, September 25th, 2001.

[3]See Jones (1993).

[4]Quoted in Gentzkow and Shapiro (2008). David Greenberg (2016) details how Nixon's staff compiled lists of journalists and classified them as friendly or unfriendly to restrict and, in most cases, completely deny access to those deemed unfriendly to press conferences, interviews, and historic trips.

[5]Quoted in Lee and Solomon (1990).

[6]See "The Source of the Trouble" by Franklin Foer (New York Magazine, June 7, 2004).

The intricate courtship between between reporters and incumbent politicians raises many questions. When does an incumbent grant privileged access and invite media scrutiny? What determines the reputability of the outlet that gains such access? Can a policy of selective access lead to a mutually beneficial relationship between an incumbent and a media outlet and help the incumbent influence public opinion? How does an incumbent's demand for media servility and the public's tolerance for biased reporting depend on key issues under public focus? This paper addresses these questions by developing an electoral competition model in which incumbents seek to influence public opinion by strategically controlling the media's access to information, thereby managing the uncertainty associated with media scrutiny.

The model has two periods, each featuring an election between an incumbent and a challenger. Each election revolves around a different key issue, such as immigration, national security, or the economy; and is decided by a representative voter (public) who seeks to elect the candidate that he believes is more likely to have high ability over the key issue. (Throughout the paper, the male pronoun refers to the voter and the female pronoun refers to the incumbent). The issue-specific abilities of politicians are independently drawn in each period.[7] At the beginning of each period, before observing the key issue and her ability over this issue, the incumbent chooses her access policy and decides whether to grant access to a media outlet or not for that period.[8] The main features of the model are as follows.

(i) *Granting access invites media scrutiny that may hurt the incumbent.* The incumbent's optimal access policy maximizes the probability that she assigns to winning the upcoming election.[9] If access is granted, the outlet also observes the incumbent's ability (high or low) over the key issue and then decides whether to report this information truthfully or to misreport it to the voter. Access may lead to negative coverage and hurt the incumbent since the integrity of the outlet (honest, corrupt or strategic) is unknown to all parties except the outlet itself. All outlet types report high ability truthfully if granted access.[10] If ability is low, the honest type always reports this fact truthfully, while the corrupt type always misreports it. The strategic type reports in a manner that maximizes its expected payoff.

(ii) *Media outlet values both access and its perceived credibility in the public eye*. In each period that it secures access, the strategic outlet receives a payoff which is increasing with respect to the perceived informativeness of its report by the voter. Thus, with no further concern to secure access, the strategic type reports low ability truthfully if granted second-period access. The outlet's first-period reporting strategy, however, is

[7]Section 6.2 studies the implications of allowing for correlation of ability across periods.

[8]My model considers a single media outlet. In Section 8, I argue that the results continue to hold when multiple outlets compete for access.

[9]Section 6.3 considers the case when incumbents are forward looking.

[10]As discussed in Section 3.2, this assumption is satisfied in any equilibrium.

forward-looking, and maximizes the expected sum of its payoff across the two periods. In doing so, the outlet takes into account its first-period payoff, the first-period election outcome, the future access decision of the second-period incumbent and the dependence of all these outcomes on the voter's and the politicians' beliefs about its integrity.

(iii) *Voter chooses whether to believe the media or not.* In the conclusion of their seminal paper, Besley and Prat (2006) point out that "a more complete picture could be provided by a dynamic model of reputation formation by media firms in which voters decide whether to believe the media or not". The issue of voter's beliefs about the media's credibility is a key ingredient of my model. Regardless of the access decision in a given period, the voter always observes a noisy public signal about the incumbent's ability over the key issue. If access is granted, the voter also observes the outlet's report. Given all available information, the voter forms beliefs about the incumbent's type and elects the candidate who he believes is more likely to have high ability over the key issue.

The main results are as follows:

(1) *Incumbent's optimal access policy balances her demand for favorable coverage with public demand for credible coverage.* In each period, the incumbent assigns a higher probability to winning the election by granting access only if she believes that access is sufficiently likely to lead to positive coverage. At the same time, granting access gives the incumbent a better chance of victory only if the outlet's positive coverage is sufficiently credible for the voter to elect her despite having observed a negative public signal. Therefore, given her private beliefs about the type of the outlet and its perceived credibility in the public eye, the incumbent grants access in a given period if and only if (i) she assigns a sufficiently high probability to the outlet misreporting (favorable bias), and (ii) the voter assigns a sufficiently low probability to the outlet misreporting.

(2) *Media access increases with the competence of politicians over key issues.* The incumbent's demand for favorable bias to grant access is decreasing in the prior probability that she has high ability over the key issue. When this prior probability is sufficiently high, incumbents always grant access without demanding any favorable bias. Those incumbents who are sufficiently likely to have low ability, however, demand a level of bias that exceeds the maximum that the voter tolerates, and thus they deny access.

A standard media capture model in which incumbents use financial favors to secure favorable coverage delivers the opposite result. In that model, like mine, the media cannot fabricate bad news. As such, an incumbent who is likely to be competent (resp. incompetent) has little (resp. more) incentive to offer the media financial favors, whereas here she always grants (resp. denies) access. These differences arise because, unlike a financial favor, granting access is not a form of payment in exchange for favorable bias, and may in fact lead to negative coverage.

(3) *Incumbents, especially popular ones, can influence public opinion through media access control.* In the model, neither the incumbent nor the strategic outlet can commit to a

future policy. Furthermore, the credibility requirement for positive coverage imposes an additional constraint to influence public opinion. Despite this, I show that the incumbent can employ access control to build a mutually beneficial relationship with the media and survive elections even when she has low ability over key issues. I refer to this relationship as a '*quid pro quo equilibrium*'. In this equilibrium, the initial incumbent grants first-period access, the strategic outlet misreports low ability in the first period, having retained power the incumbent grants further access. This equilibrium emerges if and only if (i) the probability that politicians are competent is moderately high, (ii) there is sufficient initial trust in the media, but the probability that the media is corrupt is also above a threshold, (iii) the public signal is not highly informative.

An extension allows the voter to be ex ante more sympathetic towards the initial incumbent. More specifically, I assume that the voter believes the incumbent to be more likely to have high ability over key issues than the challenger and refer to this as the incumbent's "popularity". I show that the voter's tolerance for favorable bias is increasing in the incumbent's popularity. Popular incumbents face a less stringent media credibility constraint to influence public opinion and thus can can rely on granting access to less reputable outlets.

(4) *High correlation of politician ability increases media access and reduces bias.* Another extension introduces correlation of ability over key issues and thus periods. Suppose ability is highly correlated. If the initial incumbent observes high first-period ability, she believes she is likely to have high second-period ability as well. This incumbent does not demand favorable bias and grants second-period access. The incumbent with low first-period ability also grants second-period access, as otherwise she reveals that she had low first-period ability. Due to high correlation, the voter then infers that she is likely to have low second-period ability as well. As a result, regardless of first-period ability, incumbents always grant second-period access. Since the strategic outlet's only motivation to misreport in the first period is to secure second-period access, the outlet reveals low ability truthfully in the first period.

This paper provides the first formal analysis of the political economy implications of media access control by incumbents.[11] Thus, it contributes to a literature, originating with Besley and Prat (2006), that studies how governments influence media coverage through cash bribes and other financial favors, such as government-sponsored advertisements.[12] Unlike a financial favor that ensures favorable coverage or no negative coverage,

[11] To the best of my knowledge, the empirical work by Dyck and Zingales (2003) is the only other paper that considers the possibility of biased reporting to maintain access. Their study, however, is concerned with the impact of financial media coverage on asset prices, and does not provide a formal model.

[12] A key insight of this literature is that independent ownership of the media and the existence of large number of media outlets make media capture harder as these factors increase the incumbent's costs of silencing the media (Prat (2016)). See Prat and Strömberg (2013) for a survey on the political economy of the mass media that also discusses the empirical literature. Petrova (2008) investigates the link between

granting access may lead to negative news in my model. As such, the model captures the notion that access exposes incumbents to media scrutiny with uncertain consequences. Furthermore, my incumbent needs to ensure that positive coverage is perceived as credible by the voter, an issue largely overlooked in the media capture literature. The explicit modeling of beliefs about the media's integrity allows me to identify the factors that affect an incumbent's demand for favorable bias and the voter's tolerance for that bias.

These new features deliver the following implications. First, the model predicts that the media's access increases with the likelihood that incumbents are competent over key election issues. Second, the quid pro quo equilibrium illustrates that access control can be instrumental in building relationships with the media and influencing public opinion, especially in the hands of popular incumbents. Such incumbents face a less stringent public credibility constraint. Third, the media enjoys more access and provides more informative coverage when the issues under public focus are likely to persist over time. These implications are discussed in Section 7.[13]

The media's incentive to misreport in the model arises only due to access control. This feature distinguishes my contribution from the existing literature where biased coverage emerges because of the media's (i) own ideological bias (Baron (2006)), (ii) desire to implement a specific agenda (Sobbrio (2011), Anderson and McLaren (2012)), (iii) incentive to cater to its readers' political preferences (Mullainathan and Shleifer (2005), Chan and Suen (2008), Bernhardt, Krasa and Polborn (2008), (iv) incentive to cater to its advertisers (Ellman and Germano (2009), Germano and Meier (2013)), (v) direct control by an authoritarian government to mobilize citizens (Gehlbach and Sonin (2014)) and (vi) slanted endogenous information acquisition (Sobbrio (2014)).[14]

This paper is also related to the broader literature on strategic communication with reputational concerns.[15] In the context of news media, Gentzkow and Shapiro (2006) show how a rational consumer who is uncertain about the accuracy of a media firm may tend to judge it to have higher accuracy when its reports match the consumer's priors. Shapiro (2016) demonstrates that special interest groups may exploit a media firm's (sender's) reputational concern to appear objective in order to manipulate the actions of a voter (receiver). Unlike these papers, the sender (the media) in this model faces two different receivers, namely the voter and the incumbent, whose preferences may not be aligned (see Bar-Isaac and Deb (2014)). The framework with two receivers is thus similar

economic inequality and media capture.

[13]The model's main insights can apply to other settings with the following essential features: (i) gatekeepers of information sources (politicians, firms, agencies, or even celebrities) use access control to minimize/avoid negative coverage, (ii) media outlets rely on access to produce news stories, value credibility in the public eye and are forward looking, and (iii) consumers value informative coverage. I discuss how the results can also apply to non-political settings, such as financial news, in Section 7.

[14]See Gentzkow, Shapiro and Stone (2016) for a unifying framework on the origins of media bias that distinguishes between supply and demand-driven theories.

[15]See, among others, Ely and Valimaki (2003) and Ottaviani and Sorensen (2006).

to applications of two-sided reputation in the context of financial certification (Frenkel (2015), Bouvard and Levy (2018)) and regulation (Shapiro and Skeie (2015)). This paper contributes to that literature by studying a setting in which one of the receivers (incumbent) has control over the sender's (media's) access to information and uses this ability to influence the action of the other receiver (the voter).

The paper is organized as follows. Section 2 describes the model. Section 3 analyzes the incumbent's optimal access control strategy and the outlet's optimal reporting strategy. Section 4 builds a relationship between media access and politician competence. Section 5 introduces and analyzes the quid pro quo equilibrium. Section 6 considers three extensions by introducing (i) incumbent popularity, (ii) correlation of politician ability and (iii) forward-looking politicians. Section 7 discusses the implications of the main results. Section 8 addresses the robustness of the results to the introduction of (i) verifiable information, (ii) competition for access by multiple outlets, and (iii) infinite horizon into the model. This section also discusses some avenues for future research and concludes. The Appendix contains the proofs and the technical details omitted from the main text including formal definitions of beliefs and conditions for their consistency.

2 Model

This section presents a two-period model with both periods featuring an election between two candidates.[16] Each election revolves around a randomly determined key issue and the outcome is decided by a representative voter who only cares about the elected politician's ex ante unknown ability over this issue. In each period, before the key issue is realized, the incumbent of that period chooses whether or not to grant access to a media outlet. The integrity (type) of the outlet is the outlet's private information. If access is granted, the outlet learns the incumbent's ability over the key issue and produces a news report. The voter observes this report, as well as a noisy public signal about the incumbent's ability, and casts his vote. The details are as follows.

2.1 Politicians

There are two periods, $t = 1, 2$. There is an election in each period between two politicians, A and B. In the first period, A is the initial incumbent and B is the challenger. The winner of the first-period election becomes the new incumbent and the two politicians compete again in the second period. Thus, letting κ_t denote the incumbent in period t, we have $\kappa_1 = A$ and κ_2 is the winner of the first-period election. Both politicians are purely office motivated. The payoff of each politician in period t is given by her probability of winning that period's election.

[16]Section 8 discusses the robustness of the results in an infinite horizon setting.

Before each election, a particular issue such as national security, immigration or health reform, exogenously becomes the key issue. I abstract away from policy competition between politicians and assume that there is full agreement about the policy to be implemented over the key issue. The successful implementation of that policy, however, depends on the issue-specific ability of the elected politician. The ability of politician $j \in \{A, B\}$ specific to the key issue in period $t = 1, 2$ is denoted with $\theta_t^j \in \{\ell, h\}$.

At the start of a given period, the key issue and hence θ_t^j are unknown to all parties including the candidates themselves. While the incumbent learns her issue-specific ability once the key issue is observed, she ex ante holds the same common prior as the public. This assumption captures the idea that an incumbent may indeed have superior information about her ability in managing, say, an immigration issue, the economy or a pandemic crisis but prior to observing which one of these issues is to be dominating the upcoming election, this superior information may not be actionable in practice. Specifically, for each politician and period, the common prior probability that $\theta_t^j = h$ is given by $p_h \in (0, 1)$. Thus, the issue-specific abilities of politicians are independently drawn in each period (Section 6.2 allows for ability correlation across periods). Before the key issue is realized, the incumbent chooses whether to grant access to a media outlet or not.[17] I refer to this as access control strategy. The incumbent's objective is to maximize the probability that she assigns to winning the election in that period.[18]

2.2 Media outlet

After the access decision at the beginning of $t = 1, 2$, the key issue for the upcoming election is realized and the incumbent κ_t observes her ability $\theta_t^{\kappa_t} \in \{\ell, h\}$ specific to this issue. If the media outlet has been denied access, it remains uninformed about $\theta_t^{\kappa_t}$ and cannot produce a news report. If access has been granted, the incumbent's issue-specific ability $\theta_t^{\kappa_t}$ is perfectly observed by the outlet as well.[19] The outlet then chooses a news report $r_t \in \{\ell, h\}$.

The outlet's reporting incentives depend on its type $\theta^M \in \{C, H, S\}$ and this is outlet's private information. Let p_C (respectively p_S) denote the common prior probability that the two politicians and the public assign to the outlet being corrupt (C) (respectively strategic (S)) at the beginning of the first period. Ex ante, all three types have a positive

[17] An alternative timing in which the incumbent learns the issue and thus her ability before the access decision yields a trivial unraveling result. The high ability incumbent always grants access, disclosing her superior information and denying access perfectly reveals to voters that the incumbent is low ability. In that setting, controlling media's access is no longer a strategic tool to influence media coverage.

[18] Section 6.3 shows that the results hold when the politicians are forward looking and choose their first-period access decision to maximize the two-period utility from staying in office.

[19] The assumption that the outlet perfectly observes ability is for simplicity. Angelucci and Cagé (2019) present a two-sided market model in which the quality of the newspaper coverage depends on its investment in newsroom size. They show that declining advertising revenues reduce this investment.

probability, that is, $p_C > 0$, $p_S > 0$ and $p_C + p_S < 1$.

The corrupt type (C) always reports $r_t = h$ regardless of the incumbent's true ability. The honest type (H) always reveals the incumbent's ability truthfully and reports $r_t = \theta_t^{\kappa_t}$. For expositional simplicity, I assume that the strategic outlet (type (S)) always truthfully reveals high ability in both periods if granted access, that is, $r_t = h$ whenever $\theta_t^{\kappa_t} = h$. As I discuss in Section 3.2, this is satisfied in any equilibrium. Thus, the only strategic reporting choice is the one made by the strategic outlet when the incumbent's ability is low.

If the strategic outlet observes low ability, it chooses whether to misreport or truthfully reveal it. Let $\rho_t \in \{0, 1\}$ denote the reporting decision in period $t = 1, 2$ where $\rho_t = 1$ iff the outlet misreports low ability as high.[20] In other words, $\rho_t = 1$ iff $r_t = h$ when the strategic outlet observes $\theta_t^{\kappa_t} = \ell$. If the incumbent denies access in a given period, the outlet's payoff for that period is normalized to zero. With access, its payoff in period t is assumed to be increasing in the perceived informativeness of its report by the public. Before describing how this payoff is determined, I introduce some additional notation.

Let π_{Ct} and π_{St} denote the posterior probabilities that the public assigns to the outlet being corrupt and strategic, respectively, given the history up to the reporting decision in period t.[21] Inferring the strategic outlet's reporting decision ρ_t correctly in equilibrium, the public assigns a probability $\pi_{Ct} + \pi_{St}\rho_t$ that the outlet misreports low ability in period t. I assume that, if the strategic outlet secures access and follows a reporting decision $\rho_t \in \{0, 1\}$, its payoff in period $t = 1, 2$ is given by

$$V_t(\rho_t; \pi_{Ct}, \pi_{St}) = k_0 - k_1(\pi_{Ct} + \pi_{St}\rho_t), \tag{1}$$

where k_0 and k_1 are positive constants. The formulation in (1) implies that, if granted access, the strategic outlet's payoff in period t is increasing in the perceived informativeness of its report by the public. I normalize the outlet's payoff without access to zero. Therefore, (1) captures the additional payoff that the outlet receives if granted access.

The exogenous payoff in (1) is introduced merely for simplicity of exposition and implicitly assumes that the public values informative news for consumption value. In Appendix A5, I show how the payoff in (1) can be endogenized in a model with a continuum of citizens when each citizen (i) derives utility from a private action that he/she needs to take before the election, (ii) decides whether to pay a cost and follow the outlet in order to make a more informed private action decision.

The strategic outlet's objective in choosing its first-period reporting strategy is to

[20] Therefore, I assume that the information reported by the outlet is unverifiable, allowing the outlet to engage in outright distortion and misreport low ability as high. Section 8 discusses how the model can be reinterpreted when information is verifiable.

[21] These posterior probabilities depend on the history. I suppress their arguments for ease of exposition for now but explicitly state them when I characterize the conditions for the consistency of the system of beliefs in Section A1 of Appendix A

maximize its total dynamic payoff which is the sum of its expected payoff across the two periods.[22] I formally express this expected payoff in Section 3.2. The strategic outlet's objective in choosing its second-period reporting strategy is to maximize $V_2(.)$. The strategic outlet is assumed to be truthful whenever it is indifferent between misreporting and reporting truthfully.

2.3 Voter

There is a single voter who represents the public and decides the election outcome in each period. If access is granted in period t, the voter observes the outlet's report r_t. Before the election, the voter also observes a public signal ω_t that is correlated with the issue-specific ability of the incumbent in period t. Specifically,

$$\Pr(\omega_t = \ell | \theta_t^{\kappa_t} = \ell) = \Pr(\omega_t = h | \theta_t^{\kappa_t} = h) = \mu \in (\frac{1}{2}, 1) \tag{2}$$

where μ captures the informativeness of ω_t for inferring $\theta_t^{\kappa_t}$. As $\mu \to \frac{1}{2}$, observing ω_t is completely uninformative, whereas as $\mu \to 1$, observing ω_t reveals $\theta_t^{\kappa_t}$ perfectly.

The voter only cares about the elected politician's ability over the key issue. If politician $j \in \{A, B\}$ with issue-specific ability $\theta_t^j \in \{\ell, h\}$ wins the election in period t, then the voter receives a payoff $u_t(\theta_t^j) = \theta_t^j$. The voter prefers to elect a politician with ability h, that is, $\ell < h$, and votes to maximize his expected payoff conditional on all available information on the incumbent's ability.[23] If access is granted in that period, the voter's information set includes the outlet's report r_t and the public signal ω_t. If access is denied, the voter only relies on the public signal. The voter prefers the incumbent when indifferent between the incumbent and the challenger.

Finally, I assume that the voter does not observe the issue-specific ability of the winner and hence his payoff $u_{i,t}(\theta_t^j)$ immediately after each election. This assumption, which is standard, seems reasonable as long as the policy implemented has long term consequences, implying that its outcome is not immediately observable to the public.[24]

2.4 Timing of events

At the start of the first period, the outlet's type $\theta^M \in \{C, H, S\}$ is realized and observed only by the outlet. We have $\kappa_1 = A$. If A wins the first-period election, $\kappa_2 = A$, whereas if A loses, $\kappa_2 = B$. In each period $t = 1, 2$, the timing is as follows.

[22] To isolate the implications of access control for an outlet's reporting incentives, I assume that the strategic outlet has no preferences for either of the two candidates. I discuss ideologically oriented outlets in concluding remarks.

[23] I implicitly assume that voting is mandatory. Oliveros and Vardy (2015) address media bias in the context of voluntary voter participation.

[24] See, for example, Besley and Prat (2006) and Strömberg (2016).

- Incumbent κ_t decides whether to grant access to the outlet or not.
- Key election issue is realized. Incumbent observes ability $\theta_t^{\kappa_t} \in \{\ell, h\}$ over this issue.
- If access is denied, the voter only observes the public signal $\omega_t \in \{h, \ell\}$, casts his vote and decides the incumbent κ_{t+1} for the following period.
- If access is granted, the outlet observes $\theta_t^{\kappa_t}$ and reports $r_t \in \{h, \ell\}$. The voter observes r_t as well as the public signal ω_t and votes to determine incumbent κ_{t+1}.

2.5 Equilibrium

An equilibrium consists of a profile of strategies and a system of beliefs such that the strategies are optimal for each player given their equilibrium beliefs and given the equilibrium strategies of the other players, and beliefs are consistent with equilibrium strategies. When referring to beliefs in the main text, I suppress arguments for ease of exposition.[25] The system of beliefs is listed below:

(i) Voter's beliefs about the outlet at the time of the reporting decision in period t conditional on access being granted, denoted by $(\pi_{Ct}(.), \pi_{St}(.))$.

(ii) Voter's beliefs about the incumbent at the time of period t election, denoted by $\tilde{\beta}_t(.)$.

(iii) Voter's beliefs about the outlet at the time of the period t election, denoted by $(\tilde{\pi}_{Ct}(.), \tilde{\pi}_{St}(.))$.

(iv) Politician A's beliefs about the outlet at the time of second-period access decision, denoted by $(q^A_{C2}(.), q^A_{S2}(.))$.

3 Optimal Strategies

The optimality conditions for the politicians and the strategic outlet are derived in Sections 3.1 and 3.2 respectively, restricting attention to pure strategy equilibria. Since my main focus is on the strategic interaction between the incumbent and the media, the optimality condition for the voter's strategy is presented in Appendix A2.

[25]The consistency conditions for the system of beliefs are characterized in Section A1 of Appendix A.

3.1 Optimal access control strategies

An optimal access control strategy in each period maximizes the probability that the incumbent assigns to winning the election in that period. Formally, an access control strategy for politician A in period 1 is given by $\gamma_1^A \in \{0, 1\}$ where $\gamma_1^A = 1$ iff A grants first-period access. An access control strategy for the second period depends on the observed history. For politician A, this history includes her first-period ability θ_1^A. To unify the functional form of the second-period strategies across politicians, it is useful to treat different types of politician A as different players. In what follows, Ah refers to politician A who has observed $\theta_1^A = h$ and $A\ell$ refers to politician A who has observed $\theta_1^A = \ell$. Conditional on first-period access, the second-period access control strategy for politician $i \in \{Ah, A\ell, B\}$ is described by $\gamma_2^i : \{h, \ell\} \times \{h, \ell\} \to \{0, 1\}$ where $\gamma_2^i(r_1, \omega_1) = 1$ iff second-period access is granted after a history of r_1 and ω_1.

In Appendix A2, it is shown that the voter elects the incumbent if and only if $\tilde{\beta}_t \geq p_h$ where $\tilde{\beta}_t$ is the probability the voter assigns to incumbent having high ability at the time of the election. Thus, the incumbent's access control strategy in period t maximizes her re-election probability in that period, which is given by $\Pr(\tilde{\beta}_t \geq p_h)$.[26] In computing this probability, the incumbent takes into account (i) her own beliefs about the outlet's type, (ii) the voter's beliefs about the outlet's type, (iii) the optimal reporting strategy ρ_t^* of the strategic media outlet.

Re-election without access: Consider the election outcome when the incumbent denies access. In this case, we can easily verify from (A7) that $\tilde{\beta}_t \geq p_h$ if and only if $\omega_t = h$ and establish the following result.

LEMMA 1 *If the incumbent does not grant access in period t, then she wins the election in that period with probability* $\Pr(\omega_t = h)$.

Re-election with access: Now consider the election outcome when the incumbent grants access. Clearly, if the outlet reports $r_t = \ell$, then the challenger is elected (see (A7)). Likewise, when the outlet reports $r_t = h$ and the voter observes $\omega_t = h$, then the incumbent wins. Less clear is the case when the outlet reports $r_t = h$, but the voter observes $\omega_t = \ell$. Does the voter ignore his negative signal and vote for the incumbent relying on the outlet's report or does he vote for the challenger relying on the public signal? To answer this question, recall that $\tilde{\beta}_t$ denotes the probability that the voter assigns to incumbent having high ability at the time of the election. Given the consistency of $\tilde{\beta}_t$ formalized in (A7), a necessary condition for the voter to elect the incumbent when $r_t = h$ and $\omega_t = \ell$ is

[26] There is extensive evidence which indicates that politicians are infamously driven by short term electoral goals and resort to political measures, such as short-sighted tax reductions or infrastructure investments, that are often more beneficial to their own election polls than to their electorate. I allow for forward looking politicians in Section 6.3.

$$\tilde{\beta}_t = \frac{(1-\mu)p_h}{(1-\mu)p_h + \mu(1-p_h)(\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*)} \geq p_h. \tag{3}$$

In the above expression, the terms $\tilde{\pi}_{Ct}$ and $\tilde{\pi}_{St}$ denote the probabilities that the voter assigns to the outlet being corrupt and strategic, respectively, after having observed $r_t = h$ and $\omega_t = \ell$. Condition (3) can be rewritten as

$$\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^* \leq \frac{1-\mu}{\mu}. \tag{4}$$

At the time of the election, the voter believes that the outlet has misreported with probability $\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*$. This follows, because the corrupt type always misreports, while the strategic type misreports when $\rho_t^* = 1$. If this misreporting probability is sufficiently low, the voter perceives the outlet's report as credible about and votes for the incumbent after a positive news report despite having observed a negative signal.

Using (A5) and (A6), condition (4) can be expressed in terms of the voter's beliefs about the outlet at the time of the reporting decision. At this point, the voter believes that the outlet misreports with probability $\pi_{Ct} + \pi_{St}\rho_t^*$. Hence, condition (4) can be rewritten as

$$\pi_{Ct} + \pi_{St}\rho_t^* \leq x(p_h, \mu) \tag{5}$$

where

$$x(p_h, \mu) = \frac{(1-\mu)^2 p_h}{\mu(1-\mu)p_h + \mu(1-p_h)(2\mu-1)}. \tag{6}$$

Intuitively, when the voter assigns a sufficiently small probability to misreporting, he votes for the incumbent after a positive report despite observing a negative public signal. The term $x(p_h, \mu)$ on the right hand side of (5) captures the maximum amount of misreporting that the voter tolerates.

The table below summarizes the possible election outcomes when the outlet is granted access.

Media's report	**Public signal**	**Election outcome**
$r_t = h$	$\omega_t = h$	incumbent wins
$r_t = \ell$	$\omega_t = h$ or $\omega_t = \ell$	incumbent loses
$r_t = h$	$\omega_t = \ell$	incumbent wins iff $\pi_{Ct} + \pi_{St}\rho_t^* \leq x(p_h, \mu)$

I now argue that (5) is a necessary condition to grant access in a given period. By Lemma 1, if the incumbent denies access, she wins the election with probability $\Pr(\omega_t = h)$. Suppose now the incumbent grants access in period t, but (5) is not satisfied. Then, the voter ignores a positive report and elects the challenger upon observing $\omega_t = \ell$. Hence, if (5) is not satisfied, the probability that the incumbent wins the election by granting access is given by $\Pr(\omega_t = h, r_t = h)$. Since this probability is lower than $\Pr(\omega_t = h)$, condition (5) must be satisfied for the incumbent to grant access in any period.

To complete the characterization of the optimal access control strategy, suppose that

(5) is satisfied. Then, the incumbent assigns a probability $\Pr(r_t = h|I_t^{\kappa_t})$ to winning the election after granting access where $I_t^{\kappa_t}$ denotes her information set at the beginning of period t. Given the outlet's reporting strategy ρ_t^*, it follows that

$$\Pr(r_t = h|I_t^{\kappa_t}) = p_h + (1 - p_h)(q_{Ct} + q_{St}\rho_t^*) \tag{7}$$

where q_{Ct} and q_{St} are, respectively, the probabilities that the incumbent assigns to the outlet being corrupt and strategic, at the beginning of period t. Granting access is optimal only if this probability is at least as high as the probability of winning by denying access. By Lemma 1, the latter probability is given by $\Pr(\omega_t = h) = \mu p_h + (1 - \mu)(1 - p_h)$. Therefore, for the incumbent to grant access, we must have

$$q_{Ct} + q_{St}\rho_t^* \geq y(p_h, \mu) \tag{8}$$

where

$$y(p_h, \mu) = \frac{(1 - \mu)(1 - 2p_h)}{1 - p_h}. \tag{9}$$

The term $y(p_h, \mu)$ on the right hand side of (8) captures the minimum misreporting probability that the incumbent demands to grant access.

Conversely, if (5) holds, the voter elects the incumbent when $r_t = h$ regardless of the public signal. If, in addition, (8) holds, the incumbent assigns a higher probability to winning the election when she grants access. This analysis yields the following key result.

PROPOSITION 1 *In any period, the incumbent grants access to the outlet if and only if (i) the voter assigns a sufficiently low probability to the outlet misreporting low ability and (ii) the incumbent assigns a sufficiently high probability to the outlet misreporting low ability. Formally, the incumbent grants access if and only if* (5) *and* (8) *hold.*

Since the above result proves crucial for the equilibrium characterization, a few remarks on the mechanism that yields it are in order. The incumbent grants access to a media outlet in a given period only if the outlet's positive report is pivotal in convincing the voter to elect the incumbent even when he observes a negative signal. The outlet's positive report achieves this purpose only if the voter assigns a sufficiently low probability to misreporting. In what follows, I refer to (5) as the *public credibility condition*. On the other hand, the incumbent attaches a higher probability to being reelected by granting access only if she privately believes that there is a sufficiently high probability that the media outlet misreports low ability. In what follows, I refer to (8) as the *pandering condition*.

By examining (8), one can describe exactly when an incumbent demands a strictly positive misreporting probability to grant access in a given period. The term $y(p_h, \mu)$ on the right hand side of (8) is strictly decreasing in the prior probability p_h that the incumbent has high ability over the key election issue. Hence, an incumbent requires a higher minimum misreporting probability to grant access when it is more likely that she has low ability. For $p_h \geq 1/2$, we have $y(p_h, \mu) \leq 0$ which implies that an incumbent who is sufficiently likely to have high ability over key issue does not demand any misreporting to grant access. For $p_h < 1/2$, however, we have $y(p_h, \mu) > 0$ and thus the incumbent grants access in a given period only if she assigns a strictly positive (and sufficiently high) probability to the media outlet misreporting in that period. I summarize this observation below.

PROPOSITION 2 *In any period, the incumbent demands a strictly positive probability of misreporting to grant access if and only if $p_h < 1/2$.*

3.2 Media outlet's optimal reporting strategy

Optimal second-period reporting: Given the strategic outlet's payoff in period t described by (1), it is straightforward to see that if the outlet gains second-period access, it always reports low ability truthfully in the second period. The strategic outlet's only objective in choosing $\rho_2 \in \{0, 1\}$ is to maximize the perceived informativeness of its second period report as it has no further concern for future access. Since the voter correctly infers the outlet's reporting strategy in equilibrium, this objective requires minimizing the probability $\pi_{C2} + \pi_{S2}\rho_2$ that the voter assigns to misreporting. Therefore, we have the following lemma.

LEMMA 2 *If granted access in the second period, the strategic media outlet truthfully reveals low ability, that is, $\rho_2^* = 0$.*

Optimal first-period reporting: When choosing its first-period reporting strategy, the strategic outlet potentially faces a trade-off between maximizing the first-period payoff and retaining access to the incumbent of the second period. I now describe the outlet's optimal first-period reporting problem to illustrate this trade-off.

To formally express the first-period objective function of the outlet, I introduce an indicator variable. Let $z_A(\rho_1, \omega_1) = 1$ if and only if politician A wins the election given the reporting strategy ρ_1 and the public signal ω_1. Furthermore, let $r(\rho_1) = h$ if $\rho_1 = 1$, and $r(\rho_1) = \ell$ if $\rho_1 = 0$. The optimal first-period reporting strategy ρ_1^* is a solution to

$$\begin{aligned} \rho_1^* \in \; & \underset{\rho_1 \in \{0,1\}}{\arg\max}\, V_1(\rho_1; \pi_{C1}, \pi_{S1}) + E_{\omega_1}[z_A(\rho_1, \omega_1)\gamma_2^{A\ell}(r(\rho_1), \omega_1) V_2(0; \pi_{C2}, \pi_{S2})] \\ & + E_{\omega_1}[(1 - z_A(\rho_1, \omega_1))\gamma_2^{B}(r(\rho_1), \omega_1) V_2(0; \pi_{C2}, \pi_{S2})]. \end{aligned} \tag{10}$$

The first term $V_1(\rho_1; \pi_{C1}, \pi_{S1})$ in (10) is the outlet's first-period payoff. At the time of the first-period reporting decision, the public signal ω_1 is not yet realized. Therefore, both expectations in (10) are taken over ω_1. Consider the terms inside the first expectation. If politician $A\ell$ wins the election, she grants further access if and only if $\gamma_2^{A\ell}(r(\rho_1), \omega_1) = 1$. In this case, the outlet obtains the payoff $V_2(0; \pi_{C2}, \pi_{S2})$ since it reports truthfully in the second period. The terms inside the second expectation apply if politician B wins the first-period election. In either case, the outlet's second period payoff depends on the second-period public beliefs π_{C2} and π_{S2} about its type. These beliefs, in turn, depend on the first-period reporting strategy ρ_1, the public signal ω_1 to be realized and the identity of the incumbent who grants second-period access. Furthermore, as established by Proposition 1, the second-period access decision of politician $A\ell$ depends on these same public beliefs and also on her own private beliefs about the outlet's type.

Truthful reporting of low ability in the first period has the following important implication. It perfectly reveals to all parties that the outlet is not the corrupt type. By Lemma 2 only the corrupt type misreports low ability in the second period. Therefore, after observing $r_1 = \ell$, both the public and the politicians assign zero probability to misreporting in the second period if the outlet is granted further access.

When $p_h \geq 1/2$, the strategic outlet does not face a trade-off between maximizing first-period payoff and securing future access. As a result, it reveals low ability truthfully in the first period. In this case, by Proposition 2, the second-period incumbent does not require any misreporting to grant access. Truthful reporting of low ability in the first period (i) maximizes the first-period payoff, (ii) also maximizes the outlet's second-period payoff through its effect on the public beliefs: the public assigns zero probability to misreporting in the second period. Therefore, when $p_h \geq 1/2$, the strategic outlet reveals low ability truthfully in the first period.

When $p_h < 1/2$, however, the strategic outlet faces a trade-off between maximizing first-period payoff and securing future access. Since both politicians assign zero probability to misreporting in the second period after a truthful first-period report on low ability, by Proposition 2, the second-period incumbent denies access.

The following proposition summarizes these observations.

PROPOSITION 3 *(i) When $p_h \geq 1/2$, the strategic outlet does not face a trade-off between maximizing first-period payoff and securing future access: it reports low ability truthfully in the first period. (ii) When $p_h < 1/2$, the strategic outlet faces a trade-off: truthful first-period reporting of low ability maximizes first-period payoff but results in certain loss of future access.*

Proposition 3 illustrates exactly when the strategic outlet's first-period reporting strategy is driven by a pandering motivation. When $p_h < 1/2$, the strategic outlet can secure second-period access only if it misreports in the first period and ensures the reelection of the initial incumbent with low first-period ability. To secure future access in this case, the strategic outlet must convince the initial incumbent that it is the corrupt type with sufficiently high probability.

4 Access and Politician Competence

This section describes how the equilibrium access decision depends on the politicians' competence by analyzing the properties of $x(p_h, \mu)$ and $y(p_h, \mu)$.

The maximum misreporting probability $x(p_h, \mu)$ that the voter tolerates defined in (6) is always non-negative and is strictly increasing in p_h. The minimum misreporting probability $y(p_h, \mu)$ that the incumbent demands to grant access is strictly decreasing in p_h. Furthermore, $y(p_h, \mu)$ is positive only if $p_h < 1/2$. Hence, there exists a critical value $p_h^* < 1/2$ where p_h^* is the unique solution to $x(p_h, \mu) = y(p_h, \mu)$ such that $x(p_h, \mu) > y(p_h, \mu)$ if and only if $p_h > p_h^*$ (see Figure 1). Intuitively, when it is sufficiently likely that the incumbent has low ability, the minimum misreporting probability that she demands exceeds the maximum that the voter tolerates. As a result, when $p_h < p_h^*$, it is no longer possible to satisfy both the public credibility and the pandering conditions (5) and (8) for access.

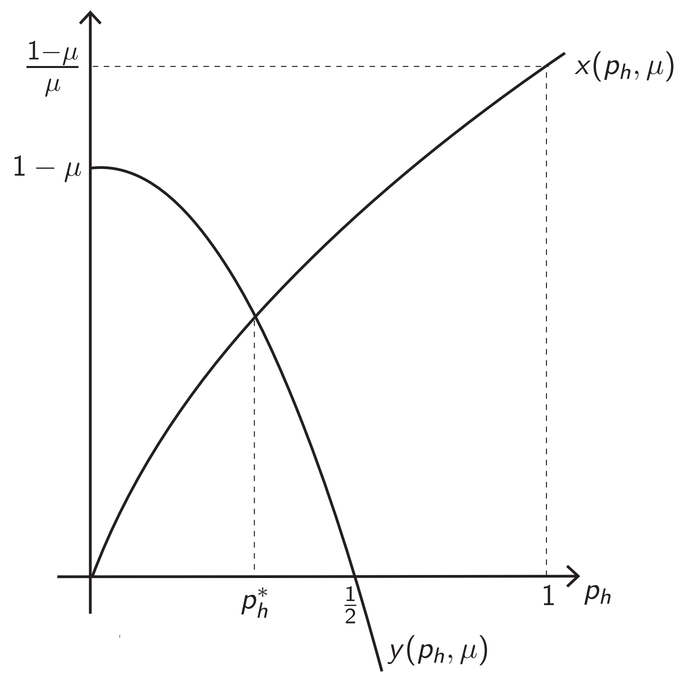

Figure 1: The maximum misreporting probability $x(p_h, \mu)$ that the public tolerates versus the minimum misreporting probability $y(p_h, \mu)$ that the incumbent demands

Recall from Proposition 2 that when $p_h \geq 1/2$ the incumbent does not demand any misreporting to grant access and the strategic outlet is always truthful in the first period. In this case, the pandering condition in (8) is never binding and the media outlet has no incentive to misreport in the first period to convince the future incumbent that it is corrupt with a sufficiently high probability. If, in addition $p_C \leq x(p_h, \mu)$, then the public credibility condition (5) for first-period access is also satisfied when the outlet reveals low ability truthfully in the first period. Hence, first-period access is granted. Given that the strategic outlet reports low ability truthfully in the second period (Lemma 2), the second-period public credibility condition requires $\pi_{C2} \leq x(p_h, \mu)$. But truthful reporting of low ability by the strategic outlet in the first-period implies that $\pi_{C2} = 0$ regardless of ω_1 (see (A5)). Hence, second-period access is granted as well regardless of ω_1.

These following result combines these observations and establishes a positive relationship between the media's access and the competence of politicians over key issues.

PROPOSITION 4 *(i) When the politicians are too likely to be incompetent over key issues, that is, $p_h < p_h^*$, in the unique equilibrium there is no access in any period. (iii) When the politicians are likely to have high ability over key issues, that is, $p_h \geq 1/2$, and the media outlet is perceived to have sufficient integrity, that is, $p_C \leq x(p_h, \mu)$, in the unique equilibrium access is granted in both periods and the strategic outlet always truthfully reveals low ability.*

5 Quid Pro Quo Equilibrium

This section focuses on understanding when an incumbent can use access control to build a mutually beneficial relationship with the media and influence public opinion. I refer to this relationship as a *quid pro quo equilibrium.* The main feature of this equilibrium is as follows. The initial incumbent who observes low ability over the first election's key issue (politician $A\ell$) wins the first-period election due to the media outlet misreporting low ability and then grants the outlet second-period access.

DEFINITION 1 *A quid pro quo equilibrium is an equilibrium with the following properties:*

R1 First-period incumbent grants access to the media outlet.

R2 The strategic outlet misreports low ability in the first period.

R3 Conditional on winning the first election, politician $A\ell$ continues to grant access in the second period regardless of ω_1.[27]

I first describe the necessary conditions for a quid pro quo equilibrium that pertain to the first-period strategies. The following lemma provides the necessary conditions for R1 (first-period access) and R2 (first-period misreporting).

[27]The definition requires politician $A\ell$ to grant access to the outlet in the second period regardless of ω_1. The results remain qualitatively the same under an alternative definition which requires politician $A\ell$ to grant second period access only when $\omega_1 = h$. As we show below, if second period access is granted when $\omega_1 = \ell$, it is also granted when $\omega_1 = h$.

LEMMA 3 *A quid pro quo equilibrium exists only if*

(i) $y(p_h, \mu) \leq p_C + p_S \leq x(p_h, \mu)$,

(ii) $p_h \in (p_h^*, 1/2)$ *where* p_h^* *is the unique solution to* $x(p_h, \mu) = y(p_h, \mu)$.

Condition (i) states that a quid pro quo equilibrium exists only if the prior probability that the outlet is honest is sufficiently high but not too high. Given that the strategic outlet misreports in the first period by R2, first-period access is granted only if this condition is satisfied. The condition follows from Proposition 1 since both the incumbent and the voter believe that the outlet is corrupt with probability p_C and strategic with probability p_S at the time of the first-period access decision. Condition (ii) states that a quid pro quo equilibrium exists only if p_h is strictly less than $1/2$ but also not too low, and it follows from Proposition 3 and part (i) of Proposition 4.

Before focusing on the second-period access decision, an important distinction needs to be made. R3 requires that, conditional on winning the first-period election, politician $A\ell$ grants further access. However, R3 does not specify the equilibrium second-period access decision of politician Ah, that is, the initial incumbent who observes high ability in the first period. Whether politician Ah grants or denies second-period access has an important implication for information revelation.

If both politicians $A\ell$ and Ah grant second-period access in a quid pro quo equilibrium, the second-period access decision does not reveal the initial incumbent's first-period ability to the public. I refer to this equilibrium as a *pooling quid pro quo equilibrium* and analyze it in the next section. A quid pro quo equilibrium is *separating* if only politician $A\ell$ grants second-period access, but politician Ah denies it. In this case, the second-period access decision perfectly reveals the initial incumbent's first-period ability to the public. I present the analysis of the separating quid pro quo equilibrium in Appendix A4.

5.1 Pooling quid pro quo equilibrium

DEFINITION 2 *A pooling quid pro quo equilibrium is a quid pro quo equilibrium with the following additional property:*

R4 Conditional on winning the first election, politician Ah continues to grant access in the second period regardless of ω_1.

In a pooling quid pro quo equilibrium, politician $A\ell$ privately assigns zero probability to the outlet being the honest type after a positive first-period report. The voter, however, only observes a noisy public signal ω_1 on incumbent's first-period ability, and thus continues to assign a positive probability that the outlet is honest after the first-period election. Since the second-period access decision does not reveal to the voter that the initial incumbent had low first-period ability, politician $A\ell$ remains better informed about the media outlet's type than the public after the second-period access decision.

I now describe the necessary conditions for both politicians $A\ell$ and Ah to grant second-period access as required by R3 and R4.

Consider first the pandering condition (8) for second-period access. Recall that when $p_h < 1/2$, the second-period incumbent requires a minimum misreporting probability $y(p_h, \mu) > 0$ to grant access. She also understands that only the corrupt media outlet misreports in the second period. To satisfy (8) for second-period access in a pooling quid pro quo equilibrium, both $A\ell$ and Ah must assign a sufficiently high probability that the outlet is corrupt. After a positive first-period report, politician $A\ell$ updates her prior belief and assigns a posterior probability

$$q_{C2}^{A\ell} = \frac{p_C}{p_C + p_S}$$

that the outlet is corrupt. Politician Ah, however, maintains her prior belief that the outlet is corrupt with probability p_C. It is thus harder to satisfy (8) for politician Ah. Therefore, the binding pandering condition for second-period access is given by $p_C \geq y(p_h, \mu)$. This condition precisely pins down for the strategic outlet the necessity of being perceived as sufficiently corrupt by the second-period incumbent to secure further access.

Consider now the public credibility condition (5) for second-period access in a pooling quid pro quo equilibrium. Since the strategic outlet reports truthfully if granted further access, condition (5) for second-period access becomes

$$\pi_{C2}(\omega_1) \leq x(p_h, \mu) \text{ for } \omega_1 \in \{h, \ell\}.$$

In the above expression, $\pi_{C2}(\omega_1)$ denotes the probability that the voter assigns to the outlet being corrupt at the time of the second period reporting decision after observing $r_1 = h$, the public signal ω_1 and the second-period access decision of the incumbent in power (see (A3)). Given $r_1 = h$, the voter assigns a higher probability that the outlet is corrupt if he observes $\omega_1 = \ell$ rather than $\omega_1 = h$. Therefore, we have $\pi_{C2}(\ell) > \pi_{C2}(h)$. Intuitively, it is harder to convince the voter about the outlet's credibility after a positive first-period report if the voter observes the negative public signal. The binding public credibility condition for second-period access is thus given by $\pi_{C2}(\ell) \leq x(p_h, \mu)$.

Recall that p_h^* is the unique solution to $x(p_h, \mu) = y(p_h, \mu)$ and let $k = k_0/k_1$. The following result combines all the necessary conditions for a pooling quid pro quo equilibrium. Furthermore, as I show in the proof of the result below, these necessary conditions are jointly sufficient for the existence of a pooling quid pro quo equilibrium.

PROPOSITION 5 *A pooling quid pro quo equilibrium exists if and only if $p_h \in (p_h^*, 1/2)$ and the following conditions hold.*

(i) The prior probability that the media outlet is honest is sufficiently high:

$$p_C + p_S \leq x(p_h, \mu). \tag{11}$$

(ii) The prior probability that the media outlet is corrupt is sufficiently high:

$$p_C \geq y(p_h, \mu). \tag{12}$$

(iii) The voter assigns a sufficiently low probability to the media outlet being corrupt after observing positive report in the first period:

$$\pi_{C2}(\ell) \leq x(p_h, \mu), \tag{13}$$

and

$$\mu\pi_{C2}(\ell) + (1-\mu)\pi_{C2}(h) \leq k - p_S. \tag{14}$$

The condition $p_h \in (p_h^*, 1/2)$ is identical to condition (ii) in Lemma 3. Condition (11) comes from condition (i) of the same lemma. The part $p_C + p_S \geq y(p_h, \mu)$ in that condition is always satisfied given (12). Conditions (12) and (13) are, respectively, the pandering and the binding public credibility conditions for second-period access. Condition (14) is a necessary condition for the strategic outlet to misreport in the first period given R3 and R4. In choosing its first-period reporting strategy, the strategic outlet faces a dynamic trade-off between the first-period payoff it loses due to misreporting and the future payoff she expects to receive by securing second-period access. By misreporting in the first period, the outlet reduces its first period payoff by $k_1 p_S$. However, it gains an expected second-period payoff $k_0 - k_1\bar{\pi}_{C2}$ where $\bar{\pi}_{C2} = \mu\pi_{C2}(\ell) + (1-\mu)\pi_{C2}(h)$. Therefore, condition (14) ensures that the gain from misreporting exceeds the loss.

The next result describes how the parameters μ, p_h, p_C, p_S and $k = k_0/k_1$ can be chosen to satisfy all the conditions in Proposition 5.

PROPOSITION 6 *A pooling quid pro quo equilibrium exists when the following hold.*

(i) The voter can learn little from the public signal. That is, μ is sufficiently low.

(ii) The prior probability that politicians have high ability over key issue is moderately high. That is, p_h is sufficiently high but strictly less than 1/2.

(iii) There is just enough public skepticism that the journalistic profession is corrupt. That is, p_C is sufficiently low but bounded below by $y(p_h, \mu)$.

(iv) There is sufficient initial public trust that the journalistic profession is honest. That is, p_S satisfies[28]

$$p_S \leq \min\{x(p_h, \mu) - p_C, k\}.$$

[28]In Appendix A5, I endogenize the parameters k_0 and k_1 using a standard private action model. In particular, I show that (see (A29) and (A30)) when p_h is sufficiently high but strictly less than 1/2, the parameter k is sufficiently close to 1 and the statement of this result becomes tighter.

6 Extensions

In this section, I consider the implications of (i) the popularity of the initial incumbent, (ii) correlation of politician ability over key election issues, and (iii) forward looking politicians.

6.1 Incumbent popularity

The baseline model did not distinguish between the voter's prior beliefs about the initial incumbent's and the challenger's abilities over the key election issue. I now assume that the initial incumbent is ex ante more popular in the sense that the voter believes that the incumbent is more likely to have high ability than the challenger. This extension allows me to show how access control can be an especially effective instrument in the hands of popular incumbents.

Suppose the voter believes, ex ante, that the initial incumbent (politician A) has high ability with probability $p_I > p_h$. I refer to p_I as the initial incumbent's popularity. All other features of the model remain the same, including the assumption that initially both politicians assign the same probability p_h that they have high ability. The analysis of the access conditions closely follows Section 3.1 and is summarized below.

Pandering condition. Recall that the pandering condition for access does not depend on the voter's beliefs. Hence, this condition is independent of p_I and again given by (8). For $p_h \geq 1/2$, the same observations hold: (i) the incumbent does not demand any misreporting, (ii) if granted first period-access, the strategic outlet always reveals low ability truthfully (Proposition 2). The strategic outlet faces a trade-off in choosing its first-period reporting strategy only if $p_h < 1/2$ (Proposition 3).

Public credibility condition. Recall from Section 3.1 that the initial incumbent grants access in period t only if the voter elects her after receiving $r_t = h$ despite having observed $\omega_t = \ell$. Given the voter's prior p_I, this requires that the posterior probability $\tilde{\beta}_t$ the voter assigns to initial incumbent having high ability, conditional on $r_t = h$ and $\omega_t = \ell$, satisfies

$$\tilde{\beta}_t = \frac{(1-\mu)p_I}{(1-\mu)p_I + \mu(1-p_I)(\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*)} \geq p_h. \tag{15}$$

In (15), $\tilde{\pi}_{Ct}$ and $\tilde{\pi}_{St}$ denote the posterior probabilities that the voter assigns to the outlet being corrupt and strategic, respectively, conditional on $r_t = h$ and $\omega_t = \ell$ (see (A43)). We can rewrite (15) as

$$\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^* \leq \left(\frac{1-\mu}{\mu}\right)\left(\frac{p_I}{1-p_I}\right)\left(\frac{1-p_h}{p_h}\right), \tag{16}$$

and express (16) in terms of the voter's beliefs π_{Ct} and π_{St} about the outlet at the time of the reporting decision in period t.[29] This exercise yields

$$\pi_{Ct} + \pi_{St}\rho_t^* \leq \eta(p_I, p_h, \mu). \tag{17}$$

The voter's tolerance for misreporting is now captured by $\eta(p_I, p_h, \mu)$ which is explicitly described in (A44).

Condition (17) is the new public credibility condition to grant access when the initial incumbent is in power. Appendix A6 shows that $\eta(p_I, p_h, \mu)$ is increasing in p_I. Thus, the voter's tolerance for pro-incumbent bias is increasing in the incumbent's popularity. The intuition is that, as p_I increases, the voter associates a positive report more with the truthful reporting of high ability rather than misreporting. Thus, a popular incumbent faces a less stringent credibility constraint to influence public opinion.

To summarize, as the initial incumbent's popularity p_I increases, it becomes easier to construct a pooling quid pro quo equilibrium since (i) the pandering condition remains the same, (ii) the public credibility condition is relaxed. The first-period public credibility condition now becomes $p_C + p_S \leq \eta(p_I, p_h, \mu)$. For the quid pro quo equilibrium, the public must initially assign a minimum probability $1 - \eta(p_I, p_h, \mu)$ that the media outlet is honest. Since $\eta(p_I, p_h, \mu)$ is increasing in p_I, we have the following result.

PROPOSITION 7 *The minimum media credibility the incumbent needs to influence public opinion through access control is decreasing in her popularity.*

6.2 Correlation of politician ability

This section considers the implications of correlation of politician ability across periods. To this end, I introduce the joint distribution of ability for politician $j \in \{A, B\}$ described in (A45) which yields the following simple correlation structure

$$\begin{aligned} \Pr(\theta_2^j &= h | \theta_1^j = h) = p_h + \sigma(1 - p_h) \text{ and} \\ \Pr(\theta_2^j &= h | \theta_1^j = \ell) = p_h(1 - \sigma). \end{aligned} \tag{18}$$

In the above formulation, $\sigma \in [0, 1]$ captures the (non-negative) correlation of ability. The case $\sigma = 0$ corresponds to the baseline model.

Clearly, the first period access conditions remain the same. Below, I describe how correlation of ability affects the second-period access conditions.

Pandering condition. This condition is driven by the incumbent's beliefs about her own ability. Since both politicians perfectly observe their first-period abilities regardless of the first-period access decision, the conditional probabilities that each politician assigns to having high ability in the second period are given by (18). Recall that an incumbent's demand for favorable bias to grant access is decreasing in the probability that she assigns to having high ability (see Figure 1). In particular, when σ is sufficently high, the initial

[29] The public credibility condition in (16) is analogous to (4). Note that (4) and (16) are identical when $p_I = p_h$.

incumbent who observes high first-period ability, politician Ah, does not demand any misreporting to grant second-period access. To see why, note that using (18), I can observe

$$\Pr(\theta_2^A = h | \theta_1^A = h) > 1/2 \text{ for } \sigma > \bar{\sigma} \equiv \frac{1-2p_h}{2-2p_h}.$$

Thus, Proposition 2 applies when $\sigma > \bar{\sigma}$.

Public credibility condition. This condition is driven by the voter's beliefs. At the time of the first-period election, the voter assigns the probability $\tilde{\beta}_1$ that the initial incumbent has high first-period ability. Correlation σ determines the extent that the voter relies on $\tilde{\beta}_1$ in forming beliefs about the same incumbent's second-period ability. Formally, let β_2 denote the probability that the voter assigns to politician A having high second-period ability after the first-period election. Given $\tilde{\beta}_1$ and using (18), one can show that (see Appendix A7)

$$\beta_2 = \tilde{\beta}_1 \sigma + p_h(1-\sigma). \tag{19}$$

When $\sigma = 0$, observe that $\tilde{\beta}_1$ plays no role in determining the second-period belief β_2, whereas $\sigma = 1$ implies that β_2 is completely driven by $\tilde{\beta}_1$.

To summarize, for sufficiently small σ, the effect described in (19) plays little role on the second-period access decision, and by implication, on the strategic outlet's first-period reporting decision. Thus, for sufficiently small σ, the analysis in the baseline model follows. When σ is sufficiently high, however, we obtain the following result (see Appendix A7 for a proof).

PROPOSITION 8 *Suppose correlation of ability is sufficiently high, the public signal is not highly informative and $y(p_h, \mu) \leq p_C \leq x(p_h, \mu)$. In equilibrium, (i) the initial incumbent grants first-period access, (ii) the strategic outlet always reports low ability truthfully in the first-period, (iii) any second-period incumbent always grants second-period access.*

The above result implies that when a politician's ability over key election issues is highly correlated, or equivalently, when key issues persist over time, the media enjoys more access, and its coverage is more informative.

To see the intuition, suppose there is perfect correlation and recall that politician Ah always grants second-period access in this case. Also observe that politician $A\ell$, that is, the initial incumbent who observed low first-period ability, must also grant second-period access, as otherwise she would perfectly reveal to the voter that (i) she had low first-period ability, and (ii) given perfect correlation, she certainly has low second-period ability as well. Therefore, if politician $A\ell$ denies access, she loses the second-period election with probability one. As a result, all second period incumbents always grant access. But when second-period access is always ensured, the strategic outlet has no incentive to misreport in the first period if granted first-period access.

6.3 Forward looking politicians

The baseline model assumes that the incumbent's optimal access control strategy in each period maximizes the probability she assigns to winning the election in that period. Suppose, instead, that politicians are forward looking. Hence, A's first-period access control strategy maximizes the sum of her payoffs across the two periods. As before, an incumbent's payoff in period t is given by the probability $\Pr(\tilde{\beta}_t \geq p_h)$ of winning the election in that period. Thus, the challenger's payoff in period t is given by $\Pr(\tilde{\beta}_t < p_h)$.

If A wins the first election, her probability of winning the second one is given by $Pr(\tilde{\beta}_2 \geq p_h \mid \tilde{\beta}_1 \geq p_h)$. If A loses the first election, she becomes the challenger in the second period, and her probability of winning the second election, conditional on losing the first one, is given by $Pr(\tilde{\beta}_2 < p_h \mid \tilde{\beta}_1 < p_h)$. Thus, the dynamic payoff of A as of the beginning of the first period is

$$\Pr(\tilde{\beta}_1 \geq p_h) + \Pr(\tilde{\beta}_1 \geq p_h) Pr(\tilde{\beta}_2 \geq p_h \mid \tilde{\beta}_1 \geq p_h) + Pr(\tilde{\beta}_1 < p_h) Pr(\tilde{\beta}_2 < p_h \mid \tilde{\beta}_1 < p_h). \tag{20}$$

Suppose the conditions in Proposition 5 for a pooling quid pro quo equilibrium are satisfied. In particular, $p_C \geq y(p_h, \mu)$ implies that denying first-period access reduces both $\Pr(\tilde{\beta}_1 \geq p_h)$ and $Pr(\tilde{\beta}_2 \geq p_h \mid \tilde{\beta}_1 \geq p_h)$. Thus, the first two terms in (20) are both higher when A grants first-period access (See Appendix A8).

Granting first-period access, however, reduces A's probability of winning the second election, conditional on losing the first one. Defeat in first-period election after granting access reveals that the outlet is honest, and further implies that (i) the new incumbent, politician B, denies second-period access and (ii) politician A wins the second-period election with probability $\Pr(\omega_2 = \ell)$. In contrast, if A loses the first-period election after denying access, no information about the outlet's type is revealed: the new incumbent B grants second-period access and A wins the second-period election with probability $(1 - p_h)(1 - p_C)$.[30] Since $p_C \geq y(p_h, \mu)$, it follows that $(1 - p_h)(1 - p_C) \geq \Pr(\omega_2 = \ell)$. Hence, the third term in (20) is lower with first-period access.

To summarize, under the conditions in Proposition 5, politician A faces a trade-off. Granting first-period access increases the first two terms in (20) but reduces the third one. Appendix A8 shows that the increase in the first term (probability of winning the first election) alone dominates the decrease in the third term (probability of winning the second election conditional on losing the first one). Therefore, the myopically optimal strategy of granting first period access maximizes a forward looking initial incumbent's dynamic payoff as well.

[30]This follows since A wins the second-period election if B turns out to have low ability and if the outlet is not corrupt.

7 Implications

To my knowledge, there has been no theoretical or empirical analysis of the implications of media access control by incumbents.[31] As Broersma et al. (2013) point out, the journalism literature on access to information sources is also very scarce: "Although access to sources is a central and defining element in journalism, it did not attract the undivided attention of scholars." This section discusses implications of the results and provides some supportive anectodal evidence.

7.1 Influencing public opinion by access control

According to Franklin (2003), the relationship between the media and the government is driven by a 'strategic complementarity of interests.' The quid pro quo equilibrium in Proposition 6 illustrates that an incumbent's control of access to information sources can help her build such a mutually beneficial relationship with the media and influence public opinion in her favor. Furthermore, popular incumbents face a less stringent public credibility constraint, since their popularity reduces public demand for media credibility.[32] As Proposition 7 shows, popular incumbents can rely on less reputable outlets to influence public opinion. Therefore, an implication of the analysis is that access control can be an effective instrument especially in the hands of popular incumbents.

The above implication presents a challenge for democracies. An incumbent who enjoys popularity among a pivotal segment of the electorate can maintain this popularity by granting access only to friendly outlets. Even if these outlets lack credibility in the eyes of an outside observer, their pro-incumbent reporting can still be perceived as sufficiently credible by the same pivotal segment.[33] The example of President Erdogan of Turkey seems consistent with this prediction. President Erdogan has been hugely popular among a pivotal segment of the electorate, and the mainstream media hardly provides any critical coverage of his government. Consistent with this, according to the Reuters Institute Digital News Report in 2017, only 20% of respondents think that Turkish news media is actually independent of undue government influence. That is, the vast majority recognize the one-sided nature of media coverage. Yet, respondents still view the media as relatively credible: trust in news overall is twice as high (40%) and

[31] An empirical literature examines government capture of the media by using (i) outright bribes (see McMillan and Zoido (2004) for the case of Fujimori's Peru), (ii) financial rewards such as government advertising in newspapers (see Di Tella and Franceschelli (2011) for the case of Argentina during 1998-2007 or (iii) threats of prosecution (see Stanig (2015) for the impact of defamation laws on local newspaper coverage of scandals in Mexico in 2001).

[32] Latham (2015) presents empirical evidence that the media turn against unpopular governments by increasing negative coverage.

[33] Also related is Guriev and Treisman (2018) who show that modern dictators stay in power by convincing the public that they are competent.

particularly high (48%) among respondents over 45.

As discussed earlier, the coverage of The New York Times on WMD played an instrumental role in buttressing the administration's case on the necessity of the Iraq War in 2003. This episode thus provides a good example on how a media outlet can bias its reporting in order to maintain access to administration sources and how biased coverage can be effective in influencing public opinion. The key features of this episode fit particularly well with the quid pro quo equilibrium. Consistent with the results (i) the ex ante unpopularity of the war required granting access to Miller, a highly reputable, Pulitzer Prize winning reporter, (ii) Miller's professional history indicated to the administration that she may be sufficiently servile (see Foer (2004)) (iii) there were no publicly available sources on whether Iraq had WMD, and (iv) given Saddam Hussein's history of using chemical weapons, it was moderately likely that Iraq had WMD.

The model's main insights apply to non-political news as well. In particular, Dyck and Zingales (2003) provide strong empirical support for a quid pro quo relationship between financial reporters and companies in the context of financial news. They show that a positive spin on a company's news is best explained by the reporters' concern for maintaining access to the company insiders. Consistent with this model's predictions, their empirical results indicate that the impact of positive coverage on asset prices is larger when (i) investors have fewer alternative sources of information and (ii) the newspaper providing positive coverage is more reputable.

7.2 Politician competence and media access

In the model, an incumbent's demand for favorable bias is decreasing in her competence over key issues. An incumbent who is sufficiently likely to be competent over key issues grants the media access, whereas one who is sufficiently likely to be incompetent denies it. In particular, Proposition 4 predicts a positive relationship between the degree of access that the media enjoys and the competence of the politicians over key issues.

Politicians typically become less media-friendly when the public is likely to focus on issues that they feel less secure about. When the potential key issues fit the politician's expertise, he/she increases visibility through more exposure to media. For example, during the 2016 presidential election campaign, Hillary Clinton avoided holding a press conference for over 260 days.[34] At the time, the primary public concern over Clinton was about her trustworthiness in the handling of the classified e-mail scandal. As the public focus seemed to shift to Donald Trump's lack of experience in public office, however, Clinton became more media-friendly and increased her media appearances to emphasize her credentials in public service.

[34]See The Washington Post article "It's been 263 days since Hillary Clinton last held a press conference."on August 24, 2016.

7.3 Issue persistence and media access

Proposition 8 illustrates that with high correlation of politician ability over key issues, access control ceases to be an effective instrument to influence coverage: denying future access reveals to the public that the incumbent observed low ability in the past and, due to high correlation, is likely to have low ability over this period's key issue as well. While it can be empirically challenging to observe correlation of politician ability over key issues, ability is more likely to be correlated when key election issues persist over time. Therefore, an implication of the model is that the persistence of key issues increases the media's access.

The way the French President Emmanuel Macron 're-oriented his media strategy by 180 degrees' during his presidency provides an interesting example. In his early months as president, Macron granted only restricted and very selective access to the media. This tough stance was consistent with his remarks during his candidacy: "I think the problem of recent presidencies has been too much closeness with journalists." A Politico article describes how, weeks after Macron entered office, his team cherry-picked journalists for his first trip abroad to Mali, prompting multiple media groups to denounce the practice in an open letter.[35] Macron also faced criticism for granting his first interview as president to CNN International ahead of French outlets. However, as the same Politico article illustrates, Macron later switched to a more open media strategy granting the media much more access via unscripted talks with journalists. The model suggests that this switch may be explained by the persistence of the key issues under public focus, given the little progress Macron was able to make with his reform agenda.

8 Concluding remarks

Understanding how an incumbent politician's control of the media's access to information sources, a policy that I refer to as access control, can affect media coverage and public opinion is an important research question. To isolate access control as the only potential source of bias, the model considers a strategic media outlet with no political preferences and whose payoff depends on the perceived informativeness of its coverage. This section concludes by discussing some robustness issues (verifiable information, infinite horizon, competition for access) and avenues for future research (authoritarian regimes and partisan media).

Verifiable information: The model assumes that the information the outlet observes is unverifiable allowing it to engage in outright distortion and misreport low ability as

[35] See the Politico article "Emmanuel Macron's media makeover — from 'Jupiter' to explainer-in-chief" published on August 28, 2017.

high.[36] Many real life examples of favorable coverage, however, involve selective reporting of only positive (and verifiable) information and excluding any negative information (see Gentzkow et al (2016)). With a slight modification, the model can capture favorable coverage as selective reporting of verifiable information as well. Suppose, when granted access, the outlet always observes some verifiable positive information regardless of the incumbent's ability, but observes some verifiable negative information only if the incumbent has low ability. The voters, on the other hand, do not observe whether the outlet has uncovered any negative information. With this reinterpretation, the model also applies to the case when the outlet selectively reports verifiable information.

Competition for access: The main insights of the model, and in particular the quid pro quo equilibrium, remain valid when multiple media outlets compete for access. Suppose that (i) there are $n \geq 2$ outlets, each having different prior probabilities of being the corrupt and the strategic type, and (ii) in each period, the incumbent grants access to at most one of these outlets.[37] The incumbent's optimal access control strategy is again driven by the same considerations as in Proposition 1. Among outlets that satisfy the public credibility condition, the incumbent grants first-period access to the one with the highest probability of being corrupt.

Consider now the second-period access decision. Since only the corrupt outlet misreports in the second period, among available outlets that satisfy both second-period access conditions, the incumbent grants access to the one to which she assigns the highest probability of being corrupt. The strategic outlet with initial access understands that a truthful first-period report, by revealing that it is not the corrupt type, results in loss of future access with certainty. If this outlet misreports in the first period, the initial incumbent assigns an even higher probability that it is corrupt. To beat competition from other outlets and maintain access, the strategic outlet with initial access must therefore misreport in the first period. Hence, the quid pro quo equilibrium continues to exist when multiple media outlets compete for access in each period.

Infinite horizon: The strategic outlet reports truthfully in the second period, since it has no further concern for future access. A natural question is what happens if there is no exogenously imposed last period. As I argue below, in an infinite horizon model, there again exists an endogenous final period t^* in which the strategic outlet reports truthfully if granted access.

Given that the corrupt type always provides a positive report, the voter assigns a higher probability that the outlet is corrupt after any period that he receives positive

[36]Consistent with this assumption, Besley and Prat (2006) point out in their concluding remarks that in many instances, journalists report personal impressions or rely on sources that cannot be easily verified by readers.

[37]There is no incentive for the incumbent to grant access to more than one outlet in the model as. such a policy lowers the value of access for each outlet without creating any benefits for the incumbent.

coverage. The maximum misreporting probability $x(p_h, \mu)$ that the voter tolerates in (5), however, is constant over time. After a history of positive reports, there exists a period t^* such that further positive reporting in that period violates the public credibility condition (5) in period $t^* + 1$ implying that the outlet is to be denied access in period $t^* + 1$. Anticipating to lose further access with certainty in the next period, the strategic outlet thus reports truthfully in period t^*.

Under the conditions of Proposition 5, the voter's tolerance for misreporting $x(p_h, \mu)$ is sufficiently high. Furthermore, after observing a positive report and a negative public signal, the posterior probability the voter assigns to the outlet being honest is increasing in p_h and decreasing in μ. Therefore, by choosing p_h sufficiently high and μ sufficiently low, one can satisfy the second and third period public credibility conditions. This implies that in an infinite horizon model, there does exist a quid pro quo relationship that continues for at least two periods. The duration of this relationship depends on the parameters of the model. A more precise public signal and lower ex ante likelihood that incumbent is competent both reduce the duration of a quid pro quo relationship.

Authoritarian regimes: The model's main insights can also apply to authoritarian regimes without free elections. These regimes use a variety of suppressive methods, including imprisonment of journalists, outright bans, or even murder to eliminate negative coverage by local media. When dealing with the international media, however, such regimes need to employ less repressive forms of control to maintain more acceptable images. One such softer instrument can be access control. The model can be modified to describe a setting in which an authoritarian regime seeks to improve its international image by controlling foreign media's access to information. The results suggest that an international media outlet may pander to a repressive regime by adopting a less critical tone in its coverage to secure access.

Partisan media: Assuming an outlet with no political preferences helps to isolate access control as an distinct instrument to influence public opinion. A different model can consider outlets with political preferences and could address how an incumbent's access control policy depends on the ideological loyalties of media outlets. In such a model, positive coverage, say, by a liberal newspaper on a conservative incumbent may have a more pronounced effect on public opinion. In the case of print media, Chiang and Knight (2011) find evidence that endorsements for Democratic candidates from left-leaning newspapers are less influential than those from neutral or right-leaning newspapers and likewise for endorsements for Republican candidates.

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Appendix for online publication

A1 Consistency of Beliefs

In this section, I derive the conditions for the consistency of the beliefs.

A1.1 Consistency of voter's belief about the outlet at the time of reporting decision

Conditional on the media outlet being granted access in any period $t = \{1, 2\}$, the voter's belief about the media outlet's type at the time of the reporting decisions in period t is consistent with the equilibrium strategies. For ease of reference, let $g_t = 0$ if access is denied in period t and $g_t = 1$ if access is granted.

At $t = 1$, no information is revealed by the time of the reporting decision. Hence, the voter's belief is given by the prior, i.e.

$$\pi_{C1} = p_C, \quad \pi_{S1} = p_S. \tag{A1}$$

At $t = 2$, the beliefs depend on the history. Let $\pi_{C2}(g_1, \omega_1, r_1, \kappa_2)$ and $\pi_{S2}(g_1, \omega_1, r_1, \kappa_2)$ denote, respectively, the probabilities that the voter attaches to the media outlet being type C and type S right before the second-period reporting decision, given the history up to that point (with r_1 observed only if $g_1 = 1$) and conditional on the second-period incumbent κ_2 granting second-period access to the media outlet. Furthermore, let $\tilde{\pi}_{C1}(g_1, \omega_1, r_1)$ and $\tilde{\pi}_{S1}(g_1, \omega_1, r_1)$ denote, respectively, the probabilities that the voter attaches to the media outlet being type C and type S at the time of the first period election decision, given the history up to that point, with r_1 observed only if $g_1 = 1$ (see section A1.2 for computations of these beliefs).

When $g_1 = 0$, no information about the media outlet is revealed up to this point, and so these probabilities are given by the priors regardless of the rest of the history.

When $g_1 = 1$ and $\kappa_2 = B$, since politician B has access to same information as the voter up to this point, politician B's second period access decision does not reveal any new information and thus we have

$$\pi_{C2}(g_1, \omega_1, r_1, \kappa_2) = \tilde{\pi}_{C1}(g_1, \omega_1, r_1) \text{ and } \quad \pi_{S2}(g_1, \omega_1, r_1, \kappa_2) = \tilde{\pi}_{S1}(g_1, \omega_1, r_1).$$

When $g_1 = 1$ and $r_1 = \ell$, we have $\pi_{C2}(g_1, \omega_1, r_1, \kappa_2) = 0$ and

$$\pi_{S2}(g_1, \omega_1, r_1, \kappa_2) = \tilde{\pi}_{S1}(g_1, \omega_1, r_1) = \frac{(1 - \rho_1^*) p_S}{(1 - \rho_1^*) p_S + (1 - p_S - p_C)}$$

for all ω_1 and κ_2.

When $g_1 = 1$, $r_1 = h$ and $\kappa_2 = A$, the voter's belief about the media outlet's type at this point depends on the state ω_1, the beliefs he holds about θ_1^A at the end of period 1, as well as the equilibrium second-period access control strategy of politician A. Note that

$$\begin{aligned}\pi_{C2}(g_1,\omega_1,r_1,\kappa_2) &= \frac{\Pr(r_1=h,\omega_1,\theta^M=C,g_2=1|\kappa_2=A)}{\Pr(r_1=h,\omega_1,g_2=1|\kappa_2=A)} \\ &= \frac{\sum_{\theta_1^A\in\{h,\ell\}}\Pr(r_1=h,\omega_1,\theta^M=C,g_2=1,\theta_1^A|\kappa_2=A)}{\sum_{\theta_1^A\in\{h,\ell\}}\Pr(r_1=h,\omega_1,g_2=1,\theta_1^A|\kappa_2=A)}. \qquad \text{(A2)}\end{aligned}$$

The expression for $\pi_{S2}(.)$ is analogous.

For notational convenience, let $x_{\omega_1,\theta}$ denote the probability that politician A with first-period ability $\theta\in\{h,\ell\}$ grants second-period access to the media outlet after being re-elected following $r_1=h$. That is,

$$x_{\omega_1,\theta}=\gamma_2^{A\theta*}(h,\omega_1).$$

In what follows, I need to refer to some notation that are formally introduced later on in the Appendix. Let $\tilde{\beta}_1(1,h,\omega_1)$ denote the posterior probability that the voter attaches to $\theta_1^A=h$ at the end of the first period after he observes $r_1=h$, as defined in section A1.3. Let $\tilde{\pi}_{C1}(1,h,\omega_1)$ and $\tilde{\pi}_{S1}(1,h,\omega_1,)$ denote the posterior probabilities that voter attaches to the media outlet being corrupt and strategic, respectively, at the end of the first period after he observes $r_1=h$, as defined in section A1.2. In the rest of this subsection, I suppress the arguments of these probabilities for ease of exposition.

Recall that when $\theta_1^A=h$, all types of the media outlet report h. When $\theta_1^A=\ell$, a corrupt type always reports h and a strategic type reports h if $\rho_1^*=1$. Thus, it is immediate from (A2) that when $g_1=1$, $r_1=h$ and $\kappa_2=A$, we have

$$\pi_{C2}(g_1,\omega_1,r_1,\kappa_2)=\frac{\left(\tilde{\beta}_1x_{\omega_1,h}+(1-\tilde{\beta}_1)x_{\omega_1,\ell}\right)\tilde{\pi}_{C1}}{\tilde{\beta}_1x_{\omega_1,h}+(1-\tilde{\beta}_1)x_{\omega_1,\ell}(\tilde{\pi}_{C1}+\tilde{\pi}_{S1}\rho_1^*)}$$

and

$$\pi_{S2}(g_1,\omega_1,r_1,\kappa_2)=\frac{\left(\tilde{\beta}_1x_{\omega_1,h}+(1-\tilde{\beta}_1)\rho_1^*x_{\omega_1,\ell}\right)\tilde{\pi}_{S1}}{\tilde{\beta}_1x_{\omega_1,h}+(1-\tilde{\beta}_1)x_{\omega_1,\ell}(\tilde{\pi}_{C1}+\tilde{\pi}_{S1}\rho_1^*)}.$$

To summarize, the consistency of voter's belief about the media outlet's type at the time of the reporting decision in period t, conditional on the media outlet being granted access in period t, requires that

$$\pi_{C2}(g_1,\omega_1,r_1,\kappa_2)=\begin{cases} p_C & \text{if } g_1=0,\\ \tilde{\pi}_{C1} & \text{if } g_1=1,\kappa_2=B,\\ 0 & \text{if } g_1=1,r_1=\ell,\\ \frac{\left(\tilde{\beta}_1x_{\omega_1,h}+(1-\tilde{\beta}_1)x_{\omega_1,\ell}\right)\tilde{\pi}_{C1}}{\tilde{\beta}_1x_{\omega_1,h}+(1-\tilde{\beta}_1)x_{\omega_1,\ell}(\tilde{\pi}_{C1}+\tilde{\pi}_{S1}\rho_1^*)} & \text{otherwise,}\end{cases} \qquad \text{(A3)}$$

and

$$\pi_{S2}(g_1,\omega_1,r_1,\kappa_2)=\begin{cases} p_S & \text{if } g_1=0,\\ \tilde{\pi}_{S1} & \text{if } g_1=1,\kappa_2=B,\\ \frac{p_S(1-\rho_1^*)}{p_S(1-\rho_1^*)+(1-p_S-p_C)} & \text{if } g_1=1,r_1=\ell,\\ \frac{\left(\tilde{\beta}_1x_{\omega_1,h}+(1-\tilde{\beta}_1)\rho_1^*x_{\omega_1,\ell}\right)\tilde{\pi}_{S1}}{\tilde{\beta}_1x_{\omega_1,h}+(1-\tilde{\beta}_1)x_{\omega_1,\ell}(\tilde{\pi}_{C1}+\tilde{\pi}_{S1}\rho_1^*)} & \text{otherwise,}\end{cases} \qquad \text{(A4)}$$

where $x_{\omega_1,\theta}=\gamma_2^{A\theta*}(h,\omega_1)$, $\tilde{\beta}_1=\tilde{\beta}_1(1,h,\omega_1)$, $\tilde{\pi}_{C1}=\tilde{\pi}_{C1}(1,h,\omega_1)$ and $\tilde{\pi}_{S1}=\tilde{\pi}_{S1}(1,h,\omega_1)$.

A1.2 Consistency of voter's beliefs about the outlet at the time of voting decision

For all $t = \{1, 2\}$, the voter's beliefs about the media outlet's type at the time of the voting decision in period t are consistent with the equilibrium strategies. Let I_0 denote the null history and let $I_1 = (g_1, r_1, \omega_1, \kappa_2)$ denote the history at the end of period 1. Suppressing their arguments, let $\pi_{C2} = \pi_{C2}(g_1, \omega_1, r_1, \kappa_2, g_2)$ and $\pi_{S2} = \pi_{S2}(g_1, \omega_1, r_1, \kappa_2, g_2)$ denote the voter's beliefs about the media outlet's type at the beginning of period 2 as defined in section A1.1. Using the fact that

$$\tilde{\pi}_{Ct}(g_t, r_t, \omega_t, I_{t-1}) = \frac{\Pr(g_t, \omega_t, r_t, \theta^M = C)}{\Pr(g_t, \omega_t, r_t)}$$

we obtain

$$\tilde{\pi}_{Ct}(g_t, r_t, \omega_t, I_{t-1}) = \begin{cases} \pi_{Ct} & \text{if } g_t = 0, \\ 0 & \text{if } g_t = 1, r_t = \ell \\ \dfrac{(\mu p_h + (1-\mu)(1-p_h))\, \pi_{Ct}}{\mu p_h + (1-\mu)(1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)} & \text{if } g_t = 1, r_t = h \text{ and } \omega_t = h, \\ \\ \dfrac{((1-\mu)p_h + \mu(1-p_h))\, \pi_{Ct}}{(1-\mu)p_h + \mu(1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)} & \text{otherwise,} \end{cases} \tag{A5}$$

Similarly, the expression

$$\tilde{\pi}_{St}(g_t, r_t, \omega_t, I_{t-1}) = \frac{\Pr(g_t, \omega_t, r_t, \theta^M = S)}{\Pr(g_t, \omega_t, r_t)}$$

yields

$$\tilde{\pi}_{St}(g_t, r_t, \omega_t, I_{t-1}) = \begin{cases} \pi_{St} & \text{if } g_t = 0, \\ \dfrac{\pi_{St}\,(1-\rho_t^*)}{\pi_{St}\,(1-\rho_t^*) + (1 - \pi_{Ct} - \pi_{St})} & \text{if } g_t = 1,\ r_t = \ell, \\ \\ \dfrac{(\mu p_h + (1-\mu)(1-p_h)\rho_t^*)\, \pi_{St}}{\mu p_h + (1-\mu)(1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)} & \text{if } g_t = 1,\ r_t = h \text{ and } \omega_t = h, \\ \\ \dfrac{((1-\mu)p_h + \mu(1-p_h)\rho_t^*)\, \pi_{St}}{(1-\mu)p_h + \mu(1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)} & \text{otherwise.} \end{cases} \tag{A6}$$

A1.3 Consistency of voter's beliefs about the incumbent at the time of voting

For all $t = \{1, 2\}$, the voter's beliefs about the incumbent's type at the time the voting decision are consistent with the equilibrium strategies:

$$
\tilde{\beta}_t(g_t, r_t, \omega_t, I_{t-1}) = \begin{cases} \dfrac{\mu p_h}{\mu p_h + (1-\mu)(1-p_h)} & \text{if } g_t = 0 \text{ and } \omega_t = h, \\[2ex] \dfrac{(1-\mu) p_h}{(1-\mu) p_h + \mu(1-p_h)} & \text{if } g_t = 0 \text{ and } \omega_t = \ell, \\ 0 & \text{if } g_t = 1 \text{ and } r_t = \ell, \\[2ex] \dfrac{\mu p_h}{\mu p_h + (1-\mu)(1-p_h)(\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*)} & \text{if } g_t = 1 \text{ and } r_t = \omega_t = h, \\[2ex] \dfrac{(1-\mu) p_h}{(1-\mu) p_h + \mu(1-p_h)(\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*)} & \text{otherwise,} \end{cases} \tag{A7}
$$

where I_0 is null, $I_1 = (g_1, r_1, \omega_1, \kappa_2)$ and $\tilde{\pi}_{C2} = \tilde{\pi}_{C2}(g_2, r_2, \omega_2, I_1)$ and $\tilde{\pi}_{S2} = \tilde{\pi}_{S2}(g_2, r_2, \omega_2, I_1)$ as defined in section A1.2.

A1.4 Consistency of politician A's beliefs about the outlet at the time of second-period access decision

Politician A's beliefs about the media outlet's type at the time of the second-period access decision must be consistent with the equilibrium strategies. Recall that when $\theta_1^A = h$, all types of the media outlet report h. Hence, when $g_1 = 0$ or when $g_1 = 1$ and $\theta_1^A = h$, no information is revealed about the media outlet's type. However, when $g_1 = 1$ and $\theta_1^A = \ell$, the media outlet's report reveals information about its type. Since $r_1 = \ell$ is possible only when $\theta_1^A = \ell$, the consistency conditions can be written as

$$
q_{C2}^A(g_1, \theta_1^A, r_1) = \begin{cases} p_C & g_1 = 0; \text{ or } g_1 = 1, \theta_1^A = h, \\ 0 & \text{if } g_1 = 1 \text{ and } r_1 = \ell, \\ \dfrac{p_C}{p_C + p_S \rho_1^*} & \text{if } g_1 = 1, r_1 = h \text{ and } \theta_1^A = \ell, \end{cases} \tag{A8}
$$

and

$$
q_{S2}^A(g_1, \theta_1^A, r_1) = \begin{cases} p_S & g_1 = 0; \text{ or } g_1 = 1, \theta_1^A = h, \\ \dfrac{p_S(1-\rho_1^*)}{p_S(1-\rho_1^*) + (1 - p_C - p_S)} & \text{if } g_1 = 1 \text{ and } r_1 = \ell, \\ \dfrac{p_S \rho_1^*}{p_C + p_S \rho_1^*} & \text{if } g_1 = 1, r_1 = h \text{ and } \theta_1^A = \ell. \end{cases} \tag{A9}
$$

A2 Optimal voting strategy

A voting strategy in period t is a function $\nu_t : \{0,1\} \times \{0,1\} \times \{h, \ell\}^2 \to \{0,1\}$ where $\nu_t(\kappa_t, g_t, r_t, \omega_t) = 1$ if and only if the voter votes for the incumbent in period t when the incumbent is κ_t, the incumbent's access decision is g_t, the media outlet reports r_t if granted access, and the voter observes the public signal ω_t.

At the time of the election, the voter assigns a probability $\tilde{\beta}_t$ to the incumbent having high ability, whereas he holds the same prior belief p_h about the challenger's ability. Thus, optimality of the voting strategy requires that for all $t = 1, 2$,

$$\nu_t^*(\kappa_t, g_t, r_t, \omega_t) = \begin{cases} 1 & \text{if } \tilde{\beta}_t \geq p_h, \\ 0 & \text{otherwise.} \end{cases} \tag{A10}$$

A3 Proofs

The proofs of the results that are not in the main text are presented in this Appendix.

Proof of Proposition 5: The analysis in the main text has established that the conditions $p_h \in (p_h^*, 1/2)$, (11), (12) and (13) are necessary for the existence of a pooling quid pro quo equilibrium. I now establish that condition (14) is also necessary.

Suppose R1, R3 and R4 are satisfied. Consider the reporting decision by the strategic outlet after observing $\theta_1^A = \ell$. For $p_h < 1/2$, if it reports truthfully, it loses second-period access with probability one by Proposition 3. Its total payoff across the two periods is then given by $V_1(0; p_C, p_S) = k_0 - k_1 p_C$. If it misreports, its first-period payoff is given by

$$V_1(1; p_C, p_S) = k_0 - k_1(p_C + p_S).$$

To compute the outlet's expected second-period payoff, note that politician $A\ell$ wins the election in the first period when the outlet misreports. This observation follows because by Proposition 1, access is granted only if the voter elects politician A after a positive report regardless of the public signal. Given R1, first-period access is granted, and thus voter elects politician A if the outlet misreports. Since R3 is satisfied, the outlet is granted access in the second period regardless of the realization of ω_1. Consequently, its expected second-period payoff is

$$k_0 - k_1 \left(\mu \pi_{C2}(\ell) + (1 - \mu) \pi_{C2}(h) \right).$$

Accordingly, $\rho_1^* = 1$ is optimal iff

$$k_0 - k_1(p_C + p_S) + k_0 - k_1 \bar{\pi}_{C2} > k_0 - k_1 p_C, \tag{A11}$$

where $\bar{\pi}_{C2} = \mu \pi_{C2}(\ell) + (1 - \mu) \pi_{C2}(h)$. Rearranging, one concludes that condition (14) is necessary for the existence of a pooling quid pro quo equilibrium.

I now argue that the conditions in Proposition 5 are jointly sufficient for the existence of a pooling quid pro quo equilibrium. Suppose $p_h \in (p_h^*, 1/2)$ and conditions (11)-(14) hold. Recall that the strategic outlet reports truthfully in the second period by Lemma 2. Thus, by Proposition 1, conditions (12) and (13) imply that both politicians $A\ell$ and Ah grant second-period access. Hence, R3 and R4 are satisfied. Given that $p_h \in (p_h^*, 1/2)$ and (14) holds, R3 and R4 imply that the strategic outlet misreports in the first period. Thus, R2 is satisfied. By (11) and (12) we have $y(p_h, \mu) \leq p_C + p_S \leq x(p_h, \mu)$. Since R2 is satisfied, by Proposition 1 first-period access is granted, that is, R1 is satisfied as well.

Finally, given that R1 and R3 are satisfied, if (14) holds, then R2 is satisfied as well.To summarize, if all the conditions in Proposition 5 are satisfied, then there exists a pooling quid pro quo equilibrium. ■

Proof of Proposition 6: The maximum probability of misreporting $x(p_h, \mu)$ that the voter tolerates is strictly decreasing in the informativeness μ of the public signal. In particular, we have

$$\lim_{\mu \longrightarrow \frac{1}{2}} x(p_h, \mu) = 1 \text{ and } \lim_{\mu \longrightarrow 1} x(p_h, \mu) = 0.$$

Thus, decreasing μ relaxes conditions (11) and (13). By choosing μ sufficiently low, one can always satisfy these two conditions. Furthermore, increasing p_h relaxes all four conditions in Proposition 5. As p_h increases, (i) $x(p_h, \mu)$ increases and thus the right hand sides of both (11) and (13) are relaxed, (ii) both $\pi_{C2}(\ell)$ and $\pi_{C2}(h)$ decrease and thus the left hand sides of both (13) and (14) are relaxed, (iii) $y(p_h, \mu)$ decreases and thus the right hand side of (12) is relaxed, (iv) the right hand side of (14) increases. Therefore, choosing μ sufficiently small and $p_h \in (p_h^*, 1/2)$ sufficiently high help to satisfy all four conditions. These observations are stated in (i) and (ii).

Consider the effect of p_C. Since both $\pi_{C2}(\ell)$ and $\pi_{C2}(h)$ are increasing in p_C, we can relax conditions (11), (13) and (14) by decreasing p_C. Therefore, choosing p_C sufficiently small while obeying $p_C \geq y(p_h, \mu)$ helps to satisfy all four conditions. This observation is stated in (iii).

There now remains two considerations for choosing p_S and k. First, p_S must be chosen sufficiently small so that the right hand side of (14) is relaxed. Second, p_S must also be chosen to satisfy $p_C + p_S \leq x(p_h, \mu)$ so that the prior probability that the outlet is honest is sufficiently high. Note that here k can always be chosen sufficiently close to 1 to satisfy $k > x(p_h, \mu) - p_C$. This observation is stated in (iv). ■

A4 Separating Quid Pro Quo Equilibrium

DEFINITION 3 *A separating quid pro quo equilibrium is a quid pro quo equilibrium with the following additional property:*

R4′ Conditional on winning the first election, politician Ah denies access in the second period regardless of ω_1.

Along with R1-R3, the above definition requires that conditional on winning the first-period election only politician $A\ell$ grants second-period access. As a result, the second-period access decision perfectly reveals to the voter that (i) the initial incumbent he kept in power had low ability over the key issue of the first election, (ii) the outlet misreported in the first period and thus it is certainly not the honest type.[38]

The key aspect of a separating quid pro equilibrium is that, after the second-period access decision, the voter and politician $A\ell$ have the same posterior beliefs about the outlet's type regardless of ω_1. That is,

$$\pi_{C2}(\omega_1) = q_{C2}^{A\ell} = \frac{p_C}{p_C + p_S} \text{ for } \omega_1 \in \{h, \ell\}. \tag{A12}$$

The following result establishes the necessary and sufficient conditions for the existence of a separating quid pro quo equilibrium.

PROPOSITION 9 *A separating quid pro quo equilibrium exists if and only if $p_h \in (p_h^*, 1/2)$, and the following conditions hold.*

(i) The prior probability that the media outlet is honest is sufficiently high but not too high:

$$y(p_h, \mu) \leq p_C + p_S \leq x(p_h, \mu). \tag{A13}$$

(ii) The public assign a sufficiently low probability to the media outlet being corrupt after the second-period access decision reveals that it has misreported in the first period. That is,

$$\frac{p_C}{p_C + p_S} \leq x(p_h, \mu) \tag{A14}$$

and

$$\frac{p_C}{p_C + p_S} \leq k - p_S. \tag{A15}$$

(iii) The prior probabilities p_C and p_S are such that politician Ah denies second-period access but politician $A\ell$ grants it. That is,

$$\frac{p_C}{p_C + p_S} \geq y(p_h, \mu) \tag{A16}$$

and

$$p_C < y(p_h, \mu). \tag{A17}$$

Proof of Proposition 9: I first establish that each of the conditions in the proposition are necessary for the existence of a separating quid pro quo equilibrium.

The conditions $p_h \in (p_h^*, 1/2)$ and (A13) follow from Lemma 3. In a separating quid pro quo equilibrium, the public belief $\pi_{C2}(\omega_1)$ and politician $A\ell$'s private belief $q_{C2}^{A\ell}$ that the outlet is corrupt at the time of the second-period media consumption are the same as indicated by (A12). Given (A12), conditions (A14) and (A16) are, respectively, the public credibility and pandering conditions that must be satisfied for $A\ell$ to grant second-period access. Condition (A17) is the second-period pandering condition for Ah, and it must be satisfied for Ah to deny second-period access. Finally, condition (A15) is necessary for the strategic outlet to misreport in the first period. It follows from plugging (A12) in (14).

[38]The separating quid pro quo equilibrium is of interest as it illustrates the possibility of a quid pro quo between the initial incumbent and the media outlet even when the voter becomes perfectly aware of first-period low ability after second-period access is granted.

I now show that the conditions in Proposition 9 are jointly sufficient for the existence of a separating quid pro quo equilibrium. Suppose $p_h \in (p_h^*, 1/2)$ and conditions (A14)-(A17) all hold. Recall that the strategic outlet reports truthfully in the second period by Lemma 2. Thus, by Proposition 1, conditions (A14), (A16) and (A17) imply that politician $A\ell$ grants second-period access and politician Ah denies it. Hence, R3 and R4′ are satisfied. Given that $p_h \in (p_h^*, 1/2)$ and (A15) holds, R3 and R4′ imply that the strategic outlet misreports in the first period. Thus, R2 is satisfied. Together with (A13), this implies by Proposition 1 first-period access is granted. That is, R1 is satisfied as well. Therefore, if all the conditions in Proposition 9 are satisfied, then there exists a separating quid pro quo equilibrium. ■

One can combine conditions (A14) and (A16) to obtain

$$\frac{1 - x(p_h, \mu)}{x(p_h, \mu)} \leq \frac{p_S}{p_C} \leq \frac{1 - y(p_h, \mu)}{y(p_h, \mu)}. \tag{A18}$$

Condition (A18) reveals a key observation. For a separating quid pro quo equilibrium to exist, the voter must perceive the media outlet as sufficiently credible after learning that it has misreported in the first period. This is the case only if the voter associates first-period misreporting with strategic, rather than corrupt, behavior. That is, p_S/p_C must be sufficiently high. At the same time, for politician $A\ell$ to grant second-period access, it also cannot be too likely that first-period misreporting is associated with strategic, rather than a corrupt, behavior. That is, p_S/p_C cannot be too high.

The following result describes how one can choose μ, p_h, p_C p_S and $k = k_0/k_1$ to satisfy all the conditions in Proposition 9 so that a separating quid pro quo equilibrium exists.

PROPOSITION 10 *A separating quid pro equilibrium exists when the following hold.*

(i) *μ is sufficiently low.*

(ii) *p_h is sufficiently high but strictly less than* $1/2$.

(iii) *$p_C < y(p_h, \mu)$ but bounded below by $y(p_h, \mu)^2$.*

(iv) $\dfrac{p_S}{p_C} = \dfrac{1 - y(p_h, \mu)}{y(p_h, \mu)}.$

(iv) $k > 1 + y(p_h, \mu)$.

Proof of Proposition 10: Since $x(p_h, \mu)$ increases as μ decreases, lowering μ relaxes both (A14) and $p_C + p_S \leq x(p_h, \mu)$. Furthermore, $x(p_h, \mu)$ is increasing in p_h. Thus, increasing p_h also relaxes both (A14) and $p_C + p_S \leq x(p_h, \mu)$. Increasing p_h also makes $y(p_h, \mu)$ smaller and relaxes (A16). Finally, increasing p_h relaxes (A15) through its effect on the right hand side. Therefore, conditions (i) and (ii) in Proposition 10 follow.

Let us choose $p_C < y(p_h, \mu)$ so that (A17) is satisfied. Let us also assume (A16) is satisfied as an equality:

$$\frac{p_C}{p_C + p_S} = y(p_h, \mu). \tag{A19}$$

Note that $p_C < y(p_h, \mu)$ and condition (A19) corresponds to condition (iv) in the proposition. I now show that all the remaining four conditions in Proposition 9 are satisfied with the additional sufficient condition $p_C \geq y(p_h, \mu)^2$ stated as (iii) in the proposition.

Step 1: Given (A19), one can rewrite $p_C + p_S \leq x(p_h, \mu)$ as

$$p_C + \frac{1 - y(p_h, \mu)}{y(p_h, \mu)} p_C \leq x(p_h, \mu) \tag{A20}$$

Solving for p_C, condition (A20) becomes $p_C \leq x(p_h, \mu) y(p_h, \mu)$. Since $x(.) \leq 1$ and $p_C < y(p_h, \mu)$ by assumption, condition (A20) is always satisfied.

Step 2: Given (A19), we can rewrite $p_C + p_S \geq y(p_h, \mu)$ as

$$p_C + \frac{1 - y(p_h, \mu)}{y(p_h, \mu)} p_C \geq y(p_h, \mu). \tag{A21}$$

Solving for p_C, condition (A21) becomes $p_C \geq (y(p_h, \mu))^2$. Hence, p_C must be bounded from below by $y(p_h, \mu)^2$ which is stated as condition (iii) in the proposition.

Step 3: Given (A19), condition (A14) can be rewritten as $y(p_h, \mu) \leq x(p_h, \mu)$, which is always satisfied for $p_h \in (p_h^*, 1/2)$.

Step 4: Finally, consider (A15). Given (A19), this condition can be rewritten as

$$p_S \leq k - y(p_h, \mu). \tag{A22}$$

But note that by choosing $k > 1 + y(p_h, \mu)$ as stated in condition (v) in the proposition, the right hand side of (A22) can be made strictly greater than one and hence (A22) is satisfied.

Condition (iv) in Proposition 10 is a sufficient, but not a necessary, condition. Along with other sufficient conditions, all that is needed for a separating quid pro quo equilibrium is a sufficiently high p_S/p_C that satisfies (A18). Furthermore, conditions (iii) and (iv) together imply that $p_C + p_S \leq x(p_h, \mu)$. Thus, there must again be sufficient initial public trust that the journalistic profession is honest. ■

A5 A private action choice to endogenize the outlet's payoff

In this Appendix, I endogenize the strategic outlet's payoff in period t described by (1) by introducing a standard private action choice for the citizens. I now assume that, instead of a representative voter, there are a continuum of citizens who vote in the election in each period. If access is granted to the outlet, each citizen chooses whether to pay a cost to follow the outlet, become a reader and observe its report. In this modified model, acquiring costly information on the incumbent's ability is valuable for citizens for two reasons: (i) this information allows citizens to make a more informed voting decision, and (ii) prior to the election it also helps citizens to choose a "correct" private action.[39] The outlet's payoff $V_t(.)$ in period t is now endogenously determined and is given by the mass of citizens who follow the outlet. The details are described below.

Private action. There are a continuum of citizens who vote in the election in each period. Prior to the election in each period $t = 1, 2$, citizen i chooses a private action $a_t^i \in \{L, H\}$ which yields a payoff of $v(a_t^i|\omega_t)$ where $\omega_t \in \{\ell, h\}$ denotes the state of the world. A citizen's "correct" private action depends on ω_t. I assume that $a_t^i = L$ is the "correct" action in state $\omega_t = \ell$ and $a_t^i = H$ is the "correct" action in state $\omega_t = h$. Formally,

$$v(L|\ell) = v(H|h) = 1/2, \quad \text{and} \quad v(L|h) = v(H|\ell) = 0. \tag{A23}$$

I also assume that citizens choose action L whenever they are indifferent.

The state ω_t is correlated with the issue-specific ability of the incumbent in period t again as described by (2). Given the correlation structure in (2), any information that the outlet provides on the incumbent ability $\theta_t^{\kappa_t}$ is also informative about ω_t. Whether a citizen is willing to follow the outlet and receive its report before the private action decision depends on the cost of doing so. In any period, citizen i must pay a cost c_i to follow the outlet where c_i is independently and identically distributed on the unit interval with a uniform distribution. The citizens who follow the outlet observe its report r_t before choosing their private actions. The modified sequance of events after the access decision of the incumbent is as follows. If access is granted ($g_t = 1$), the outlet observes $\theta_t^{\kappa_t}$. The outlet chooses a report $r_t \in \{h, \ell\}$. Simultaneously, each citizen i chooses whether to follow the outlet ($f_t^i = 1$) or not ($f_t^i = 0$). Each citizen i who follows the outlet observes r_t before choosing his private action a_t^i. After the private action choice, ω_t is observed and r_t becomes public information. The citizens vote in the election and determine the incumbent κ_{t+1} for the following period.

A5.1 Optimal private action strategy

A private action strategy for any citizen in period t is a function $\alpha_t : \{A, B\} \times \{0, 1\}^2 \times \{h, \ell\} \to \{H, L\}$ where $\alpha_t(\kappa_t, g_t, f_t^i, r_t)$ is the action each citizen takes after (i) observing whether incumbent κ_t grants access ($g_t = 1$) or not ($g_t = 0$), (ii) making his own media consumption decision f_t^i and (iii) observing the report r_t whenever he follows the media outlet ($f_t^i = 1$).

For all $t = \{1, 2\}$, the citizens' beliefs about the incumbent's type at the time the

[39] See, among others, Strömberg (2004), Gentzkow and Shapiro (2006), Baron (2006), Anderson and McLaren (2012)). A common assumption in this literature is that political news may be of interest to citizens not only due to voting but also because such news influence their private actions, such as personal financing, investment and labor supply decisions.

private action decision must be consistent with the equilibrium strategies:

$$\beta_t^i(g_t, f_t^i, r_t, I_{t-1}) = \begin{cases} p_h & \text{if } \ g_t = 0 \ \text{ or } \ f_t^i = 0,, \\ 0 & \text{if } \ g_t = f_t^i = 1 \ \text{ and } \ r_t = \ell, \\ \dfrac{p_h}{p_h + (1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)} & \text{otherwise,} \end{cases} \tag{A24}$$

where I_0 is null, $I_1 = (g_1, r_1, \omega_1, \kappa_2)$, $\pi_{C2} = \pi_{C2}(g_1, \omega_1, r_1, \kappa_2)$ and $\pi_{S2} = \pi_{S2}(g_1, \omega_1, r_1, \kappa_2)$ as defined in section A1.1.

The optimal private action strategy of the citizens is stated below.

LEMMA 4 *When $p_h \leq \frac{1}{2}$, a citizen chooses action H in period t if and only if the media outlet is granted access, the citizen follows the outlet, the outlet reports that the incumbent has high ability and*

$$\pi_{Ct} + \pi_{St}\rho_t^* < \frac{p_h}{1-p_h}. \tag{A25}$$

When $p_h > \frac{1}{2}$, a citizen chooses action L if and only if the media outlet is granted access, he follows the outlet and the outlet reports that the politician has low ability.

Proof: Using (2), the probability that citizen i attaches to the state $\omega_t = h$ can be written as

$$\Pr(w_t = h|\beta_t) = \mu\beta_t + (1-\mu)(1-\beta_t). \tag{A26}$$

Let $v^e(a;\beta_t)$ denote the expected payoff of citizen i from choosing action $a \in \{H, L\}$ given his belief β_t, i.e.

$$v^e(a;\beta_t) = v(a|h)\Pr(\omega_t = h|\beta_t) + v(a|\ell)(1 - \Pr(\omega_t = h|\beta_t)). \tag{A27}$$

Citizen i's private action strategy maximizes (A27). Using (A23), (A26) and (A27), it is straightforward to see that the optimal action for citizen i is H if and only if $\Pr(\omega_t = h|\beta_t) > \frac{1}{2}$, which holds if and only if

$$\beta_t > \frac{1}{2}. \tag{A28}$$

Suppose $p_h \leq 1/2$. If the media outlet is not granted access in period t or if a citizen does not follow the media outlet in that period, then $\beta_t = p_h$ by (A24) and the citizen chooses action L. If a citizen follows the media outlet and receives $r_t = \ell$, then that citizen chooses action L. This observation follows because by (A24), we have $\beta_t = 0$ when $r_t = \ell$. Since both of these citizens choose action L, any improvement in the private action payoff can only come from a report $r_t = h$ and the resulting switch to action H by the citizen. For such a switch to occur, a citizen must perceive the media outlet's report to be sufficiently informative when the media outlet reports $r_t = h$. From the point of view of this citizen, the informativeness of the media outlet's report is inversely related to the probability that the media outlet misreports low ability. Given the equilibrium reporting strategy ρ_t^* of the strategic type the media outlet, citizen i expects the media outlet to misreport low ability with probability $\pi_{Ct} + \pi_{St}\rho_t^*$. The result then follows from equations (A28) and (A24).

Suppose now $p_h > 1/2$. If the media outlet is not granted access in period t or if a citizen does not follow the media outlet in that period, then $\beta_t = p_h$ by (A24) and the citizen chooses action H. If the media outlet reports $r_t = h$, then we have $\beta_t > 1/2$ regardless of π_{Ct}, π_{St} and ρ_t^*. Therefore, in this case the citizen chooses action L if and only the media outlet is granted access, the citizen follows the media outlet and receives $r_t = \ell$. ■

A5.2 Optimal media consumption strategy

I restrict attention to symmetric media consumption strategies. A media consumption strategy for any citizen in period t is given by $\phi_t : [0,1] \to \{0,1\}$ where $\phi_t(c) = 1$ iff a citizen with private cost c follows the outlet conditional on the outlet being granted access. Before formalizing a citizen's optimal media consumption strategy, let

$$k_0 = \min\{p_h, 1-p_h\}(\mu - \frac{1}{2}) \tag{A29}$$

and

$$k_1 = (1-p_h)(\mu - \frac{1}{2}). \tag{A30}$$

The following lemma charaterizes a citizen's optimal media consumption strategy and derives the outlet's endogenous readership volume

LEMMA 5 *(i) Citizen i follows the media outlet at time t if and only if the outlet is granted access and*

$$c_i \leq k_0 - k_1(\pi_{Ct} + \pi_{St}\rho_t^*). \tag{A31}$$

(ii) The strategic media outlet's readership volume in period t when it follows an equilibrium reporting strategy ρ_t is given by (1) *where k_0 and $k_1 > 0$ described by* (A29) *and* (A30)*, respectively.*

Proof: Clearly if the outlet is not granted access, then there is no gain from following the outlet. Thus, A citizen follows the outlet only if the outlet is granted access. First suppose $p_h \leq \frac{1}{2}$. If citizen i does not follow the outlet in any period t, then by Lemma 4, he chooses action L. By (A23), (A26) and (A27), his expected payoff is then given by

$$v^e(L; p_h) = (\mu(1-p_h) + (1-\mu)p_h)\,\frac{1}{2}. \tag{A32}$$

Suppose now (A31) is satisfied. Given $c_i \geq 0$ and since $k_0(p_h, \mu) = p_h(\mu - 1/2)$ when $p_h \leq 1/2$, this in turn implies that (A25) is satisfied. Hence, by Lemma 4, citizen i chooses action H after receiving $r_t = h$ and chooses action L after receiving $r_t = \ell$. Given beliefs (π_{Ct}, π_{St}) about the outlet's type and the outlet's equilibrium reporting strategy ρ_t^*, we have

$$\Pr(r_t = h) = p_h + (1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*), \tag{A33}$$

and

$$\Pr(r_t = \ell) = (1-p_h)\left(1 - \pi_{Ct} - \pi_{St}\rho_t^*\right). \tag{A34}$$

The ex ante expected payoff from following the outlet is given by

$$\Pr(r_t = h)v^e(H; \beta_t^h) + \Pr(r_t = \ell)v^e(L; \beta_t^\ell) - c_i \tag{A35}$$

where β_t^r is the probability that citizen i assigns to the incumbent having high ability at time t after he follows the media outlet and receives the report $r \in \{h, \ell)$. That is, $\beta_t^r = \beta_t(1, 1, r_t, I_t^0)$ (see (A24)).

Therefore, citizen i follows the media outlet if and only if the outlet is granted access and

$$\Pr(r_t = h)v^e(H; \beta_t^h) + \Pr(r_t = \ell)v^e(L; \beta_t^\ell) - c_i \geq v^e(L; p_h). \tag{A36}$$

Note that

$$\begin{aligned} v^e(H; \beta_t^h) &= \Pr(\omega_t = h|\beta_t^h)(1 - q) \\ &= \left(\frac{p_h\mu + (1 - p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)(1 - \mu)}{p_h + (1 - p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)}\right)\frac{1}{2} \end{aligned} \tag{A37}$$

where the first line follows from (A23) and (A27); and the second line follows from (A24) and (A26). Similarly, we have

$$v^e(L; \beta_t^\ell) = \frac{\mu}{2}. \tag{A38}$$

If (A31) is satisfied, using (A33), (A34), (A37) and (A38), it is straightforward to see that (A36) is satisfied. Conversely, suppose (A31) is violated. If (A25) is satisfied, from the arguments above, (A36) cannot be satisfied, and thus citizen i does not follow the outlet. If (A25) is violated, then citizen i always chooses action L and his ex ante expected payoff from following the outlet is equal to $v^e(L; p_h) - c_i$. This last observation follows, since

$$\Pr(\omega = \ell|\beta_t^h)\Pr(r_t = h) + \Pr(\omega = \ell|\beta_t^\ell)\Pr(r_t = \ell) = \Pr(w_t = \ell|p_h).$$

Consequently, (A36) cannot be satisfied.

Suppose now $p_h > \frac{1}{2}$. If citizen i does not follow the outlet in any period t, then by Lemma 4, he chooses action H. By (A23), (A26) and (A27), his expected payoff in this case is given by

$$v^e(H; p_h) = (\mu p_h + (1 - \mu)(1 - p_h))\frac{1}{2} = 1/2 - v^e(L; p_h). \tag{A39}$$

Lemma 4 also implies that citizen i chooses action H after receiving $r_t = h$ and action L after receiving $r_t = \ell$. By arguments similar to those above, citizen i follows the outlet if and only if the outlet is given access and

$$\Pr(r_t = h)v^e(H; \beta_t^h) + \Pr(r_t = \ell)v^e(L; \beta_t^\ell) - c_i \geq v^e(H; p_h). \tag{A40}$$

It is straightforward to verify that (A40) is satisfied if and only if (A31) is satisfied. ■

The desired result below follows from the assumption that c_i is uniformly distributed on the unit interval.

LEMMA 6 *The strategic media outlet's readership volume in period t when it follows an equilibrium reporting strategy ρ_t is given by* (1) *where k_0 and $k_1 > 0$ described by* (A29) *and* (A30)*, respectively.*

A6 Incumbent popularity

In this Appendix, I show that the voter's maximum tolerance for misreporting is increasing in the popularity of the incumbent.

I first note that if the voter always elects the initial incumbent regardless of ω_t, the access decision is trivial. To avoid this possibility, one needs to ensure that the voter elects the challenger (politician B) if he only observes a negative public signal $\omega_1 = \ell$. Hence, we must have

$$\Pr(\theta_1^A = h|\omega_1 = \ell) = \frac{(1-\mu)p_I}{(1-\mu)p_I + \mu(1-p_I)} < p_h \tag{A41}$$

We can rewrite (A41) as

$$p_I < \frac{\mu p_h}{\mu p_h + (1-\mu)(1-p_h)}. \tag{A42}$$

In what follows, I assume that the restriction (A42) holds, as otherwise the initial incumbent is so popular that he does not need to convince the voter at all.

Let π_{Ct} and π_{St} denote the voter's beliefs about the media outlet at the time of the reporting decision in period t. Given the voter's prior p_I about the initial incumbent, we can write the voter's beliefs about the media outlet at the time of the voting decision in period t, conditional on observing $r_t = h$ and $\omega_t = \ell$, as

$$\begin{aligned}\tilde{\pi}_{Ct} &= \frac{((1-\mu)p_I + \mu(1-p_I))\,\pi_{Ct}}{(1-\mu)p_I + \mu(1-p_I)(\pi_{Ct} + \pi_{St}\rho_t^*)},\\ \tilde{\pi}_{St} &= \frac{((1-\mu)p_I + \mu(1-p_I)\rho_t^*)\,\pi_{St}}{(1-\mu)p_I + \mu(1-p_I)(\pi_{Ct} + \pi_{St}\rho_t^*)}.\end{aligned} \tag{A43}$$

The above expressions are analogous to (A5) and (A6).

Inserting (A43) into (15), I arrive at the public credibility condition in (16) where the voter's maximum tolerance for misreporting is now given by

$$\eta(p_I, p_h, \mu) = \frac{(1-p_h)(1-\mu)^2 p_I}{\mu(1-p_I)[\mu p_h - (\mu p_h + (1-\mu)(1-2p_h))p_I]}. \tag{A44}$$

The restriction in (A42) ensures that $\eta(p_I, p_h, \mu) > 0$. It is easy to verify that, when $p_z = p_h$, the expressions for $\eta(p_I, p_h, \mu)$ in (A44) and $x(p_h, \mu)$ in (6) are identical. The numerator in (A44) is increasing in p_I, whereas both terms in the denominator are decreasing in p_I for $p_h < 1/2$. Hence, the voter's maximum tolerance for misreporting, $\eta(p_I, p_h, \mu)$, is increasing in p_I. ■

A7 Correlation of Politician Ability

I model correlation of ability across two periods by adopting the following specification for the joint probability distribution of ability from Liu and Chen (2016). Let $\theta_t^j \in \{\ell, h\}$ denote ability of politician $j \in \{A, B\}$ specific to the key issue in period

$t = 1, 2$. I assume that

$$\boxed{\begin{array}{l} \Pr(\theta_1^j = h, \theta_2^j = h) = p_h^2 + \sigma p_h(1-p_h), \\ \hline \Pr(\theta_1^j = h, \theta_2^j = \ell) = (1-\sigma)p_h(1-p_h), \\ \hline \Pr(\theta_1^j = \ell, \theta_2^j = h) = (1-\sigma)p_h(1-p_h), \\ \hline \Pr(\theta_1^j = \ell, \theta_2^j = \ell) = (1-p_h)^2 + \sigma p_h(1-p_h), \end{array}} \tag{A45}$$

where $\sigma \in [0, 1]$ captures the (non-negative) correlation of ability. Using the joint distribution of ability in (A45), one can obtain the conditional probabilities in (18).

Proof of Proposition 8: We want to show that when σ is sufficiently high, μ is sufficiently small and $y(p_h, \mu) \leq p_C \leq x(p_h, \mu)$, we have the following equilibrium:

R5 First-period incumbent grants first-period access.

R6 The strategic outlet reports low ability truthfully in the first period.

R7 All second-period incumbents grant second-period access.

When R7 is satisfied, the strategic outlet's only consideration in the first period becomes maximizing the perceived informativeness of its report by the voter. Thus, if R5 is satisfied, the outlet always reports low ability truthfully in the first period. When R6 is satisfied, the first-period public credibility condition becomes $p_C \leq x(p_h, \mu)$, whereas the first-period pandering condition becomes $p_C \geq y(p_h, \mu)$. Therefore, R5 is satisfied when $y(p_h, \mu) \leq p_C \leq x(p_h, \mu)$.

I now establish that R7 is satisfied when R5 and R6 are satisfied. To do so, I assume that

$$\sigma > \bar{\sigma} \equiv \frac{1 - 2p_h}{2 - 2p_h}. \tag{A46}$$

I first consider the second-period access decision of politician Ah, that is, the initial incumbent who observes high first-period ability. I show that when $\sigma > \bar{\sigma}$ this incumbent always grants second period access. I then show that politician $A\ell$, the initial incumbent who observes low ability in the first period, grants second period access as well, as otherwise she loses the second-period election with probability one. The analysis when politician B is the second period incumbent is identical and thus omitted.

Second-period pandering condition for politician Ah: I showed in the text that this condition is always satisfied when $\sigma > \bar{\sigma}$, because

$$\Pr(\theta_2^A = h | \theta_1^A = h) = p_h + \sigma(1 - p_h) > \frac{1}{2} \text{ for } \sigma > \bar{\sigma}.$$

Thus, Proposition 2 applies.

Second-period public credibility condition for politician Ah: Recall that this condition depends on the voter's beliefs. At the time of the first-period election, the voter assigns the probability $\tilde{\beta}_1$ that the initial incumbent has high first-period ability upon observing $r_1 = h$ and $\omega_1 = \ell$. Note that R5 implies that the first-period public credibility condition is satisfied and thus we must have $\tilde{\beta}_1 > p_h$.

Let β_2 denote the probability that the voter assigns to politician A having high second-period ability following $r_1 = h$ and $\omega_1 = \ell$. Using the conditional probabilities in (18), I can write

$$\beta_2 = \tilde{\beta}_1[p_h + \sigma(1 - p_h)] + (1 - \tilde{\beta}_1)p_h(1 - \sigma). \tag{A47}$$

Simplifying (A47), I obtain $\beta_2 = \tilde{\beta}_1\sigma + p_h(1 - \sigma)$ as stated in (19) in the text. Since $\tilde{\beta}_1 > p_h$ and $\sigma \in [0, 1]$, it also follows that

$$\beta_2 > p_h.$$

Recall that the strategic outlet is always truthful if granted second-period access. Following the analysis in Section 3.1 closely, one can write the second-period public credibility condition for politician Ah as

$$\tilde{\pi}_{C2} \leq \frac{1 - p_h}{p_h} \frac{1 - \mu}{\mu} \frac{\beta_2}{1 - \beta_2}, \tag{A48}$$

where $\tilde{\pi}_{C2}$ is the probability the voter assigns to outlet being corrupt after observing $r_2 = h$ and $\omega_2 = \ell$. Since $\beta_2 > p_h$, (A48) is always satisfied when μ is sufficiently small. Therefore, politician Ah always grants second period access.[40]

Politician $A\ell$: Given that politician Ah always grants second-period access, I now show that if politician $A\ell$ denies second-period access, she loses the second-period election with probability one, since the voter elects the challenger even when he observes $\omega_2 = h$.

Suppose politician $A\ell$ denies second-period access and reveals herself to the voter to be politician $A\ell$. By (18), the voter assigns a probability $p_h(1 - \sigma)$ that politician $A\ell$ has high second-period ability. Let $\tilde{\beta}_2$ denote the posterior probability that the voter assigns to politician $A\ell$ having high second-period ability after (i) politician $A\ell$ denies access and (ii) the voter observes $\omega_2 = h$. The voter elects the challenger in this case if

$$\tilde{\beta}_2 = \frac{\mu p_h(1 - \sigma)}{\mu p_h(1 - \sigma) + (1 - \mu)(1 - p_h(1 - \sigma))} < p_h. \tag{A49}$$

Simplifying (A49), observe that politician $A\ell$ loses the second-period election with probability one if she denies second-period access if

$$\sigma > \hat{\sigma} = \frac{(2\mu - 1)(1 - p_h)}{\mu + p_h - 2\mu p_h}. \tag{A50}$$

Therefore, R7 is satisfied when $\sigma > Max\{\bar{\sigma}, \hat{\sigma}\}$. ■

A8 Forward Looking Politicians

Suppose politician A is forward looking, and therefore maximizes her dynamic payoff given by (20), and the conditions of Proposition 5 hold.

[40] It is also useful to note that when $\sigma = 0$, we have $\beta_2 = p_h$ and hence (A48) becomes analogous to (4) in the main text.

On the equilibrium path, if A wins the first election after granting access, she grants further access in the second period. If A loses the first election after granting access, then the outlet's type is revealed as honest, and B denies second-period access. In contrast, if A loses the first election after denying access, then no information about the media outlet type is revealed, and the new incumbent B grants second-period access. If B denies access, she loses the second election if $\omega_1 = \ell$. If B grants access, she loses the second election if her ability turns out to be ℓ and the media outlet is either strategic or honest.

Suppose A grants first-period access. Let p_1 denote the probability that A wins the first period election, p_{2W} denote the joint probability that A wins both the first and the second period election (which is the second term in (20)), and p_{2L} denote the joint probability that A loses the first but wins the second-period election (which is the third term in (20)). Then

$$\begin{aligned} p_1 &= p_h + (1 - p_h)(p_C + p_S), \\ p_{2W} &= p_h(p_h + (1 - p_h)p_C) + (1 - p_h)(p_C + p_S)(p_h + (1 - p_h)\frac{p_C}{p_C + p_S}), \\ p_{2L} &= (1 - p_h)(1 - p_C - p_S)\,\Pr(\omega_2 = \ell). \end{aligned}$$

Suppose now A denies first-period access. Let p_1' denote the probability that A wins the first election, p_{2W}' denote the joint probability that A wins both the first and the second period election, and p_{2L}' denote the joint probability that A loses the first but wins the second-period election. Then

$$\begin{aligned} p_1' &= \Pr(\omega_1 = h), \\ p_{2W}' &= \Pr(\omega_1 = h)(p_h + (1 - p_h)p_C), \\ p_{2L}' &= \Pr(\omega_1 = \ell)(1 - p_h)(1 - p_C). \end{aligned}$$

Recall that $\Pr(\omega_t = h) = \mu p_h + (1 - \mu)(1 - p_h)$. Thus, using the definition of $y(p_h, \mu)$ in (9), we have $\Pr(\omega_1 = h) = (1 - p_h)y(p_h, \mu) + p_h$. Given $p_C \geq y(p_h, \mu)$, it is straightforward to show that $p_1 + p_{2L} > p_1' + p_{2L}'$ and $p_{2W} > p_{2W}'$. Thus, under the conditions of Proposition 5, the dynamic payoff of A is strictly higher when she grants access. ■