Information Gatekeeping, Access Control and Media Bias

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Abstract

This paper develops a multi-period electoral competition model to analyze how an incumbent politician's control of access to information sources affects a journalist's reporting strategy. In each period, an incumbent politician decides whether to grant access to a journalist with unknown integrity. If access is granted, the journalist can produce news that can affect the election outcome. The readership volume that the journalist can attract is driven her reporting strategy and by the public's beliefs about her type. Truthful reporting of bad news results in larger readership in a given current period, but can also cause loss of future access to the incumbent. We show that under certain conditions, there exists a *double reputation equilibrium* in which the journalist builds a sufficiently corrupt private reputation with the incumbent and a separate sufficiently honest public reputation in the eyes of the public to balance this trade-off. This equilibrium arises when (i) politicians are more likely to have low valence, (ii) there is sufficient initial public trust in the integrity of journalistic profession, (iii) there is also sufficient initial skepticism that journalistic profession is corrupt and, (iv) public can learn little from sources outside the news media.

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- *Studies of media that see the process of news production beginning in the newsroom rather than in the halls of power are too media-centric.* (Schlesinger (1990)).

- *Acting as gatekeepers, the journalists are in control of the visibility and the tone of news stories, whereas the politicians are in control of access to information*. (Cook (1998)).

1 Introduction

News are not made in a vacuum. According to most media sociologists, the center of news generation is the link between the reporter and the official, the interaction of the representatives of news bureaucracies and government bureaucracies. Shudson and Waisbord (2005) argue that one of the consistent findings in the sociology of the media is that in many media systems, including liberal Western democracies, government officials exercise considerable power in newsmaking. Whether at the national or local level, daily journalism is about the interaction between reporters and government officials. Most news comes to the news media through ordinary, scheduled government initiated events like press releases, press conferences and background briefings for the press. For a journalist covering politics, access to the what Schlesinger (1990) refers to as ″halls of power″ is crucial to produce news.

In many countries with serious deficiencies in the democratic process, there is strict control of access to information. Though there can be little dispute that press faces much less obstacles in Western democracies to perform its duties, casual observation suggests that governments and politicians are far from passive in managing the flow of information to journalists. While cultivating their media relationship strategies, politicians in democratic countries do take steps to encourage positive news coverage by the press. The primary tool that politicians use to influence media coverage is the control of privileged access to information. In his account of the media relationship strategies of The New Labour under Tony Blair, British political historian Bill Jones (1992) argues that ″The New Labour's instruments for achieving media influence were the systematic coordination of communication activities and development of relations with the news media to allow for positive (privileged access to information) and negative (curtailing of access) sanctions to encourage positive coverage.″ US Presidential historian David Greenberg (2016) details how Richard Nixon's staff obsessively compiled lists of journalists, divvied up into the friendly and the unfriendly ones and restricted and in most cases completely denied access to those deemed unfriendly from press conferences, interviews, historic trips and White House dinners. More recently, Donald Trump's presidential campaign revoked the press credentials of Washington Post that it branded as phony and dishonest.

These examples suggests that journalists who cover political news face a somewhat overlooked and little emphasized trade-off. A political journalist's chances of coming up with top news stories heavily rely on securing and maintaining access to those politicians in power. At the same time, a journalist also needs to preserve a reputation of journalistic integrity in the eyes of the public so that his news stories are perceived as credible. In an environment in which politicians use their power to deny or curtail access to those journalists who they deem as critical or outright hostile, a journalist's reporting needs to balance the preferences of two distinct audiences, namely the politicians and the public. Should the journalist care about her[1] public reputation and report critically about a politician even at the risk of losing his privileged access or should she care about retaining his special access at the risk of possibly hurting his public reputation of journalistic integrity?

This paper develops a formal model that analyzes how the interaction between a journalist and an incumbent politician shapes news coverage and influences electoral outcomes in a multi-period electoral competition model. The three key features of the model are as follows. First, the incumbent politician controls the access of the journalist to relevant information. Second, while the journalist freely chooses her reporting strategy, she understands that the reporting choice affects the public's and politician's beliefs about his integrity. Hence, the reporting choice affects the future access decision of the politician and the readership/media consumption choices of the public through endogenous beliefs. Third, news consumption is voluntary, that is, the public follows the reporting of the journalist only to the extent that they perceive news to be informative.

More specifically, in each period, prior to elections, an incumbent politician decides whether to grant privileged access to a journalist with unknown integrity who can be one of three types, honest, corrupt or strategic. If access is granted, further information about the incumbent's valence is revealed to the journalist who then decides whether to report truthfully or misreport. The readership volume that the journalist can attract is endogenous and it is driven by the journalist's reporting strategy and the public's beliefs about her type. Truthful reporting results in larger readership in a given current period, but can also cause lost readership in the future due to potential loss of privileged access to the incumbent politician.

[1]We use female pronoun when referring to the journalist and the male pronoun when referring to the politicians and citizens.

In this environment, we define a *double reputation equilibrium* as an equilibrium in which the journalist builds a sufficiently corrupt private reputation with the incumbent politician to secure and maintain privileged access and a separate sufficiently honest public reputation in the eyes of the citizens to maintain readership. In such an equilibrium, the strategic type journalist misreports bad news in the first period and gets the incumbent elected after learning that the incumbent has low valence on the key issue of that period. Since the public does not directly observe the incumbent politician's valence but only observe a noisy indicator of it, the public still assigns a higher probability of facing an honest journalist, whereas the incumbent is certain that the journalist is either corrupt type or a strategic one that is misreporting to secure access.

We establish conditions under which a double reputation exists. Before describing these conditions, it is useful to discuss the key mechanism that yields a double reputation equilibrium. In any given period, an incumbent politician grants special access to the journalist only if doing so yields an election victory in that period with a higher probability compared to the case when no access is granted. But granting access yields an election victory with a higher probability only when the citizens vote for the incumbent after receiving positive news despite themselves observing a state that indicates incumbent having low valence is more likely. In other words, the journalist secures access only if the public assigns a sufficiently high probability that the journalist is honest so that they rely on the journalist's report when voting. On the other hand, since the incumbent wins the election only with positive news coverage and positive news coverage is more likely with a corrupt type journalist, the incumbent grants access to the journalist only if he privately perceives the journalist to be sufficiently corrupt. As a result, access can be secured in any given period if and only if the journalist is perceived as sufficiently honest by the public and sufficiently corrupt by the incumbent politician.

The double reputation equilibrium in which the journalist manages two distinct reputations occurs when (i) there is enough initial trust in the journalistic profession, so that news reporting is perceived by the public as sufficiently informative despite the misrepresentation of bad news by strategic and corrupt journalists, (ii) there is also enough initial skepticism that journalism is tainted by corruption so that the strategic journalist can build a sufficiently corrupt private reputation in the eyes of the incumbent politician by misrepresenting bad news, (iii) politicians are more likely to have low valence and (iv) what the public can learn about politics from sources other than those media sources with privileged access is sufficiently little.

The rest of the paper is organized as follows. In the rest of this section, we discuss the related literature. In section 2, we describe our model. We formally define and derive the optimality conditions of the equilibrium strategies in section 3. As we show, the second period decision of the incumbent in the second period plays a crucial role in our model. In section 4, we establish equilibrium properties of this decision. In section 5, we define and characterize double reputation equilibrium. We also establish necessary and sufficient conditions for its existence. In section 6, we conclude. All proofs not appearing in the main text are presented in section 7. This section also contains formal definitions of beliefs and conditions for their consistency.

Related Literature: There is a growing literature that describes how media sources deliberately deviate from truthful reporting in order to affect electoral outcomes.[2] In a recent survey of this literature, Prat (2015) distinguishes between *media capture* and *media power*. He refers to media capture when the government has an active role in suppressing unfavorable information by using threats and promises to media organizations. In the case of media power, the government has a passive role, while politically-driven media organizations use reporting strategically to manipulate electoral outcomes. Prat (2015) also argues that media capture and media power are two stylized extremes, and in reality "*the interaction between government and news takes the form of a complex, mutually beneficial agreement between politicians and the media*". Our model is an attempt to formalize this complex and mutually beneficial interaction between incumbent politicians and career-driven strategic journalists.

Politically oriented media outlets are a common feature in theories of media power. In these papers, media firms with a political agenda distort news or cover issues selectively to achieve desired political outcomes. In Anderson and McLaren (2012), media firms have preferences over consumer actions and can strategically withhold information. They show that concern about information withholding provides a rationale for merger restrictions in media industries. Duggan and Martinelli (2010) show that pro-incumbent media should cover issues where there is less uncertainty, while a media outlet favoring the challenger should cover issues where there is more uncertainty to gamble for resurrection. Chan and Suen (2008) consider the effects of competition when media firms can only report a coarse version of the signal they receive, and their editorial policy can affect both voting behavior of citizens and party policies.

A politician's desire to strategically control the way news are produced relates this

[2]Gentzkow, Shapiro and Stone (2015) offer a unifying framework on the origins of media bias and distinguish between supply and demand driven theories. Prat (2015) presents a recent survey of the theoretical literature on the government's influence on media. Prat and Stromberg (2013) provide a general survey on the political economy of mass media, also including a discussion of empirical work.

paper to the media capture theory of Besley and Prat (2006). They show that the media firms can be captured by the government when media plurality, commercial motives and government's transaction costs to bribe media outlets are sufficiently low. In other related work, Corneo (2006) considers a model where the media can collude with different interest groups. Petrova (2008) investigates the link between economic inequality and media capture. Gehlbach and Sonin (2014) study a model in which the government controls media bias to mobilize the citizens for a collective goal. They show that a large private advertising market may reduce bias, but at the same time can induce the government to nationalize the media completely. In Ellman and Germano (2009), it is the fear of losing advertising clients that induces a media firm to self-censure. They show that a media firm can strategically underreport news that can hurt an advertising client's profits.

There is also a literature in which media slant is demand-driven, that is, it emerges as a response of profit maximizing media firms to the news preferences of the consumers. In Mullainathan and Shleifer (2005), profit maximizing media firms slant their news coverage taking into account the public's preferences to read stories that confirm their biases. Gentzkow and Shapiro (2006) formally demonstrate that a rational consumer who is uncertain about an information source's accuracy may tend to judge it to be higher quality when its reports match the consumer's priors. Bernhardt, Krasa and Polborn al. (2008) analyze a model of electoral competition in which media consumers are rational information seekers, but partisan voters also derive utility from reading negative news about the opposing party. Piolatto and Schuett (2015) analyze the effect of media competition on political participation when partisans receive utility from news favorable to their preferred candidate. Different than these papers, in our framework all citizens are pure information seekers and value news completely due to its information content.

Our paper is also related to very recent literature that describe models in which an agent takes actions to affect her reputation with two audiences with diverse preferences (see, for example, Bar-Isaac and Deb (2014) in the context of, Frenkel (2015) in the context of financial certification markets, Shapiro and Skeie (2015) in the context of bank regulation. We differ from these papers by focusing on media industry.

2 Model

There are two periods, $t = 1, 2$ and two politicians denoted by A and B. During the first period, politician A is the incumbent and faces competition from B to retain power. The winner of the election in the first period becomes the party in power in the second period. The citizens only care whether the elected politician can successfully execute policy which is captured by his valence. The valence variable is perfectly observed by a journalist whenever she has access to information through interviews, press briefings, etc. although the journalist may choose to misreport negative information. The citizens prefer to follow informative news but do not know whether the journalist misreports bad news in order to gain future access to information. The incentives for doing so depends on the type of the journalist. Neither the politicians nor the citizens observe the type of the journalist. In each period, after observing whether the party in power granted access to the journalist, the citizens decide whether to follow the journalist or not, and then decide how to cast their votes.

Politicians. Politicians are purely office motivated: the payoff of each politician in period t is given by his probability of winning the election in period t.

At the beginning of the first period, party A is in power, and at the end of each period, an election is held. The winner of the election in period t becomes the party in power at the beginning of period $t + 1$. Thus, letting κ_t denote the party in power in period t, we have $\kappa_1 = A$, and κ_2 is the winner of the election in period 1.

Before each election, a particular political issue (e.g. health care, immigration, the economy) exogenously becomes the key issue for that election. The valence of candidate $j \in \{A, B\}$ is specific to key issue for the elections in period t and it is given by θ_t^j which is initially unknown to all players including the candidates. We assume that $\theta_t^j \in \{\ell, h\}$ where $0 < \ell < h$ for all $j \in \{A, B\}$ and $t \in \{1, 2\}$. The prior probability that $j \in \{A, B\}$ has high valence is denoted by $p_h \in (0, 1)$.

The journalist. We assume that, in any period t, more information on $\theta_t^{\kappa_t}$ can be provided by a journalist if she is granted special access to κ_t. This access can be thought of as series of exclusive and private interviews conducted by the journalist with κ_t. During those interviews both the journalist and κ_t perfectly observe the incumbent's true valence $\theta_t^{\kappa_t}$ for that period. Below we describe this interaction in more detail.

At the beginning period t, the incumbent κ_t decides whether to grant special access to the independent journalist. Let g_t denote the dummy variable that takes the value 1 if access is given to the journalist at time t, and 0 otherwise. If access is denied in a given period, no additional information on $\theta_t^{\kappa_t}$ can be revealed to the public. If the incumbent

κ_t grants access to the journalist in period t, then the journalist and the incumbent jointly observe the incumbent's valence $\theta_t^{\kappa_t}$ for that period, and the journalist decides what to report. We assume that the journalist always truthfully reveals high valence $\theta_t^{\kappa_t} = h$ in any given period t. However, depending on her type, denoted by θ^J, the journalist can choose whether to reveal or misreport low valence $\theta_t^{\kappa_t} = \ell$. Specifically, we assume that the journalist can have one of three types: $\theta^J \in \{C, H, S\}$. The corrupt type (C) always seeks to appease to the incumbent politician and misreports any bad news, the honest type (H) always reveals the bad news to the public, and the strategic type (S) chooses her reporting strategy to maximize her total dynamic payoff which we formalize in section 3.3 after introducing the necessary notation.

We let p_C (respectively p_S) denote the common prior probability the citizens and the first period incumbent attach to the journalist being corrupt (respectively strategic), and at the beginning of the first period. Ex ante, all three types have a positive probability, that is, $p_C > 0$, $p_S > 0$ and $p_C + p_S < 1$.

If the journalist is not granted access in period t, then her period t payoff is exogenously given which we normalize to zero. Otherwise, her payoff in period t is given by her viewership volume in period t denoted by V_t. In equilibrium, V_t depends on the (endogenous) measure of the citizens who follow the journalist. We describe this next.

Citizens. There exists a continuum of citizens identified by their cost of following the media as explained below. Our main focus in this paper is how an incumbent politician can control the revelation of information on his valence to citizens through the media. A standard question that arises in the literature is why citizens demand news about politics in the first place. Since the probability that any citizen is pivotal in the election is zero,[3] becoming a more informed citizen yields a negligible payoff in the form of improved electoral outcomes. As a result, the voting motive is not sufficient for citizens to acquire information through the media when following the media is costly.

Political news may be of interest to citizens also because such news influence their private actions, such as personal financing and investment decisions, labor supply or even what claims to make during a cocktail party. Many papers in the literature appeal to this private action motive for acquiring costly political news.[4] Following this literature, we assume that the citizens value information on the valence of the politician not only because it affects their voting decision, but also because this information has instrumental value for a private decision they must make.

[3]With finite but large number of citizens, this probability is arbitrarily small.

[4]See, among others, Strömberg (2004), Gentzkow and Shapiro (2006), Baron (2006), Anderson and McLaren (2012).

As a shorthand for these private incentives, we assume that in each period t, 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 the state ω_t. If the citizen had access to more information on the state, then this better information would reduce the ex ante probability of taking the "wrong" private action, and hence it would improve the ex ante expected payoff of the citizen. Formally, we assume that $a_t^i = L$ is the "correct" action in state $\omega_t = \ell$ and $a_t^i = H$ is the "correct" one in state $\omega_t = h$. Formally,

$$v(L|\ell) = q, \quad v(H|h) = 1 - q, \quad v(L|h) = v(H|\ell) = 0, \tag{1}$$

where $q \in (0, 1)$. We also assume that citizens choose action L whenever they are indifferent.

We assume that the state at time t depends on the valence of the incumbent at time t. Specifically, we assume

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

that is, state $\omega_t = \ell$ is more likely if $\theta_t^{\kappa_t} = \ell$ and state $\omega_t = h$ is more likely if $\theta_t^{\kappa_t} = \ell$. The parameter μ captures the precision of the state ω_t as a signal for inferring $\theta_t^{\kappa_t}$. As μ approaches to $\frac{1}{2}$, observing ω_t is completely uninformative about $\theta_t^{\kappa_t}$, whereas as μ approaches to 1 observing ω_t reveals $\theta_t^{\kappa_t}$ perfectly.

Given the correlation structure between the state ω_t and the incumbent's valence $\theta_t^{\kappa_t}$, any information on the incumbent valence that the journalist can provide is also informative about the state. Therefore, the citizens can potentially benefit from following the journalist to improve their expected payoff from their private action. Whether they are willing to do so depends on the cost of following the journalist and the consequent expected gain from their private action. Citizen i's cost of following the journalist in any period is given by where c_i's are independently and identically distributed on the unit interval with a uniform distribution. Before making media consumption decision, citizens observe whether the journalist is given access or not. If the journalist is not given access, then she does not have any information about the type of incumbent, and therefore there cannot be any gain from following the journalist. As such, citizens follow the journalist only if she is given access and the benefits of following the journalist exceeds its cost. We assume that all reporting becomes public information before the elections takes place.

As mentioned earlier, at the end of each period t, an election is held between A and B. In period t, if candidate $j \in \{A, B\}$ with valence θ_t^j wins the election, then citizen i

receives a payoff

$$u_{i,t}(\theta_t^j) = \theta_t^j. \tag{3}$$

Thus all citizens equally benefit from valence.[5] We assume that citizens vote sincerely to maximize their expected payoffs conditional on their information at the time of the voting. We also assume that the citizens vote for the incumbent if they are indifferent between the incumbent and the challenger but this is a measure zero event. If a majority of the citizens vote for A, then the A wins the election, i.e. $\kappa_{t+1} = A$, otherwise, B wins the election, i.e. $\kappa_{t+1} = B$.

To summarize, the timing of the events is as follows. First, the journalist type $\theta^J \in \{C, H, S\}$ is realized and is observed only by the journalist. Next, at the beginning of each period t, the incumbent κ_t decides whether to grant access ($g_t = 1$) to the journalist or not ($g_t = 0$) after which the incumbent type $\theta_t^{\kappa_t} \in \{H, L\}$ is realized. If access is not granted ($g_t = 0$), then each citizen i chooses her private action $a_t^i \in \{H, L\}$, observes the state of the world $\omega_t \in \{h, \ell\}$, and makes her voting decision by voting for A or B. If access is granted ($g_t = 1$), then the journalist observes the incumbent type $\theta_t^{\kappa_t}$, and chooses a report $r_t \in \{h, \ell\}$.[6] Each citizen i chooses whether the follow the journalist ($f_t^i = 1$) or not ($f_t^i = 0$) based on rational expectations about the reporting strategy of the journalist. Citizens who follow the journalist observe r_t before making their private action decision a_t^i. The state ω^t is revealed after the private action decisions and r_t becomes public information. Finally citizens make their voting decisions which determine the incumbent κ_{t+1} for the following period.

Equilibrium.

An equilibrium consists of a profile of strategies and a system of beliefs such that the strategies are optimal for each player given her equilibrium beliefs and given the equilibrium strategies of the other players, and the beliefs are consistent with the equilibrium strategies. The profile of strategies consists of

(i) private action strategy for the citizens in each period denoted by $\alpha_t^*(.)$,

(ii) media consumption strategy for the citizens in each period denoted by $\phi_t^*(.)$,

(iii) voting strategy for the citizens in each period denoted by $\nu_t^*(.)$,

[5] We could have assumed citizens have preferences over policy as well, and let the politicians chose policy platforms. While more realistic, such an assumption does not add any new insight and does not affect the main result.

[6] Recall that all types of the journalist report $r_t = h$ when $\theta_t^{\kappa_t} = h$, the honest type always reports truthfully and corrupt type always reports $r_t = h$. Therefore, the only strategic reporting choice made here is by the strategic type when $\theta_t^{\kappa_t} = \ell$.

(iv) reporting strategy of the journalist in each period denoted by ρ_t^*,[7]

(v) media access strategy of politician A for in the first period denoted by γ_1^{A*} and media access strategy for each politician $i \in \{Ah, A\ell, B\}$ in the second period denoted by $\gamma_2^{i*}(.)$, where Ah refers to politician A who has observed $\theta_1^A = h$ and $A\ell$ refers politician A who has observed $\theta_1^A = \ell$,

and the system of beliefs consist of

(i) the beliefs of the citizens about the journalist at the time of media consumption decision in each period t conditional on the journalist being granted access in that period denoted by $(\pi_{Ct}(.), \pi_{St}(.))$,

(ii) the beliefs of the citizens about the incumbent at the time of private action decision in each period t denoted by $\beta_t(.)$,

(iii) the beliefs of the citizens about the incumbent at the time of voting decision in each period t denoted by $\tilde{\beta}_t(.)$,

(iv) the beliefs of the citizens about the journalist at the time of voting decision in each period t denoted by $(\tilde{\pi}_{Ct}(.), \tilde{\pi}_{St}(.))$,

(v) beliefs of the politician A at the time of the media access decision in the second period denoted by $(q_C^A(), q_S^A(.))$.

We formally define and derive the optimality conditions of the strategies of the citizens, the politicians and the journalist in sections 3.1, 3.2 and 3.3 respectively restricting attention to pure strategy equilibria. We characterize the conditions for the consistency of the system of beliefs in section 7.1 of the Appendix. The beliefs depend on the history observed by the player holding the beliefs up to the relevant point in time. When we refer to the beliefs in the rest of the main text, we suppress the arguments of the beliefs for ease of exposition unless they are not clear from the context or explicitly need to be highlighted.

[7] Technically the second period strategy of the journalist is a function that depends on the first period history. Our analysis in section 3.3 will show that it is a constant function. Omitting the arguments of ρ_2^* allows us the ease exposition in deriving the consistency condition of the beliefs by unifying notation across the two periods.

3 Equilibrium Strategies

3.1 Citizens' Strategies

In this section, we characterize the optimal strategies for the citizens. For ease of exposition, we restrict attention to equilibria in which the second period strategies of the voters depend on the first period history only through beliefs. Since the payoff relevant variables are independent across periods, this assumption is satisfied in any equilibrium.

As a side product of our characterization results, we show that the demand for news is in any period is increasing in the endogenous probability of truthful news.

Private Action Decision

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 in period t after observing whether incumbent κ_t grants access ($g_t = 1$) or not ($g_t = 0$), making his own media consumption decision f_t^i and observing the report r_t whenever $f_t^i = 1$.

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

$$\Pr(w_t = h|\beta_t) = \mu\beta_t + (1-\mu)(1-\beta_t). \tag{4}$$

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.

$$v^e(a;\beta_t) = v(a|h)\Pr(\omega_t = h|\beta_t) + v(a|\ell)(1 - \Pr(\omega_t = h|\beta_t)). \tag{5}$$

Citizen i's private action strategy maximizes his expected payoff from the private action given his beliefs β_t. Using (1), (4) and (5), it is straightforward to see that the optimal action for citizen i is H if and only if $\Pr(\omega_t = h|\beta_t) > q$, which in turn holds if and only if

$$\beta_t > \frac{q - (1-\mu)}{2\mu - 1}. \tag{6}$$

If the journalist is not granted access in period t or if a citizen does not follow the journalist in that period, then by (A7) $\beta_t = p_h$. In what follows, we assume that citizen i chooses action L without additional information from the media.

Assumption 1 $p_h \leq \frac{q-(1-\mu)}{2\mu-1}$.

Recall that $\mu > \frac{1}{2}$ and $p_h > 0$. Thus Assumption 1 implies that $q \geq 1 - \mu$. This in turn implies that if a citizen follows the journalist and receives the news that the politician has low valence, then that citizen chooses action L. This follows because by (A7), we have $\beta_t = 0$ when $r_t = \ell$. Intuitively such a citizen is more pessimistic than a citizen who does not follow the news at all. Given that both of these citizens choose action L, any improvement in the payoff from private action can only come from the news that the politician has high valence and the resulting switch to action H. For such a switch to occur, a citizen must perceive the journalist's report to be sufficiently informative when the journalist reports that the politician has high valence. In the eyes of this citizen, the informativeness of the journalist's report is inversely related to the probability that the journalist suppresses negative news.

Given the equilibrium reporting strategy ρ_t^* of the strategic journalist, the probability that citizen i expects that the journalist will suppress the negative news with probability $\pi_{Ct} + \pi_{St}\rho_t^*$.

The following lemma summarizes the above observations. Its proof follows immediately from equations (6) and (A7).

LEMMA 1 *A citizen chooses action H if and only if he follows the journalist, the journalist reports that the politician has high valence and*

$$\pi_{Ct} + \pi_{St}\rho_t^* < \frac{p_h}{1-p_h}\frac{\mu - q}{\mu - (1-q)}. \tag{7}$$

By Lemma 1, for action H to be chosen at some history, we need to have $\mu > q$. In what follows we maintain this assumption.

Assumption 2 $\mu > q$.

We next characterize the media consumption strategy of the citizens and show that the demand for news is in any period is increasing in the endogenous probability of truthful news.

Media Consumption Decision

We restrict attention to a symmetric media consumption strategy. A media consumption strategy for any citizen in period t is given by $\phi_t : [0,1] \to \{0,1\}$ where, conditional on the journalist being given access, $\phi_t(c)$ takes the value 1 when a citizen with private cost c follows the news reported by the journalist in period t, and $\phi_t(c)$ takes the value 0 otherwise.

Since following the journalist is costly, a citizen would pay the cost and follow the journalist only when he believes that a report $r_t = h$ is sufficiently informative to make the citizen change his private action to H and the resulting gain expected payoff exceeds the cost of following the news. Before formalizing this result, let $k_0 = \mu - q$ and $k_1 = (1-p_h)(\mu - (1-q))$. Note that these are both positive constants.

LEMMA 2 *Citizen i follows the journalist at time t if and only if the journalist is given access and*

$$c_i \leq k_0 - k_1(\pi_{Ct} + \pi_{St}\rho_t^*). \tag{8}$$

The following results are immediate implications of Lemma 2.

COROLLARY 1 *The demand for news in any period is decreasing in public's belief that the journalist is corrupt.*

COROLLARY 2 *When the strategic journalist suppresses low valence with positive probability in a given period, the demand for news in that period is decreasing in public's belief that the journalist is strategic.*

Lemma 2 allows us to express the viewership volume in any period as a function of the reporting strategy of the journalist. This in turn allows us to characterize the reporting strategy of the journalist. We do this in section 3.3.

Voting Decision

A voting strategy for any citizen 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 a citizen votes for the incumbent in period t when the incumbent is κ_t whose access decision is g_t, the journalist reports r_t if given access, and the citizens observe the state ω_t, and $\nu_t(\kappa_t, g_t, r_t, \omega_t) = 0$ if he votes for the challenger.

Optimality of the voting strategy requires that for all $t = 1, 2$,

$$\nu_t^*(\kappa_t, g_t, r_t, \omega_t) = \begin{cases} 1 & \text{if } \tilde{\beta}_t \geq p_h, \\ 0 & \text{otherwise.} \end{cases} \tag{9}$$

Given the optimal strategy in (9), the incumbent wins the election in period t if and only if $\tilde{\beta}_t > p_h$. In words, the citizens vote for the incumbent if and only if the probability $\tilde{\beta}_t$ that they attach to the incumbent having high valence at the time of the election is at least as high as the probability p_h that they attach to the challenger having high valence. It can be easily verified from (A8) that $\tilde{\beta}_t > p_h$ when $g_t = 0$ and $\omega_t = h$, and $\tilde{\beta}_t < p_h$ when $g_t = 0$ and $\omega_t = \ell$. This establishes the following result.

LEMMA 3 *If the incumbent does not grant access to the journalist in period t, then he wins the election in that period with probability* $\Pr(\omega_t = h)$.

Now consider the voting outcome when the incumbent grants access to the journalist. Clearly, if the journalist reports $r_t = \ell$, then the challenger is elected. Likewise, it is straightforward to see that when the journalist reports $r_t = h$ and the citizens observe

$\omega_t = h$, then they vote for the incumbent. Less straightforward is the case when the journalist is granted access and reports $r_t = h$, but the citizens observe $\omega_t = \ell$. Do the citizens ignore their negative signal and vote for the incumbent relying on the journalist's positive news, or do they vote for the challenger relying on their signal? The answer depends on the probability that the citizens assign to the journalist suppressing negative news. In particular, if the citizens believe that there is a high enough probability that the journalist reports positive news despite having observed low valence, then they ignore the news and vote according to their signal.

To establish this observation, note that from optimality of the voting strategy as characterized in (9) and the consistency of the belief $\tilde{\beta}_t$ formalized in ((A8), a necessary condition for the citizens to vote for the incumbent when $r_t = h$ and $\omega_t = \ell$ is

$$\tilde{\beta}_t = \frac{(1-\mu)p_h}{(1-\mu)p_h + \mu(1-p_h)(\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*)} \geq p_h. \tag{10}$$

Here, the terms $\tilde{\pi}_{Ct}$ and $\tilde{\pi}_{St}$ denote the probabilities that the citizens assign to the journalist being corrupt and strategic respectively, given the history at the time of the period t election after having observed $r_t = h$ and $\omega_t = \ell$. The condition in (10) can be rewritten as

$$\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^* \leq \frac{1-\mu}{\mu}. \tag{11}$$

The expression $\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*$ on the left hand side of (11) captures the probability that the citizens attach at the time of their voting decision to the event that the journalist has suppressed negative news. When this probability is sufficiently low, the citizens believe that news reporting is sufficiently informative on the incumbent valence. In this case, they vote for the incumbent after a positive news report despite having themselves observed a negative signal. We report this observation in the following lemma.

LEMMA 4 *When* (11) *holds, that is, when the news is sufficiently informative, the citizens base their voting decision entirely on the news.*

3.2 Politicians' Strategies

A media access control strategy for politician A in period 1 is given by $\gamma_1^A \in \{0,1\}$ where $\gamma_1^A = 0$ if politician A denies access to the journalist and $\gamma_1^A = 1$ if politician A grants access to the journalist in the first period.

A media access control strategy in the second period depends on the history. For politician A, the information about the history includes his first period valence θ_1^A. To unify the functional form of the strategies in the second period across politicians, it is useful to treat different types of politician A as different players. Therefore, we need to characterize a media access control strategy in period 2 for each politician $i \in \{Ah, A\ell, B\}$ where Ah refers to politician A who has observed $\theta_1^A = h$ and $A\ell$ refers to politician A who has observed $\theta_1^A = \ell$. For each of these players, the second period media access control decision depends on whether the access was granted in the first period or not, the report of the journalist if access was granted, and the realization of ω_1. Since the journalist's report is observed only when $g = 1$, it is useful to represent the second period media access strategy by two functions.

To summarize, a media access control strategy for politician $i \in \{Ah, A\ell, B\}$ in the second period is given by two functions $\tilde{\gamma}_2^i : \{h, \ell\} \to \{0, 1\}$ and $\gamma_2^i : \{r, h\} \times \{h, \ell\} \to \{0, 1\}$. If first period access is denied, i.e. if $g_1 = 0$, then conditional on being in power, the media access decision for politician $i \in \{Ah, A\ell, B\}$ in the second period is given by $\tilde{\gamma}_2^i(\omega_1)$ after the realization of ω_1. If first period access is granted, i.e. if $g_1 = 1$, then conditional on being in power, the media access decision for politician $i \in \{Ah, A\ell, B\}$ in the second period is given by $\gamma_2^i(r_1, \omega_1)$ after a report of r_1 and the realization of ω_1. Both of these functions take the value 0 when access is denied, and take the value 1 when access is granted.

Optimal media access control strategy in period t maximizes the probability that the incumbent κ_t wins the election in period t. Given the optimal voting strategy of the citizens, κ_t wins the election in period t with probability $\Pr(\tilde{\beta}_t(g_t, h, \omega_t, I_{t-1}) \geq p_h)$. This probability is computed using the information the incumbent κ_t has at the beginning of period t given his beliefs about the journalist types, his own types and taking into account the optimal reporting strategy ρ_t^* of the journalist.

By Lemma 3, if the incumbent does not grant access to the journalist, he wins the election with probability $\Pr(\omega_t = h)$. Suppose now the incumbent grants access in a given period t, but the condition in (11) is not satisfied. In this case, the citizens ignore a positive news report and vote for the challenger upon observing a negative signal $\omega_t = \ell$. Hence, if (11) is not satisfied, then the probability that the incumbent wins the election by granting access is given by $\Pr(\omega_t = h, r_t = h)$. But this probability is lower than $\Pr(\omega_t = h)$. Therefore, for the incumbent to grant access in any period, (11) must be satisfied which in turn implies that citizens vote for the incumbent after positive news even when it contradicts their own private signal. This observation yields the following result.

PROPOSITION 1 *In any period, the incumbent grants access to the journalist only if he expects the citizens to vote for him after positive news.*

Using (A5) and (A6), the condition in (11) can be expressed in terms of the probability the citizens attach to the journalist suppressing negative news given their beliefs at the beginning of the period before their media consumption decision:

$$\pi_{Ct} + \pi_{St}\rho_t^* \leq x(p_h, \mu). \tag{12}$$

where

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

Loosely speaking, this condition holds when the journalist has a sufficiently honest reputation. When this condition is satisfied, the probability of winning the election after granting access to the journalist is given by $\Pr(r_t = h | I_t^{\kappa_t})$ where $I_t^{\kappa_t}$ denotes the information held by the incumbent κ_t at the beginning of period t. Given the reporting strategy ρ_t^* of the journalist, we thus have

$$\Pr(r_t = h | I_t^{\kappa_t}) = p_h + (1-p_h)(q_t^C + q_t^S \rho_t^*). \tag{13}$$

For the incumbent κ_t to give access to the journalist, this probability must exceed the probability of winning the election when she does not give access to the journalist. Thus, by Lemma 3, the latter probability is given by $\Pr(\omega_t = h) = \mu p_h + (1-\mu)(1-p_h)$. It follows that for the incumbent κ_t to give access to the journalist, we must have

$$q_t^C + q_t^S \rho_t^* \geq y(p_h, \mu) \tag{14}$$

where q_t^C is the probability that the incumbent attaches at the beginning of period t to the journalist being corrupt, and q_t^S is the probability that the she attaches to the journalist being strategic, and

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

Loosely speaking, this condition holds when the journalist has a sufficiently corrupt private reputation. Together (12) and (14) imply that access is granted only if the journalist has a sufficiently honest public reputation and sufficiently corrupt private reputation.

Conversely, if (12) holds, then citizens vote for the incumbent when $r_t = h$ regardless of their signal. If in addition (14) holds, then the probability of winning the election conditional on the information of the incumbent is higher when she grants access to the journalist than that of when she does not grant access. We thus have the following result.

PROPOSITION 2 *In any period, the incumbent grants access to the journalist if and only if the journalist has sufficiently honest public reputation and sufficiently corrupt private reputation. Formally, the incumbent κ_t with beliefs (q_t^C, q_t^S) grants access to the journalist if and only if* (12) *and* (14) *hold.*

3.3 Journalist's Strategy

A reporting strategy of the journalist in period t is given by $\rho_t \in \{0,1\}$, where ρ_t takes the value 1 if the journalist suppresses the bad news conditional on being granted access, and ρ_t and takes the value 0 if the journalist reports the bad news truthfully. In other words, $\rho_t = 1$ if and only if $r_t = h$ whenever $g_t = 1$ and $\theta_t^{\kappa_t} = \ell$.

Since $c_i \sim U[0,1]$, by Lemma 2 the viewership volume of the journalist who is given access in period t when she follows strategy ρ_t is equal to

$$V_t(\rho_t; \pi_{Ct}, \pi_{St}) = k_0 - k_1(\pi_{Ct} + \pi_{St}\rho_t). \tag{15}$$

Since the demand for news is decreasing in the probability ρ_t of misreporting low valence, a strategic type journalist must report truthfully to maximize its viewership volume in that period. The following lemma is a direct consequence of this observation:

LEMMA 5 *If granted access in the second period, a strategic type journalist reveals low valence, that is,* $\rho_2^* = 0$.

This result does not hold in the first period since reporting truthfully in the first period might result in lost access to the incumbent in the second period. As a result, a strategic type journalist faces a trade-off between the current viewership volume and retaining access to the incumbent of the second period. Formally, the equilibrium first period reporting strategy ρ_1^* is a solution to

$$\rho_1^* \in \underset{\rho_1 \in \{0,1\}}{\arg\max}\, V_1(\rho_1; \pi_{C1}, \pi_{S1}) + E_{\kappa_2, \omega_1}[\gamma_2^{\kappa_2}(r(\rho_1), \omega_1) V_2(0; \pi_{C2}, \pi_{S2}) | \theta_1^{\kappa_1} = \ell] \tag{16}$$

where $r(\rho_1) = h$ if $\rho_1 = 1$, and $r(\rho_1) = \ell$ if $\rho_1 = 0$. The first term inside the expectation is the probability that the journalist gains access in the second period and second term is her second period viewership volume taking into account her second period strategy. Note that both terms inside the expectation depend on ρ_1 through its effect on the public and private beliefs about the journalist type. The beliefs in turn affect the strategies of the politicians and the viewership volume. Also note that the expectation is taken over ω_1 and the second period incumbent i since they are not realized yet at the time of the reporting decisions.

The following result establishes a necessary condition for the journalist to suppress negative news in the first period.

PROPOSITION 3 *The strategic journalist suppresses negative news in the first period only if she expects that doing so will result in second period access by the first period incumbent with positive probability.*

Proof We show that $\rho^* = 1$ only if $\gamma_2^{A\ell*}(h, \omega_1) = 1$ for some $\omega_1 \in \{h, \ell\}$. Suppose to the contrary that $\rho_1^* = 1$ but $\gamma_2^{A\ell*}(h, \omega_1) = 0$ for all $\omega_1 \in \{h, \ell\}$, so conditional on winning the election, A does not grant access to the journalist in the second period. If B does not either, i.e. if $\gamma_2^{B*}(h, \omega_1) = 0$ for all ω_1, then the second term in (16) is zero and it is optimal for the journalist to maximize the first period viewership volume by reporting negative news truthfully, i.e. $\rho_1^* = 0$ which is a contradiction. If instead $\gamma_2^{B*}(h, \omega_1) = 1$ for some ω_1, then conditional on winning the election, B grants access to the journalist, then by (9) and (A8), the journalist can guarantee a B victory by reporting truthfully when the incumbent has low valence while at the same time maximizing her first period viewership volume, which again is a contradiction. Q.E.D.

Given this result, the second period access decision plays an important role in our model. In the next section, we establish equilibrium properties of this decision.

4 Equilibrium Properties

Recall that by Proposition 2, access is granted in any period t if and only if (12) and (14) are satisfied. Substituting for ρ_2^* from Lemma 5, access is granted in the second period if and only if

$$\pi_{C2} \leq x(p_h, \mu) \tag{17}$$

and

$$q_2^C \geq y(p_h, \mu). \tag{18}$$

Consider first the sufficiently honest public reputation condition (17). The public belief $\pi_{C2}(g_1, \omega_1, r_1, \kappa_2)$ on the left hand side of this expression is given by (A3) and does not depend on θ_1^A. Thus, it is either satisfied for both $\theta_1^A = h$ and $\theta_1^A = \ell$, or is satisfied for neither. Consider now the sufficiently corrupt private reputation condition (18). If $\kappa_2 = A$, then q_2^C is equal to $q_C^A(g_1, \theta_1^A, r_1)$ given by (A9). Since $q_C^A(.)$ does not depend on ω_1, it is either satisfied for both $\omega_1 = h$ and $\omega_1 = \ell$ or is satisfied for neither. Consequently if $\tilde{\gamma}^{Ah}(\omega_1) = \tilde{\gamma}^{A\ell}(\omega_1)$ for some $\omega_1 \in \{h, \ell\}$, then $\tilde{\gamma}^{Ah}(.) = \tilde{\gamma}^{A\ell}(.)$. Likewise, given $r_1 \in \{h, \ell\}$, if $\gamma^{Ah}(r_1, \omega_1) = \gamma^{A\ell}(r_1, \omega_1)$ for some $\omega_1 \in \{h, \ell\}$, then $\gamma^{Ah}(r_1, \omega_1) = \gamma^{A\ell}(r_1, \omega_1)$ for all $\omega_1 \in \{h, \ell\}$.

Corollary 3 *Given g_1 and r_1, if the access decisions of Ah and $A\ell$ are the same in the second period following some state ω_1 then they must be the same following both states.*

Note that $q_C^A(g_1, h, r_1) < q_C^A(g_1, \ell, r_1)$ when $g_1 = 1$ and $r_1 = h$ by (A9). Thus, if (18) is satisfied for $i = Ah$, then it is also satisfied for $i = A\ell$. Since (17) does not depend on

θ_1^A, the following result follows immediately.

COROLLARY 4 *If Ah grants access to the journalist in the second period following $g_1 = 1$, $r_1 = h$ and some state ω_1, then $A\ell$ grants second period access following the same history as well.*

Similarly, $\pi_{C2}(g_1, \ell, r_1, \kappa_2) > \pi_{C2}(g_1, h, r_1, \kappa_2)$ when $g_1 = 1, r_1 = h$ and $\kappa_2 = A$ by (A3). Thus, if (17) is satisfied for $\omega_1 = \ell$, it is also satisfied $\omega_1 = h$. Since (18) does not depend on ω_1, we have the following corollary.

COROLLARY 5 *If $i \in \{Ah, A\ell\}$ grants access to the journalist in the second period following $g_1 = 1$, $r_1 = h$ and $\omega_1 = \ell$, then i grants second period access following $g_1 = 1$, $r_1 = h$ and $\omega_1 = h$.*

If $\kappa_2 = B$, then q_2^C is equal to $\pi_{C2}(g_1, \omega_1, r_1, B)$ given by (A3). When $g_1 = 0$, both politicians have the same information regarding the journalist, and therefore $q_C^A(g_1, \theta_1^A, r_1) = \pi_{C2}(g_1, \omega_1, r_1, B)$. The following result is a direct consequence of this observation.

COROLLARY 6 *If first period access is not given, then the access decisions for all politicians are the same, that is, $\tilde{\gamma}_2^i(.)$ does not depend on i.*

When $g_1 = 1$, it must be the case that (12) and (14) both hold for $t = 1$. In this case, by the arguments earlier, if $r_1 = \ell$, then B wins the election and $q_2^C = 0$. If instead $r_1 = h$, then $\kappa_2 = A$ and $q_2^C \geq 0$ with strict inequality if $\rho_1^* = 1$. It follows that access is more likely in the second period when A is in power than when B is in power.

COROLLARY 7 *Second period access is more likely when the first period incumbent is reelected; it is strictly more likely when the first period incumbent is reelected after the journalist is given access and misreports in the first period.*

The above arguments also imply that when $p_h < 1/2$, it is not possible to satisfy (18) if $g_1 = 1$ and $r_1 = \ell$ since in this case $q_2^C = 0$. Thus we have the following result:

COROLLARY 8 *When the second period incumbent is likely to have low valence, she does not grant access to a journalist with a history of negative reporting.*

What happens if (14) does not hold when $t = 1$? In this case, first period access is not granted to the journalist. As a result, no information is revealed about the journalist in the first period, and so $q_2^C = q_1^C$. By Lemma 5, we have

$$q_1^C + q_1^S \rho_1^* \geq q_2^C + q_2^S \rho_2^*.$$

Thus if (14) is violated in the first period, then it is also violated in the second period. In other words, if access is not given in the first period because the incumbent does not perceive the journalist as sufficiently corrupt in the first period, then she does not give access in the second period either for the same reason.

5 Double Reputation Equilibrium

In this section, we characterize an equilibrium in which (i) journalist is granted access in the first period, (ii) the strategic journalist suppresses negative news in the first period in order to gain access to the incumbent in the second period, and (iii) the first period incumbent wins the election and grants access to the journalist regardless of his type in the first period and regardless of realization of ω_1. Since the initial incumbent's strategy in the second period does not depend on his type in the first period, the citizens do not learn about the valence of the incumbent observed by both the incumbent and the journalist. As a result, the citizens cannot infer the journalist type from the second period access decision. This allows the journalist to maintain two different reputations: a private reputation with the first period incumbent and a public reputation with the citizens and the challenger in the first period. We refer to such an equilibrium as a double reputation equilibrium.

DEFINITION 1 *A double reputation equilibrium is an equilibrium with the following properties:*

R1 First period incumbent grants access to the journalist, that is, $\gamma_1^{A*} = 1$

R2 The strategic journalist suppresses negative news in the first period, that is, $\rho_1^* = 1$.

R3 Conditional on winning the first election after $g_1 = 1$ *and a report of* $r_1 = h$*, the initial incumbent continues to grant access in the second period regardless of his first period valence and regardless of* ω_1*, that is,* $\gamma_2^{i*}(h, \omega_1) = 1$ *for all* $i \in \{Ah, A\ell\}$ *and* $\omega_1 \in \{h, \ell\}$.

Note that our definition of double reputation equilibrium requires the initial incumbent to grant access to the journalist in the second period regardless of ω_1. An alternative definition would require second period access to be granted by the initial incumbent only after $\omega_1 = h$ regardless of his first period valence. We revisit this alternative definition at the end of the section.

The following proposition establishes necessary conditions for the existence of a double reputation equilibrium.

Proposition 4 *A double reputation equilibrium exists only if μ is sufficiently low and $p_h < 1/2$.*

Proof We first show that if μ is not sufficiently low, then R1 cannot be satisfied. By Proposition 2, R1 can be satisfied only if (12) holds when $t = 1$. The right hand side of (12) is strictly decreasing in μ. When $\mu = \frac{1}{2}$, the condition in (12) becomes $p_C + p_S\rho_1^* \leq 1$ and is always satisfied. When $\mu = 1$, the condition in (12) becomes $p_C + p_S\rho_1^* \leq 0$ and is never satisfied. Hence, for R1 to be satisfied, μ must be sufficiently low.

We now show that if $p_h \geq 1/2$, then R2 and R3 cannot be simultaneously satisfied. By Proposition 2, R3 can be satisfied only if (14) is satisfied. Suppose now that $p_h \geq 1/2$. This implies that the condition in (14) is always satisfied even when the strategic journalist reveals low valence truthfully in the first period. In other words, for $p_h \geq 1/2$ there is no incentive to build a corrupt private reputation by suppressing low valence in the first period, and hence R2 is not satisfied. Q.E.D.

Having established necessary conditions for the existence of a double reputation equilibrium, we now ask when a double reputation equilibrium exists. Since $p_h < 1/2$ is necessary for the existence of a double reputation equilibrium, we maintain this assumption in the remainder of the paper.

Assumption 3 $p_h < \frac{1}{2}$.

To state our next result, it is useful to let $\pi_{C2}(\omega_1)$ denote the probability $\pi_{C2}(1, \omega_1, h, A)$ that citizens assigns to the journalist being corrupt at the time of their media consumption decision in the second period given by (A3) after substituting for $\rho_1^* = 1$ and $\gamma^i(h, \omega_1) = 1$ for all $i \in \{Ah, A\ell\}$ and $\omega_1 \in \{h, \ell\}$.

Proposition 5 *A double reputation equilibrium exists when the following conditions hold.*

(i) Citizens perceive news as sufficiently informative despite the strategic journalist suppressing bad news in the first period:

$$p_C + p_S \leq x(p_h, \mu). \tag{19}$$

(ii) The citizens assign a sufficiently low probability that the journalist is corrupt type after observing positive news in the first period:

$$\mu\pi_{C2}(\ell) + (1-\mu)\pi_{C2}(h) \leq \frac{k_0}{k_1} - p_S, \tag{20}$$

and

$$\pi_{C2}(\ell) \leq x(p_h, \mu). \tag{21}$$

(iii) The prior probability that the journalist is corrupt type is sufficiently high:

$$p_C \geq y(p_h, \mu). \tag{22}$$

To interpret these conditions, consider first the condition in (19). This is the sufficiently honest condition for first period access. It arises from the requirement that first period access is granted only if the initial incumbent believes that the citizens will vote for him after a news report $r_1 = h$ even when they observe the state $\omega_1 = \ell$. For the citizens to rely exclusively on news in the first period election, they must perceive news as sufficiently informative despite the strategic journalist suppressing bad news. As such, they must attach a sufficiently high prior probability that journalist is honest type as the condition in (19) states. Furthermore, the right hand side of (19) described by $x(p_h, \mu)$ is strictly decreasing in μ. Therefore, it is easier to satisfy (19) as μ decreases. In this case, observing the state ω_1 becomes a less informative signal on the valence of the initial incumbent in the first period. When ω_1 is less informative, it becomes easier to satisfy the requirement that public rely exclusively on news when voting.

Consider next the condition in (21). This is the sufficiently honest condition for second period access after a first period history $r_1 = h$, $\omega_1 = \ell$. Since the strategic journalist reveals true valence with probability one in the second period if he secures further access, the sufficiently honest condition for second period access in (21) depends only on $\pi_{C2}()$. The following lemma facilitates the discussion as to when (21) is satisfied.

LEMMA 6 *The probability $\pi_{C2}(1, \ell, h, A)$ that the public assigns to the journalist being corrupt type conditional on access in the second period after the history $g_1 = 1, \omega_1 = \ell, r_1 = h$, $\kappa_2 = A$ is (i) increasing in p_C, (ii) decreasing in p_h, (iii) increasing in μ, and (iv) decreasing in p_S.*

When the citizens receive $r_1 = h$ but observe $\omega_1 = \ell$, the extent that they believe negative news has been suppressed in the first period depends on μ that captures the informativeness of state ω_1. When μ is high, the public assigns a higher probability that suppression has occurred when they observe $\omega_1 = \ell$. In the limiting case when $\mu = 1$, they learn with certainty that negative news has been suppressed. Given this probability that the public assigns to negative news being suppressed, then they filter out which type of journalist has committed the suppression. Was it the corrupt journalist who always suppresses negative news or was it the strategic journalist who only suppressed to secure further access but will not suppress in the second period? This filtering out depends on the prior probabilities p_C and p_S. For example, when $\mu = 1$ and the public is certain that negative news has been suppressed, we have

$$\lim_{\mu \to 1} \pi_{C2}(r_1 = h, \omega_1 = \ell) = \frac{p_C}{p_C + p_S}.$$

Accordingly, it becomes easier to satisfy (21) as p_C decreases, p_S increases and μ is sufficiently low.

Similarly, as p_h increases, the citizens start with a higher prior probability that the incumbent has high valence. Therefore, upon receiving $r_1 = h$ but observing $\omega_1 = \ell$, the probability that they assign to the event that negative news has been suppressed in the first period is decreasing in p_h. This is the reason why $\pi_{C2}(r_1 = h, \omega_1 = \ell)$ is decreasing in p_h. Since the right hand side of (21) given by $x(p_h, \mu)$ is increasing in p_h, it becomes easier to satisfy (21) as p_h increases.

Finally consider the condition in (22). This is the sufficiently corrupt condition for second period access for Ah, that is, the initial incumbent who has granted first period access and observed $\theta_1^A = h$. Since all journalists report positive news when the incumbent has high valence, the initial incumbent who observes high valence in the first period does not learn anything new on the journalist's type. In particular, the posterior belief that Ah assigns to the journalist being the corrupt type at the time of the second period access decision is equal to his prior belief p_C. The condition in (22) states that this prior probability that the journalist is corrupt type must be higher than a threshold. Furthermore, the right hand side of (22) described by $y(p_h, \mu)$ is strictly decreasing in p_h. Therefore, it becomes easier to satisfy (22) as p_h increases. For $p_h \geq 1/2$, we have $y(p_h, \mu) < 0$ and hence (22) is always satisfied. In this case, a double reputation equilibrium no longer exists because the journalist has no incentive to suppress negative news in the first period. For $p_h < 1/2$, the condition in (22) is binding. Since the threshold $y(p_h, \mu)$ is strictly decreasing in p_h, condition (22) requires a higher p_C as the probability that incumbent has high valence declines. In words, to sustain a double reputation equilibrium with less and less competent politicians, one needs a higher p_C.

The four conditions which are jointly sufficient to guarantee existence of a double reputation equilibrium all depend on the parameters μ, q, p_h, p_C and p_S. Hence, a natural question to ask whether there are values for these parameters so that the four conditions hold. The following proposition answers this question.

PROPOSITION 6 *If μ is sufficiently low, $p_h < 1/2$, q is sufficiently close to $1/2$ and $(1 + p_S)(1 - p_h) < 1$, then there exists a double reputation equilibrium.*

6 Concluding Remarks

To be written.

7 Appendix

7.1 Consistency of Beliefs

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

7.1.1 Consistency of the beliefs about the journalist at time of media consumption decision

For all $t = \{1, 2\}$, the beliefs of the citizens about the journalist at the time of their media consumption decisions in period t conditional on the journalist being given access in period t are consistent with the equilibrium strategies.

At $t = 1$, there is no information revealed by the time of the media consumption decision, and so the beliefs are the priors, i.e.

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

At $t = 2$, the beliefs depend on the history. Let $\pi_{C2}(g_1, \omega_1, r_1, \kappa_2)$ denote the probability that citizens attach to the journalist being type C at time 2 right before their media consumption decision given the history up to that point (with r_1 observed only if $g_1 = 1$) conditional on the κ_2 giving access to the journalist. Likewise, let $\pi_{S2}(g_1, \omega_1, r_1, \kappa_2)$ denote the probability that citizens attach to the journalist being type S at time 2 right before their media consumption decision given the history up to that point conditional on the κ_2 giving access to the journalist.

When $g_1 = 0$, no information about the journalist 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 $\kappa_2 = B$, we have $\pi_{C2}(g_1, \omega_1, r_1, \kappa_2) = \tilde{\pi}_{C1}(g_1, \omega_1, r_1)$ and $\pi_{S2}(g_1, \omega_1, r_1, \kappa_2) = \tilde{\pi}_{S1}(g_1, \omega_1, r_1)$ since B has access to same information as the citizens up to this point.

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 and $\kappa_2 = A$, the beliefs of the citizens about the journalist at this point will depend on state ω_1 they observed in period 1, their beliefs about the valence of A at the end of period 1 as well as the equilibrium access strategy of politician A.

Note that

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

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

For notational convenience, $x_{\omega_1,\theta}$ denote the probability that A with valence θ in the first period grants access to the journalist in the second period after being reelected following a report of h in the first period,

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

In what follows, we need to refer to some notation that are formally defined later on in the Appendix: $\tilde{\beta}_1(1,\omega_1,h)$ is the posterior probability that the citizens attach to A having high valence as defined in section 7.1.4, and $\tilde{\pi}_{C1}(1,\omega_1,h)$ and $\tilde{\pi}_{S1}(1,\omega_1,h_1)$ are the posterior probabilities the citizens attach to the journalist being corrupt and strategic respectively as defined in section 7.1.2 at the end of the first period after a report of h following first period access. In the rest of this subsection, we suppress the arguments of these probabilities for ease of exposition. Recall that when $\theta_1^A=h$, all types of the journalist report h, and when $\theta_1^A=\ell$, a corrupt journalist always reports h and a strategic journalist report h with probability ρ_1^*. Thus, it is immediate from (A2) that when $g_1=1$, $r_1=h$ and $\kappa_2=A$,

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

and similarly,

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

To summarize, consistency of the beliefs of the citizens about the journalist at the time of their media consumption decisions in period t conditional on the journalist being given 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 $x_{\omega_1,\theta} = \gamma_2^{A\theta*}(h,\omega_1)$, $\tilde{\beta}_1 = \tilde{\beta}_1(1,\omega_1,h)$, $\tilde{\pi}_{C1} = \tilde{\pi}_{C1}(1,\omega_1,h)$ and $\tilde{\pi}_{S1} = \tilde{\pi}_{S1}(1,\omega_1,h)$.

7.1.2 Consistency of the beliefs about the journalist at time of voting decision

For all $t = \{1,2\}$, the beliefs of the citizens about the journalist at the time of their voting decisions 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 beliefs of the citizens about the journalist at the beginning of period 2 as defined in section 7.1.1. Using the fact that

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

and

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

we obtain

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

and

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

7.1.3 Consistency of the beliefs about the incumbent at the time of private action decision

For all $t = \{1, 2\}$, the beliefs of the citizens about the incumbent at the time their private action decisions are consistent with the equilibrium strategies:

$$\beta_t^i(g_t, f_t^i, r_t, I_{t-1}) = \begin{cases} p_h & \text{if } g_t = 0 \text{ or } f_t^i = 0,, \\ 0 & \text{if } g_t = f_t^i = 1 \text{ and } r_t = \ell, \\ \dfrac{p_h}{p_h + (1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)} & \text{otherwise,} \end{cases} \tag{A7}$$

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 7.1.1.

7.1.4 Consistency of the beliefs about the politician at the time of voting

For all $t = \{1, 2\}$, the beliefs of the citizens about the incumbent at the time their voting decisions are consistent with the equilibrium strategies:

$$\tilde{\beta}_t(g_t, r_t, \omega_t, I_{t-1}) = \begin{cases} \dfrac{\mu p_h}{\mu p_h + (1-\mu)(1-p_h)} & \text{if } g_t = 0 \text{ and } \omega_t = h, \\ \dfrac{(1-\mu)p_h}{(1-\mu)p_h + \mu(1-p_h)} & \text{if } g_t = 0 \text{ and } \omega_t = \ell, \\ 0 & \text{if } g_t = 1 \text{ and } r_t = \ell, \\ \dfrac{\mu p_h}{\mu p_h + (1-\mu)(1-p_h)(\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*)} & \text{if } g_t = 1 \text{ and } r_1 = \omega_t = h, \\ \dfrac{(1-\mu)p_h}{(1-\mu)p_h + \mu(1-p_h)(\tilde{\pi}_{Ct} + \tilde{\pi}_{St}\rho_t^*)} & \text{otherwise,} \end{cases} \tag{A8}$$

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 7.1.2.

7.1.5 Consistency of the beliefs of A about the journalist at the time of second period access decision

The belief of the of A about the journalist at the time of second period access decision must be consistent with the equilibrium strategies. Recall that when $\theta_1^A = h$, all types of journalist report h. Hence, when $g_1 = 0$ or $g_1 = 1$ and $\theta_1^A = h$, no information is revealed about the journalist, but when $g_1 = 1$ and $\theta_1^A = \ell$, the report of the journalist reveals information about the journalist. Since $r_1 = \ell$ is possible only when $\theta_1^A = \ell$, the consistency conditions can be written as

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

and

$$q_S^A(g_1, \theta_1^A, r_1) = \begin{cases} p_S & g_1 = 0; \text{ or } g_1 = 1, \theta_1^A = h, \\ \dfrac{p_S(1-\rho_1^*)}{p_S(1-\rho_1^*) + (1 - p_C - p_S)} & \text{if } g_1 = 1 \text{ and } r_1 = \ell, \\ \dfrac{p_S \rho_1^*}{p_C + p_S \rho_1^*} & \text{if } g_1 = 1, r_1 = h \text{ and } \theta_1^A = \ell. \end{cases} \tag{A10}$$

7.2 Proofs

Proof of Lemma 2: If citizen i does not follow the journalist in any period t, then by Lemma 1, she chooses action L, and by (4) and (5), her expected payoff is given by

$$v^e(L; p_h) = (\mu(1-p_h) + (1-\mu)p_h)\, q. \tag{A11}$$

Suppose now (8) is satisfied. This in turn implies (7) is satisfied. Hence citizen i's chooses action H after a report of h and action L after a report of L. Given beliefs (π_{Ct}, π_{St}) about the journalist, and the equilibrium reporting strategy ρ_t^* of the journalist, the probability of receiving report r_t is given by

$$\Pr(r_t = h) = p_h + (1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*), \tag{A12}$$

and

$$\Pr(r_t = \ell) = (1-p_h)\,(1 - \pi_{Ct} - \pi_{St}\rho_t^*)\,. \tag{A13}$$

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

$$\Pr(r_t = h) v^e(H; \beta_t^h) + \Pr(r_t = \ell) v^e(L; \beta_t^\ell) - c_i \tag{A14}$$

where β_t^r is the probability that citizen i attaches to the politician of being type h at time t after following the journalist who is given access and receiving the report r, i.e. $\beta_t^r = \beta_t(1, 1, r_t, I_t^0)$ (see (A7)).

Thus, citizen i follows the journalist if and only if

$$\Pr(r_t = h) v^e(H; \beta_t^h) + \Pr(r_t = \ell) v^e(L; \beta_t^\ell) - c_i \geq v^e(L; p_h). \tag{A15}$$

Note that

$$\begin{aligned} v^e(H; \beta_t^h) &= \Pr(\omega_t = h | \beta_t^h)(1-q) \\ &= \left(\frac{p_h \mu + (1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)(1-\mu)}{p_h + (1-p_h)(\pi_{Ct} + \pi_{St}\rho_t^*)} \right)(1-q) \end{aligned} \tag{A16}$$

where the first line follows from (5) and (1) and the second line follows from (A7) and

(4). Similarly, we have

$$v^e(L; \beta_t^\ell) = \mu q. \tag{A17}$$

Since (8) is satisfied, using (A12), (A13), (A16) (A17), it is straightforward to see that (A15) is satisfied.

Conversely, suppose (8) is violated. If (7) is satisfied, from the arguments above, (A15) cannot be satisfied, and thus citizen i does not follow the journalist. If (7) is violated, then citizen i always chooses action L, and her ex ante expected payoff from following the journalist is given by $v^e(L; p_h) - c_i$ 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 (A15) cannot be satisfied. ∎

Proof of Proposition 5:

To find sufficient conditions for the existence of a double reputation equilibrium, we find the conditions under which each of the properties of a double reputation equilibrium are satisfied given the other two properties are satisfied.

Conditions for R1: First, suppose R2 and R3 are satisfied. By Proposition 2, R1 is satisfied when (12) and (14) are satisfied for $t = 1$. Since R2 is satisfied, we have $\rho_1^* = 1$. As the beliefs in the first period are given by the priors (see A1), these two conditions are given by (19) and

$$p_C + p_S \geq y(p_h, \mu). \tag{A18}$$

Conditions for R2: Suppose next R1 and R3 are satisfied. Consider the decision by the strategic journalist after observing $\theta_1^A = \ell$. If she reports truthfully, by Assumption 3 and Corollary 8 she loses second period access and her total payoff across two periods is given by $V_1(0; p_C, p_S) = k_0 - k_1 p_C$.

If instead she suppresses the negative news, her first period payoff is given by

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

To compute her expected second period payoff, i.e. the second term in (16), note that since R1 is satisfied, by Proposition 1, A wins the election in the first period given that when the journalist suppresses negative news. And since R3 is satisfied, the journalist is granted access in the second period regardless of the realization of ω_1. Consequently, her 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

$$(k_0 - k_1(p_C + p_S)) + (k_0 - k_1 \bar{\pi}_{C2}) \geq k_0 - k_1 p_C.$$

Rearranging this inequality, we conclude that, given that R1 and R3 are satisfied, if (20) holds, then R2 is also satisfied.

Conditions for R3: Finally, suppose R1 and R2 are satisfied. By Proposition 2, R3 is satisfied if (12) and (14) are satisfied when $t = 2$ and $\kappa_2 = A$ regardless of θ_1^A and ω_1. As we show in the previous section, these conditions are equivalent to (17) and (18). By the arguments preceding Corollary 5, if (17) holds when $g_1 = 1$, $r_1 = h$ and $\omega_1 = \ell$, then it also holds when $g_1 = 1$, $r_1 = h$ and $\omega_1 = h$. And by the arguments preceding Corollary 5, if (18) holds following the history $g_1 = 1$, $r_1 = h$, ω_1, $\theta_1^A = h$, it also holds following the history $g_1 = 1$, $r_1 = h$, ω_1, $\theta_1^A = \ell$. Consequently, given that R1 and R2 are satisfied, R3 is satisfied whenever (21) and (22) hold since $q_{2,Ah}^C(r_1 = h) = p_C$ by (A9). Hence, given that R1 and R2 are satisfied, R3 is satisfied whenever (21) and (22) are satisfied.

Notice that the sufficiently corrupt condition (22) in the second period implies the sufficiently corrupt condition (A18) in the first period. Thus, putting it all together, a double reputation equilibrium exists whenever (19), (20), (21) and (22) are satisfied. ∎.

Proof of Proposition 6: Suppose the conditions described in (19) and (22) are satisfied as an equality, that is, we have

$$p_C + p_S = x(p_h, \mu), \tag{A19}$$

and

$$p_C = y(p_h, \mu). \tag{A20}$$

Using (A3)-(A5), one can compute $\pi_{C2}(\ell)$ in terms of the exogenous parameters of the model and obtain

$$\pi_{C2}(\ell) = \left(\frac{\tau_1[\tau_1 + \tau_2(p_C + p_S)] + \tau_2 (\tau_1 + \tau_2) (p_C + p_S)}{\tau_1[\tau_1 + \tau_2(p_C + p_S)]^2 + \tau_2 (\tau_1 + \tau_2)^2 (p_C + p_S)^2} \right) (\tau_1 + \tau_2) p_C, \tag{A21}$$

where $\tau_1 \equiv (1 - \mu)p_h$ and $\tau_2 \equiv \mu(1 - p_h)$.

Combining (A19), (A20) and (A21), let us now write the equilibrium condition in (21) as

$$\left(\frac{\tau_1 (\tau_1 + \tau_2 x(p_h, \mu)) + \tau_2 (\tau_1 + \tau_2) x(p_h, \mu)}{\tau_1 (\tau_1 + \tau_2 x(p_h, \mu))^2 + \tau_2 (\tau_1 + \tau_2)^2 (x(p_h, \mu))^2} \right) (\tau_1 + \tau_2) y(p_h, \mu) \leq x(p_h, \mu). \tag{A22}$$

Rearranging terms in (A22), we obtain

$$\begin{aligned} & \tau_1 (\tau_1 + \tau_2 x(p_h, \mu)) (\tau_1 + \tau_2) y(p_h, \mu) + \tau_2 (\tau_1 + \tau_2) x(p_h, \mu) (\tau_1 + \tau_2) y(p_h, \mu) \\ \leq \; & \tau_1 x(p_h, \mu) (\tau_1 + \tau_2 x(p_h, \mu))^2 + \tau_2 (\tau_1 + \tau_2)^2 (x(p_h, \mu))^3. \end{aligned} \tag{A23}$$

As $\mu \to \frac{1}{2}$ we have

$$\lim_{\mu \to \frac{1}{2}} x(p_h, \mu) = 1, \quad \lim_{\mu \to \frac{1}{2}} y(p_h, \mu) = \tfrac{1-2p_h}{2(1-p_h)} \quad \text{and } \lim_{\mu \to \frac{1}{2}} \tau_1 + \tau_2 = 1. \tag{A24}$$

Using (A24), as μ becomes sufficiently close to $1/2$ the condition in (A23) becomes

$$\lim_{\mu \to \frac{1}{2}} y(p_h, \mu) = \frac{1 - 2p_h}{2(1 - p_h)} \leq 1, \tag{A25}$$

which is always satisfied. Therefore, we have established that as μ becomes sufficiently small, the conditions in (19), (21) and (22) for a double reputation equilibrium are all jointly satisfied.

For the remaining condition in (20), recall that $k_0 = \mu - q$ and $k_1 = (1 - p_h)(\mu + q - 1)$. As $q \to \frac{1}{2}$, we have

$$\lim_{q \to \frac{1}{2}} \frac{k_0}{k_1} = \frac{1}{1 - p_h}.$$

Therefore, as $q \to \frac{1}{2}$ the condition in (20) becomes

$$\mu \pi_{C2}(\ell) + (1 - \mu)\pi_{C2}(h) \leq \frac{1}{1 - p_h} - p_S. \tag{A26}$$

When $(1 + p_S)(1 - p_h) < 1$, the right hand side of (A26) is greater than one. Hence, the condition in (A26) is always satisfied. This completes the proof that when μ is sufficiently low, $p_h < 1/2$, q is sufficiently close to $1/2$ and $(1 + p_S)(1 - p_h) < 1$, there always exists a double reputations equilibrium. ∎.

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