Who Gets the Credit? News-Gathering Competition and Political Accountability

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Abstract

We study the effects of media competition on political accountability in a setting with imperfect ability of the media to secure credit for breaking the news. Media outlets with pro-incumbent and pro-challenger biases can invest into costly effort to acquire the news but each media can also copy the news stories of competitors. Citizens consume news as a private consumption good and use the information provided to hold elected officials accountable. We show that information is more abundant when it is easier for media outlets to secure credit for breaking the news. Surprisingly, concentrated, rather than competitive, media markets provide more information, and hence better accountability, when it is difficult to secure such credit. Moreover, media competition responds to increases in the ability to secure credit in a way that decreases the asymmetry of media market shares. Finally, depending on the difficulty of securing credit for breaking the news story, an increase in media bias may increase or decrease accountability and the asymmetry of media market shares.

1 Introduction

How does the institutional and technological setting of media competition affect the availability of news and the political choices of consumers? We develop a model of news production in competitive media markets and political accountability influenced by the news that focuses on a factor that critically influences media competition but that has not received attention in the growing political economy literature on media: the ability of a news source to claim credit for a news story it breaks.

The possibility of securing credit for a news story and, closely related, the possibility of “copying” the news, underwent dramatic transformation over the past century. Two

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sets of influences on their evolution, technological and legal, can be readily identified. In the context of newspaper competition, perhaps most historically important among the legal factors has been the regulation and expansion of news cartels, such as the Associated Press (AP) and the United Press (UP). These cartels were formed in late 19th-early 20th century by big newspapers from different, non-overlapping, media markets to share news stories before publication, while excluding smaller newspapers from the same markets. The cartels were regulated in a series of court cases, forcing them by mid-1940s to give access to any newspaper for a fee (Silberstein-Loeb 2012). The effect was to make it possible for competing news outlets to access some news stories before publication and so, effectively, to dilute the claim to credit for those stories.

While the legal transformation targeted what took place prior to publication, the second set of historical influences, technological, affected the possibility of “copying” and credit-claiming by transforming the possibilities in the aftermath of breaking the news. The newspapers before the age of television were locked into their news offerings for a given morning or evening edition and could not adjust those offerings in response to news offerings in a competing paper until the following edition – the next day or half day later. The technology available to the television and radio news outlets made it possible to respond faster, losing fewer customers to the competition. The age of internet and web-based news platforms has driven the response time further down, making it possible for media outlets to absorb and re-package a story in a manner of minutes. Of course, the competition for credit, and ultimately, for the attention from the news consumers, drives the news outlets to innovate technologies of credit-claiming, from the breaking up and serialization of the news delivery to automatic news alerts, etc., but it is clear that the main underlying trend has been to make news “copying” faster and securing credit for breaking the news more difficult.

Understanding the consequences of these changes is critical for making sense of the empirical facts about media competition and its impact on readers and politics. The ability of a media outlet to claim credit for a story has an intuitive effect on its willingness to invest resources into investigation. If that ability is lower, then, all else equal, the appeal to a given media of incurring the private cost of investigation will be lower as well. What is less obvious is how that ability interacts with media competition to effect the overall supply of information to the consumers and, in turn, their ability to make informed judgments in an electoral setting. As we show below, the greater or lesser ability to claim credit for a story affects the nature of competition in the media markets, the greater or lesser manifestation of political bias on the part of the media outlets, the demand for “watchdog” opposition media, and, ultimately, whether greater competition in the media market leads to an increase or a decrease in the supply of information to the news consumers.

In our model, two media outlets compete for the attention of consumers/voters who are interested in news that would help them make a better choice between two office candidates with career concerns, an incumbent and a challenger. The media outlets have opposing biases: one in favor of the incumbent, the other in favor of the challenger. In the news-gathering stage, the media outlets choose the extent of their resource commitment to the investigation for the story. The higher the investment into the investigation, the more likely
the news outlet is to uncover the news. When the results of the investigations are known, the media choose whether to report them or suppress them. Whatever their decisions after they brake their stories, the news outlets have an opportunity to “copy” the stories that were broken by the other news outlet. (The “copying” need not, of course, be literal, but the conjunction of seeing the story and that story being out makes it much easier to put out the same piece of news, including getting the sources to confirm it – in short, the resources and time entailed in getting a news story for one’s own outlet at that point are dramatically lower than doing it all on one’s own from the outset.) When news consumers see the profile of news headlines in the media, they decide how to divide their time between media outlets: what to read and where to read it and whether to support or oppose the incumbent, but they do not know with certainty whether the news story they see in a given media outlet originated in that outlet or was “copied” by it from its competitor.

The model generates a number of results that shed light on the political economy of media competition and its effects on political accountability. As already noted, a result that holds straightforwardly in our setting is that lower ability to secure credit for one’s story discourages competition. To the extent that there has been a secular trend toward making it more difficult for the media outlets to secure credit for the stories they break, we should expect to see a general decline in the competition within media markets, and existing empirical evidence comports with this prediction. A related result concerns the social welfare effects of media competition. Assuming media is relatively unbiased, when media’s ability to claim credit for the story it breaks is low, an increase in competition between news providers may come with a decrease in information provision and accountability. The reason is that in settings with a low likelihood of securing credit for one’s story, the presence of competing media encourages media outlets to free-ride on their investigative effort, while getting full or partial credit for the copied stories. When the possibility of correctly assigning credit is higher, the free-riding incentive is lower, and an increase in competition encourages greater investigative efforts and becomes socially beneficial.

We further develop several results suggesting the presence of important strategic interactions between media’s ability to secure news credit and media bias. We show that lower ability to secure credit creates stronger incentives for the media outlets not to publish news that is damaging to their preferred candidate, suggesting that the observable behavioral manifestation of media bias depends critically on the extent to which the underlying technological and legal setting makes it higher or easier for media outlets to secure credit for breaking the news. One of the consequences of this conclusion we highlight is that, though for relatively high security of credit for the news, greater competition between the media outlets comes with higher political accountability, that intuitive relationship breaks down when security of credit is low because this creates bias in reporting that makes the pro-incumbent media reports irrelevant for accountability.

We also show that the variation in the security of credit for the news affect the plausibility of the intuitions seeing the pro-opposition media as the key government “watchdog.” That intuition operates in our model as well and explains the robustness of the equilibrium in which the media with the dominant market-share is biased against the incumbent. However,
an equilibrium in which the dominant market share is for the pro-incumbent media may also exist – for the intermediate levels of security of news credit – and when it does, that equilibrium, rather than the equilibrium with dominant anti-incumbent media, may create the mix of incentives with respect to media’s suppression of news stories and investment into investigation that lead to higher social welfare.

2 The literature

The literature on the political economy of media has largely focused on two key concerns: (1) the relationship between media coverage of politically/electorally relevant news and an important political determinant of social welfare, such as electoral accountability or voter turnout and (2) causes and consequences of media bias. Besley and Prat (2006) develop a model of endogenous media bias in response to bribing of media outlets by politicians and find that increase in profitability increases media competition and political accountability (see also Gentzkow, Glaeser and Goldin 2006). Snyder and Strömberg (2010) and Lim, Snyder and Strömberg (2015) present empirical analyses showing that media coverage increases the responsiveness of elected officials to electoral concerns, and Strömberg (2004) provides a model of the relationship between efficient policy choice and the effects of media costs on coverage. Gentzkow (2006) shows that exposure to political news increases turnout, and Piolatto and Schuett (2015) build a model suggesting that the effect operates at a group level.

An important exception to the patterns of results associating greater media competition with greater accountability is Cagé et al. (2014), which studies the interaction of media competition and vertical market differentiation that creates diverse optimal price-quality trade-offs and provides evidence that an increase in media competition (the number of newspapers) can decrease the quantity and quality of information provided as well as voter turnout when the consumers’ willingness to pay for quality is relatively homogeneous. As noted above, we, too, show that greater competition can lead to a decline in accountability but provide a very different mechanism that focuses on the relationship between the ability to claim credit for a news story and the media’s incentives to engage in biased reporting.

Similar to Besley and Prat (2006) and other papers in the subsequent literature, we model media’s biased response to a received signal as a decision to suppress the story in a setting where only verifiable information can be printed. (Gentzkow, Shapiro and Stone 2016 discuss the range of possible formalizations of bias in the literature.) However, we differ from their and other models of bias in endogenizing media’s information acquisition through explicit investment into investigative effort. As shown above, this decision creates a separate and strategically distinct source of bias, affecting the readers’ interpretations of events and the welfare ranking of equilibria in the game.

Duggan and Martinelli (2011) focus on the media strategies in the context of a model of two-candidate electoral spatial competition and describe the media slant as a reduction of candidates’ positions in a multi-dimensional policy issue space to a single (ideological) dimension. They show that the more informative media favors the underdog, but that both
pro-front-runner and the pro-underdog slants may be socially optimal with no-slant media being never optimal. We also show that competition with biased media may be socially preferred to the one with unbiased media, but for reasons having to do with the supply-side behavior of media outlets, rather than an expectation of a demand-side behavior of consumers as in Duggan and Martinelli (2011). The result on greater informativeness of the pro-underdog media also has a parallel in our model, but again holds for restricted values of the ability to claim credit for one’s news story and has a distinct rationale (ELABORATE).

The empirical studies of media bias have documented both the supply-side and the demand-side factors. Influential studies focusing on the supply side include Groseclose and Milyo (2005), Larcinese, Puglisi and Snyder (2011), and Lott Jr and Hassett (2014) and on the demand side, Gentzkow and Shapiro (2010). While these and other studies differ in the assessments of the extent, domain, and sources of media bias, they all provide evidence suggesting that biased media has been and remains a key element of our political life. In an important recent study, Gentzkow et al. (2015) raise the possibility that government patronage of the pro-government newspaper may lead to an increase in the demand for the opposition media (a version of the “watchdog” argument). While they find no evidence for that effect, our analysis suggests that the effect may be importantly conditioned on media’s ability to secure credit for their news.

The political economy implications of the technological aspects of media competition have received considerably less attention than the sources and effects of media’s bias. A key contribution here remains Strömberg (2004), which focuses on the scale economies in media access and advertizing financing. To our knowledge, the present paper is the first study of the political economy effects of the variation in news “copying” technology and the media’s ability to ensure credit for their news stories.

3 Model

We consider the interactions between a policy-making Politician (P), two Media outlets ($M_1$ and $M_2$), and a unit one of voters (V).

We assume that the Politician is drawn from a pool of Politicians who differ in their level of competence. Formally, we assume that the Politician can be of low or of high ability ($\theta \in \{\theta_L, \theta_H\}$), with $0 \leq \theta_L < \theta_H \leq 1$. Let $\lambda$ be the probability that the incumbent Politician has high ability $\theta_H$, and let $\lambda_C < \lambda$ be the probability that the randomly drawn replacement for the Politician has high ability. We adopt a career-concerns setting and assume that

\footnote{Other models of supply-side media bias include Baron (2006) who shows how bias may persist because a biased news source may command a higher profit and Wolton (2016), who shows that biased media may be socially optimal precisely because it may be less informative – in settings where more information about the incumbent creates a distortionary effect on her choices. (See also Ashworth and Shotts, 2010). In contrast, Mullainathan and Shleifer (2005) and Gentzkow and Shapiro (2006) develop models of media competition and slanting in response to the bias on the demand side.

\footnote{The review in Prat and Strömberg (2013) provides a fuller account up to date.

\footnote{(See Holmström, 1999). For political science applications, see among others, Lohmann (1998); Gehlbach (2006); Ashworth and Bueno de Mesquita (2006).}
no players know the Politician’s type, but may receive information about it from observing the outcomes in the game. The Politician chooses a level of effort $a$ which again can be low or high, $a \in \{a_L, a_H\}$. The Politician’s effort choice is not observed by other actors in the model but affects the probability that the policy outcome $s$ is a success ($s = 1$) or a failure ($s = 0$). Let $\pi_{\theta_H}^{a_H} \in (0, 1)$ be the probability that a high ability Politician produces an outcome success, $s = 1$, when exerting high effort. $\pi_{\theta_H}^{a_L}, \pi_{\theta_L}^{a_H}, \pi_{\theta_L}^{a_L} \in (0, 1)$ are defined similarly. Moreover, let $\pi_{m}^{a_H}$ (respectively $\pi_{m}^{a_L}$) be the ex ante probability of success when exerting high effort (respectively low effort). We assume that the probability of success increases with the level of effort and with the ability of the Politician. Formally: (1) $\pi_{\theta_H}^{a_H} > \pi_{\theta_H}^{a_L} > \pi_{\theta_L}^{a_L}$ and (2) $\pi_{\theta_H}^{a_H} > \pi_{\theta_H}^{a_L} > \pi_{\theta_L}^{a_L}$. We assume that the Politician receives a benefit $B \geq 0$ if reelected, 0 if dismissed, and incurs a cost $\Psi > 0$ when choosing to exert high effort $a = a_H$, while low effort $a = a_L$ is costless.

Media outlets produce news about the outcomes of the Politician’s choices. $M_1$ and $M_2$ simultaneously choose their levels of effort $e_1, e_2 \in [0, 1]$ into acquiring a potential news story at a corresponding privately borne cost $e_i^2$. We denote the equilibrium values of these choices with $e_1^*$ and $e_2^*$. Based on its effort choices, each Media outlet receives a signal $\sigma_i$. Specifically, each $M_i$ privately learns the policy outcome $\sigma_i = s \in \{0, 1\}$ with probability $e_i$ and learns nothing ($\sigma_i = \emptyset$) with complementary probability $1 - e_i$. The Media outlets then simultaneously decide whether to report the evidence they received or to conceal it and report nothing if they didn’t receive any evidence. Formally, the profile of Media reports is $m^O = (m^O_1, m^O_2) \in \{0, 1\}^2$, where $m_i^O$ is the report sent by the Media outlet $M_i$ and $m_i^O = 1$ only if $\sigma_i \in \{0, 1\}$.

Our model of news story ownership turns on who receives this profile of reports. After those reports are sent, each $M_j$ observes $M_i$’s message $m_i^O$ and chooses its updated report $m_j^U \in \{m_j^O, m_j^O\}$, with $m^U = (m_1^U, m_2^U) \in \{m_1^O, m_2^O\}$. The voters observe the pair of reports $(m_1, m_2)$ sent by the Media outlets but do not know whether they are observing the original reports $(m_1^O, m_2^O)$ or the updated ones $(m_1^U, m_2^U)$. We denote with $\gamma \in (0, 1)$ the probability that the voters observe $(m_1^O, m_2^O)$ (i.e., $m = m^O$) and with $1 - \gamma$ the probability that they observe the updated reports $(m = m^U)$. Let the function $K$ summarize the voters’ verifiable knowledge, determined by $m$ and $s$, s.t. $K = \begin{cases} \emptyset & \text{if } m = (0, 0) \\ 0 & \text{if there exists } i \text{ s.t. } m_i = 1 \text{ and } s = 0 \\ 1 & \text{if there exists } i \text{ s.t. } m_i = 1 \text{ and } s = 1. \end{cases}$

Voters enjoy consuming news. For each Media outlet, there is a share $\beta$ of voters who are its loyal readers. The remaining $(1 - 2\beta)$ Voters choose whether to allocate their time to Media 1, Media 2, or neither, contingent on the specific news report profile they observe, $m$. Let $t = (t_1, t_2)$ describe these voters’ readership of $M_1$ and $M_2$ respectively. Let the set of possible readership profiles be $T := \{(1, 0), (0, 1), (0, 0)\}$. We assume that voters do not consume any news when $(m_1 = 0, m_2 = 0)$ and that if $M_1$ and $M_2$ run the same story, then voters prefer reading the story from the original source. In practice, the latter condition means that when voters see both Media outlets breaking the same story, they will prefer to read the story in the outlet that, in equilibrium, was more likely to have gotten the story in the first place, i.e., $M_1$ if $e_1^* > e_2^*$. The intuition behind this assumption is two-fold: in practice, the original source is more likely to have fuller details of the story, and voters also
likely derive some expressive value from rewarding the original source. 

By way of interpretation, we can think of the message profile observed by a voter as the (top) headlines that s/he might see on the front pages on the newsstand, or on the first pages of the web-based news services. The Media that that voter then selects to read the story going with the headline, supplies a detailed account elaborating on the headline and provides that voter with her news-consumption utility.

The news consumption utility of the voters whose choice of media outlet is contingent on \( m \) is given by \( \ln(1 + t_1 m_1 + t_2 m_2) \) s.t. \( t \in T \) and if \( (m_1 = m_2 = 1 \text{ and } e_i^* < e_j^*) \) then \( t_i = 0 \). We assume that media outlets derive revenues from their readership captured by the payoff also given by \( t_i(m_1, m_2) \). Further, we assume that \( M_1 \) pays cost \( c_1 \in [0, 1) \) if the incumbent Politician loses the election, while \( M_2 \) pays cost \( c_2 \in [0, 1) \) if the incumbent Politician wins the election.

Having consumed the news stories, voters choose whether reelect or dismiss the Politician. We denote with \( r : \{\emptyset, 0, 1\} \to \{0, 1\} \) the probability of retention, where \( r(\cdot) = 1 \) stands for re-electing the incumbent Politician and \( r(\cdot) = 0 \) stands for electing the challenger. We assume that the voters receive an additional benefit \( R > 0 \) when electing a high-ability policy-maker for the next term of office.

We study the Perfect Bayesian Equilibria of this game. The formal definition of equilibrium in our game is provided in the Appendix. Informally, an equilibrium specifies (1) the Politician’s optimal effort choice, given the subsequent equilibrium behavior of the Media and the voters; (2) the optimal investment choices of \( M_1 \) and \( M_2 \), given the competing media’s optimal investment strategy, the Politician’s strategy, and the subsequent equilibrium behavior of the Media and the voters; (3) the optimal publication choice of each media as a consequence of its signal and its optimal copying strategy, given subsequent equilibrium behavior; (4) the voters’ optimal news consumption choice as a function of the available news reports; and (5) the voters’ optimal retention choice as a function of the voters’ knowledge of the policy outcome, and in the absence of knowledge of the outcome, their Bayesian posterior beliefs of the Politician’s type given the absence of a report, and \( M_1 \) and \( M_2 \)’s strategies.

Everywhere, when we characterize voters’ news consumption decisions, we have in mind those voters whose choice of a media outlet is contingent on the published reports.

4 Analysis

The game has multiple equilibria consistent with the above criteria, only some of which are stable. The full characterization of the equilibria is in the appendix. We focus the remainder of the analysis and substantive interpretation on the equilibria that are stable in a sense we make precise below, which are the equilibria such that there is a dominant media firm which invests more than the other in obtaining the story and, as we show below, consequently enjoys a larger market share in equilibrium. These equilibria are stable in the sense of being robust to small perturbations in the best-response correspondences, whereas the equilibria

\[\text{This assumption also comports with an accountability-maximizing normative behavioral benchmark. Details are to be added.}\]
with $e_1 = e_2$ are not. To see this, first consider the equilibrium in which $e_1 = e_2$. In this equilibrium voters who actively choose their news consumption are indifferent between $M_1$ and $M_2$ and play a mixed news consumption strategy $x^*$. Suppose that instead of playing $x^*$, they play a small perturbation of $x^*$, $(x_1 = x^* + \varepsilon, x_2 = x^* - \varepsilon)$, where $\varepsilon > 0$. The best response to this perturbation is $e_1 > e^*$ and $e_2 < e^*$, hence $e_1 \neq e_2$. But if $e_1 > e_2$, then the $(1 - 2\beta)$ mass of voters are no longer indifferent between consuming $M_1$ and $M_2$, strictly preferring $M_1$. The best response of the media, then, are to adopt the investment levels specified in the equilibrium in which $M_1$ is the dominant firm. Thus the equilibrium in which $e_1 = e_2$ is clearly unstable. To see that the equilibria in which there is a dominant media firm are stable, consider what happens if a small mass $\varepsilon > 0$ of voters deviate from their media consumption strategies, either by consuming the ”wrong” source or by not consuming media. Firstly, those who deviate obtain lower utility than they would if they were to follow their equilibrium strategy. Second, the response of the dominant firm is a correspondingly small decrease in its investment. Except in knife-edge cases, it remains the dominant firm, and so the voters’ best response is still to consume news from the dominant media firm when both firms publish the same content. Thus the $\varepsilon$-mass of voters who deviated still have an incentive to return to their equilibrium strategy, and the equilibrium is stable.

We will maintain the following conjunction of assumptions on the values of parameters $\pi^{a_H}, \pi^{a_L}, \pi^{a_H}, \pi^{a_L}, \lambda$, and $\lambda_C$ in our model:

**Assumption 1.** $1 > \frac{\lambda - \lambda_C}{\pi^a_H - \pi^a_L - \lambda_C (\pi^a_H - \pi^a_L)}$ for all $a = a_L, a_H$.

This assumption implies that, independently of the Politician’s effort, if the voters learn that the outcome is failure then the updated belief that the Incumbent is of high ability is lower than $\lambda_C$, that is, $\Pr(\theta = \theta_H | K = 0) < \lambda_C$. In effect, this assumption ensures that the news matters for the electoral choice.

The next, more restrictive, assumption implies that a profile of uninformative reports is not so negative a sign about the type of the incumbent Politician that it would override her incumbency advantage over the challenger, $\Pr(\theta = \theta_H | K = \emptyset) \geq \lambda_C$:

**Assumption 2.** $\frac{\lambda - \lambda_C}{\pi^a_H - \pi^a_L - \lambda_C (\pi^a_H - \pi^a_L)} > 1/2$.

To understand the bite of this assumption, note that, given that a profile of uninformative reports implies that $M_2$ did not get the story or that that story was good news for the incumbent Politician, if such a profile does mean a bad news for the Politician, it must come from the fact that $M_1$ obtained the story, that story was that the Politician’s policy failed, and that $M_1$ chose to suppress it. If $e_1$ is very high, then that negative update on a profile of uninformative reports must be substantial, but when $e_1$ is relatively low, then the likelihood of $M_1$ having gotten the news (and suppressed it) is relatively low as well, and so the negative update is not very large. What Assumption 2 is doing is providing a condition such that when $M_1$ is suppressing the news of policy failure in equilibrium, its effort level $e_1$ is sufficiently low. Because, as we will see below, equilibrium value of $e_1$ is contingent on which equilibrium is being played, a well as on the value of $\gamma$, the necessary and sufficient condition for when the update on the profile of uninformative reports is consistent with re-electing the
 incumbent must reflect those elements. The Assumption 2 is a sufficient condition for the equilibrium in which $M_1$ is dominant. A weaker condition, bounding the fraction in the statement of condition away from $1/4$ rather than from $1/2$ is sufficient for the equilibrium in which $M_2$ is the dominant Media. It bears noting that regardless of these conditions, there cannot be an equilibrium in which the voters interpret the profile of uninformative reports as implying that the posterior on the incumbent Politician is lower than their prior about the challenger, since at that point, $M_1$ would have an incentive to release the news of failure in order to gain readership. Thus, in any equilibrium, “no news” cannot be “the really bad news.”

We next present several results describing some of the basic incentives faced by the players in our model.

**Lemma 1.** Under Assumptions 1 and 2, voters do not reelect the Politician if, and only if, they observe failure ($K = 0$).

**Lemma 2.** Voters choose the following news consumption time allocations:

1. $t(m_1 = 0, m_2 = 0) = (0, 0)$,
2. $t(m_1 = 1, m_2 = 0) = (1, 0)$,
3. $t(m_1 = 0, m_2 = 1) = (0, 1)$,
4. $t(m_1 = 1, m_2 = 1) = \begin{cases} (1, 0) & \text{if } e_1 > e_2 \\ (0, 1) & \text{if } e_1 < e_2 \\ \{ (1, 0), (0, 1) \} & \text{if } e_1 = e_2 \end{cases}$

**Lemma 3.** Any Media outlet $M_i$ copies $M_j$’s original message.

Consider next the incentives for $M_1$ and $M_2$ to report or conceal the news they uncover. The following is a straightforward and intuitive result:

**Lemma 4.** $M_1$ never conceals evidence of success and $M_2$ never conceals evidence of failure. Formally, $m_1^*(\sigma_1 = 1) = 1$, and $m_2^*(\sigma_2 = 0) = 1$.

But what are the media’s incentives to report the news that is unfavorable to the election of their preferred candidate? We start by noting that under Assumptions 1 and 2 Media outlet $M_2$, which favors the Challenger, never has an incentive to conceal evidence. For any Media outlet, concealing evidence that is unfavorable to the preferred candidate has an upside and a downside. The upside stems from the increased probability of (re-)election for the preferred candidate. The downside resides in the loss of readership associated with not breaking the news. Note, however, that under Assumptions 1 and 2 the voters reelect the Incumbent both upon observing evidence of success ($K = 1$) and upon not receiving any evidence ($K = \emptyset$). Consequently, not publishing evidence of success costs $M_2$ readership but does not present an upside as it does not increase the probability of election of the Challenger.
Lemma 5. Under Assumptions 1 and 2, $M_2$ never has an incentive to conceal evidence of success.

Our next result shows that there exist conditions, under which $M_1$, unlike $M_2$, has incentive to conceal evidence of failure. Indeed, when $M_1$ publishes evidence of failure the Incumbent loses the election and $M_1$ pays cost $c_1$. If, on the other hand, $M_1$ conceals evidence of failure, $M_1$ only incurs a cost of $e_2c_1$ because the Incumbent only loses the election if $M_2$ observes the policy outcome. Concealing failure thus provides $M_1$ with a political benefit of $(1 - e_2)c_1$. Concealing failure, however, results in a loss of readership for $M_1$. The magnitude of this loss depends (1) on whether $M_1$ is the dominant newspaper, (2) on the investment level $e_2$ of the competing Media outlet $M_2$, (3) on the probability $\gamma$ that the voters see the original messages $m_1^O$ and $m_2^O$ and (4) on the share $(1 - 2\beta)$ of non-loyal readers.

Consider first the case where $M_1$ is the dominant newspaper, i.e. $e_1 > e_2$. Then if $M_1$ publishes evidence of failure it receives a readership of $\beta + (1 - 2\beta)$. If it does not publish the evidence of failure, however, its expected readership is only $\beta + (1 - 2\beta)e_2(1 - \gamma)$. Hence, the benefit of publishing the news when $M_1$ is the dominant newspaper is $(1 - 2\beta)(1 - e_2 + e_2\gamma)$. Consider now the case where $M_1$ is not the dominant newspaper, i.e. $e_2 > e_1$. Then, if $M_1$ publishes evidence of failure, its expected readership is $\beta + (1 - 2\beta)(1 - e_2)e_2\gamma$, while its readership when not publishing news of failure is simply $\beta$. Consequently, the benefit of publishing the news when $M_1$ is not the dominant newspaper is $(1 - 2\beta)(1 - e_2)\gamma$. Comparing the political upside of concealment with its associated loss in readership yields the following result:

Lemma 6. 1. If $M_1$ is the dominant newspaper ($e_1 > e_2$), then $M_1$ conceals evidence of failure if, and only if, 

$$c_1 \geq (1 - 2\beta) + (1 - 2\beta)\frac{e_2}{1 - e_2}\gamma.$$ 

2. If $M_1$ is not the dominant newspaper ($e_2 > e_1$), then $M_1$ conceals evidence of failure if, and only if, 

$$c_1 \geq (1 - 2\beta)\gamma.$$ 

Several remarks are in order. First, an increase in the possibility of securing credit for one’s news story, $\gamma$, decreases the likelihood of suppressing the news report that is unfavorable to the candidate preferred by a given media. To see the basic intuition, suppose that $\gamma$ is high. This means that when $M_2$ breaks the news of the policy failure, but $M_1$, having uncovered the same story, chooses to suppress it, $M_2$ is likely to get the full credit for it, regardless of whether it is the dominant paper in equilibrium and of whether $M_1$ chooses to “copy” it, once $M_2$ breaks the news. This creates a strong incentive for $M_2$ to invest into investigation, but also for $M_1$ not to suppress the story if it uncovers it: for $\gamma$ sufficiently high, the competition for the readers, rather than the ideological motive (bias) becomes the primary driver of media incentives. As $\gamma$ starts dropping, however, the incentive to “wait and
see” whether the other media got the unfavorable news becomes stronger, as the dominant media, whether \( M_1 \) or \( M_2 \), now will be able to enjoy the readership benefits from “copying” the story at that point.

Second, the incentives to suppress evidence of failure are increasing in \( \beta \). The higher \( \beta \), the smaller is the set of readers whom the media might lose by failing to break the news it uncovers, and so the less gain there is from sacrificing the electoral future of its preferred candidate. Note that when \( M_1 \) is the dominant newspaper, these incentives to suppress are also increasing in \( e_2 \). The reason is that higher \( e_2 \) means higher probability of \( M_2 \) getting the story, but because \( M_1 \) is dominant, it will get the credit for it if the readers see the updated (potentially “copied”) stories and so higher \( e_2 \) means that \( M_1 \) will be getting an opportunity to copy the story (and get some credit for it) more often, without needing to incur the costs of getting the story itself.

Third, \( M_1 \)'s incentives to conceal are stronger when \( M_2 \) is the dominant Media outlet. Here, the intuition again comes down to the effect on the upside of reporting a story that \( M_1 \) would, all else equal, prefer to suppress. When \( M_2 \) is the dominant media, it will get (partial) credit for the story that \( M_1 \) breaks. This means that, compared to the case in which \( M_1 \) is the dominant media, \( M_1 \)'s return on breaking the news it dislikes will be lower.

Our next result describes the relationship between effort levels by the two media and the effort choice by the incumbent Politician.

Lemma 7. The Politician chooses high effort if

1. \( B \geq \frac{\psi}{(\pi^a_H - \pi^a_L)(e_1 + e_2 - e_1 e_2)} \) and neither media suppresses news; or

2. \( B \geq \frac{\psi}{(\pi^a_H - \pi^a_L)e_2} \) and \( M_1 \) suppresses the news of policy failure.

When neither media suppresses news, the return on high effort by the Politician will depend on effort choices of each media. In particular, the Politician’s incentives to choose a high effort will then be determined by media effort choices through the quantity \( e_1 + e_2 - e_1 e_2 \); in the condition in part 1 of the lemma, this quantity captures the full effect of those choices on the Politician’s decision. In contrast, when \( M_1 \) suppresses the news of failure, only \( M_2 \)’s effort decision becomes relevant for the Politician’s decision, and the media incentives to the Politician in that case are fully induced by \( e_2 \) (through the condition in part 2 of the lemma).

We next consider three special cases of our model that help us clarify some of the dynamics we seek to characterize.

4.1 Case 1: \( \beta = .5 \)

We first consider a setting where all voters are loyal to a specific newspaper (\( \beta = .5 \)) and no voter therefore adjusts her choice of newspaper depending on the news messages submitted by the Media outlets. In this case, all the incentives for the Media outlets to acquire information are driven by their political ideology and not by concerns over circulation. From part 1 of Lemma 6, it follows that \( M_1 \) always conceals evidence of failure in this setting. This implies that all the incentives for the incumbent Politician to exert high effort are given by \( M_2 \)’s
equilibrium level of effort $e^*_2$. Notice, moreover, that in this case $M_1$ has no incentives to acquire information, since that would not increase its circulation, and given Lemma 1 there is no upside for $M_1$ to acquire information for ideological (bias) reasons. Consequently, $e^*_1 = 0$ in equilibrium. In contrast, $M_2$ has an incentive to acquire information in order to lead to the dismissal of the Incumbent and to avoid having to pay cost $c_2$. This incentive increases as the cost $c_2$ of seeing the Incumbent reelected increases and as the probability $(1 - \pi)$ of observing policy failure increases. Moreover, given that the readership does not depend on who breaks the news, it also does not depend on the parameter $\gamma$. Summarizing, we have

**Proposition 1.** If $\beta = .5$, $M_1$ conceals evidence of failure, $e^*_1 = 0$, $e^*_2 = \frac{1}{2}c_2(1 - \pi)$, and all accountability is provided via $M_2$’s level of effort. Accountability is increasing in $c_2$, decreasing in $\pi$ and does not depend on $\gamma$.

### 4.2 Case 2: unbiased media

While our first benchmark case considered the setting where Media outlets’ incentives to acquire information are entirely driven by political ideology, we now shut down precisely such concerns, letting $c_1 = c_2 = 0$, to consider the case where incentives to acquire information stem only from media concerns about circulation. Given Lemma 6 in this setting, $M_1$ does not have an incentive to conceal evidence of failure. There are two mirror-image equilibrium profiles, one in which $e^*_1 > e^*_2$ and the other in which $e^*_2 > e^*_1$. Because this version of the game is symmetric, these two equilibria are identical up to the labeling of the dominant Media outlet.

For any Media outlet $M_i$, the utility of exerting effort $e_i$ is thus given by

$$U_{M_i}(e_i|e_j, x_i, t_i) = \beta + (1 - 2\beta)[t_i(1, 1)[\gamma e_1 e_2 + (1 - \gamma)(e_1 + e_2 - e_1 e_2)] + \gamma e_i (1 - e_j)] - e^2_i.$$

Taking first order conditions, we get

$$\frac{\partial U_{M_i}}{\partial e_i} = (1 - 2\beta)[t_i(1, 1)(1 - \gamma - e_j + 2\gamma e_j) + \gamma(1 - e_j)] - 2e_i,$$

and thus

$$e_i = \frac{1}{2}(1 - 2\beta)[t_i(1, 1)(1 - \gamma - e_j + 2\gamma e_j) + \gamma(1 - e_j)].$$

Because $U_{M_i} \leq 1 - e^2_i$ for all $M_i$, we have $e^*_j \leq 1/2$. Consequently, $e_i$ is increasing in $t_i(1, 1)$ for all $i$. Because the game is otherwise symmetric, it follows that if $t_i(1, 1) > t_j(1, 1)$, then $e_i > e_j$. But then, by assumption, we have $t_i(1, 1) = 1$ and $t_j(1, 1) = 0$ in equilibrium.

---

5 There is also a symmetric equilibrium, in which the media outlets choose identical levels of effort. This equilibrium is an artifact of the absence of bias: when at least one media has a bias, the equilibrium with identical effort levels is ruled out by the refinement argument given above. Consequently, we focus the discussion of the no-bias case on the asymmetric equilibria.
Consequently, \( e_i = \frac{1}{2}(1 - 2\beta)(1 - e_j(1 - \gamma)) \) and \( e_j = \frac{1}{2}(1 - 2\beta)(1 - e_i)\gamma \). Solving this system of two equations for \( e_i \) and \( e_j \), we get

\[
e_i^* = \frac{(1 - 2\beta)(2 - (1 - 2\beta)\gamma(1 - \gamma))}{4 - \gamma(1 - \gamma)(1 - 2\beta)^2} > e_j^* = \frac{\gamma(1 - 4\beta^2)}{4 - \gamma(1 - \gamma)(1 - 2\beta)^2}.
\]

The figure below shows the equilibrium effort levels of the unbiased media as a function of \( \gamma \).

Figure 1: Effort levels \( e_1, e_2 \) as a function of \( \gamma \), for \( \beta = 0 \). Top line is \( e_1^* + e_2^* - e_1^*e_2^* \), intermediate line is \( e_i^* \), bottom line is \( e_j^* \).

**Proposition 2.** If Media outlets are unbiased, \( c_1 = c_2 = 0 \), then in equilibrium: (1) no Media outlet suppresses news, and (2) \( e_i^* = \frac{(1 - 2\beta)(2 - (1 - 2\beta)\gamma(1 - \gamma))}{4 - \gamma(1 - \gamma)(1 - 2\beta)^2} > e_j^* = \frac{\gamma(1 - 4\beta^2)}{4 - \gamma(1 - \gamma)(1 - 2\beta)^2} \). Accountability depends on \( e_1^* + e_2^* - e_1^*e_2^* \), is increasing in \( \gamma \) and decreasing in \( \beta \).

**4.3 Case 3: \( \gamma = 1, \beta = 0 \)**

The last special case we consider is one in which securing credit when breaking the news is unproblematic (\( \gamma = 1 \)) and where all consumers are reactive to the published news (\( \beta = 0 \)). In this setting, concerns over circulation are strongest, as there are no loyal readers, but Media outlets are also motivated by their political ideology (bias). This case allows us to establish our first set of results on how concerns over circulation and concerns over political ideology interact in the market for news.
Note, first, that under the case assumptions, this is a winner-take-all competition between the media. Whichever media publishes the story first, wins the full readership with certainty. Since \( c_1 \in [0, 1) \), that incentive will dominate the bias concern for \( M_1 \), which will have a weakly dominant strategy not to suppress the news. The weak dominance of not suppressing the news for \( M_2 \) follows from Lemmata 4 and 5.

We highlight two further results for this case. First, an equilibrium in which the Media outlet that favors the challenger, \( M_2 \), exerts higher effort than the Media outlet that favors the Incumbent, \( M_1 \), always exists, whereas the reverse equilibrium, in which \( M_1 \) exerts higher effort than \( M_2 \), only exists for certain parameter values. Second, when both equilibria do exist, the equilibrium in which \( M_2 \) exerts higher effort leads to a higher level of accountability.

To understand the logic behind the first result, remember that absent any information, the voters reelect the incumbent Politician, in which case \( M_2 \) incurs the cost \( c_2 \). In order to avoid this cost, \( M_2 \) needs to find evidence of failure. Consequently, \( M_2 \)'s level of effort \( e_2 \) increases in its political bias \( c_2 \). For similar reasons, \( M_2 \)'s effort is decreasing in the probability of success \( \pi \). In contrast, \( M_1 \)'s level of effort does not increase in its political bias \( c_1 \). Indeed, absent any information, the incumbent Politician is reelected and \( M_1 \) does not pay the cost \( c_1 \). Given that \( M_1 \) does not conceal evidence of failure when \( \gamma = 1 \) and \( \beta = 0 \), \( M_1 \) thus incurs political cost \( c_1 \) whenever \( M_1 \) learns that the outcome is failure. Consequently, this decreases the incentives for \( M_1 \) to acquire information. For similar reasons, \( M_1 \)'s level of effort is increasing in \( \pi \). Now, if the non-loyal voters read Media outlet \( M_2 \) when observing the same messages, i.e. \( t(1,1) = (0,1) \), \( M_2 \) has stronger incentives to acquire information than \( M_1 \) both in terms of increasing its readership and in terms of reducing its political costs. Consequently, \( e_2 \) is greater than \( e_1 \) in equilibrium for all parameter values \( \pi, c_1, c_2 \). When the non-loyal readers read \( M_1 \) instead of \( M_2 \) upon observing the same messages, i.e. \( t(1,1) = (1,0) \), then there exists a tradeoff. On the one hand, \( M_1 \)'s incentives to acquire information to increase its readership are stronger than \( M_2 \)'s. On the other hand, \( M_2 \) has stronger incentives to acquire information for political reasons. When the levels of bias \( c_1 \) and \( c_2 \) are sufficiently high and the probability of success is sufficiently low, we have \( e_1 < e_2 \) despite \( t(1,1) = (1,0) \) and an equilibrium in which \( M_1 \) exerts more effort than \( M_2 \) does not exist. The following result provides the conditions for the existence of the two equilibria:

**Proposition 3.** Suppose that \( \gamma = 1 \), and \( \beta = 0 \). Then, there exists for all \( c_1, c_2, \pi \in (0,1) \) an equilibrium in which \( t(1,1) = (0,1) \) and \( e^*_2 > e^*_1 \). However, an equilibrium in which \( t(1,1) = (1,0) \) and \( e^*_1 > e^*_2 \) only exists if \( \pi \) is sufficiently high and \( c_1 \) and \( c_2 \) are sufficiently low.

### 4.4 General model

We begin with the result on the relationship between the security of credit for the new story and the incentives to suppress the story in equilibrium.

**Proposition 4.** In every equilibrium, there exists (an equilibrium-specific) \( \gamma \geq 0 \) such that for all \( \gamma \geq \gamma \) no Media outlet conceals evidence, but for all \( \gamma < \gamma \) Media outlet \( M_1 \) conceals evidence of failure.
Note that whether and how much the lower bound on $\gamma$ binds here will depend on the equilibrium and on other parameter values. Because the incumbent is not retained when the voters learn of policy failure, and because $M_1$ pays a cost when the incumbent is defeated, $M_1$ has a direct incentive to suppress news of failure. However, suppressing the news story means sacrificing readership, in expectation. This sacrifice is effectively smaller for lower values of $\gamma$ because of $M_2$ publishes news of policy failure, $M_1$ can “copy” it with lower likelihood of being recognized as having done so. When $M_1$ is the smaller media it gets readership for its story only when the larger media does not have it; thus, suppressing the story entails sacrificing expected readership $(1 - 2\beta)(1 - e_2 + e_2\gamma)$.

We next state the existence results for the two types of equilibria in the model.

**Proposition 5.** For all parameter values, there exists an equilibrium in which $e_2^* > e_1^*$. For this equilibrium, there exists a value $\hat{\gamma}_2 = \frac{c_1}{1 - 2\beta} \in (0, 1)$ s.t. $m_1^0(\sigma_1 = 0) = 0$ for all $\gamma < \hat{\gamma}_2$ and $m_1^0(\sigma_1 = 0) = 1$ otherwise.

To describe the conditions under which we will see the equilibrium in which $M_1$ dominant, we next restrict attention to the setting in which $c_1 < 1 - 2\beta$, that is, $\beta < \frac{1 - c_1}{2}$. This is the condition under which the interest in increasing circulation is sufficiently large that if $M_1$ is faced with a choice of whether to have the full readership at the cost of sacrificing its preferred candidate or have its preferred candidate win but have no readership they will prefer the first option. It follows from part 1 of Lemma 6 that this means that if $M_1$ is the dominant media, then it will not suppress the news of policy failure (part 2 of the same lemma suggests that it may or may not suppress the news of failure if $M_2$ is the dominant media).

**Proposition 6.** If $\min\{\frac{1 - c_1}{2}, \frac{1}{4} - \frac{1}{4}c_1(1 - \pi) - \frac{1}{4}c_2(1 - \pi) - \frac{1}{16}c_2^2(1 - \pi)^2\} > \beta$ then an equilibrium in which $e_1^* > e_2^*$ exists for all $\gamma \in [0, 1]$. If $\frac{1 - c_1}{2} > \beta > \frac{1}{4} - \frac{1}{2}c_1(1 - \pi) - \frac{1}{2}c_2(1 - \pi) - \frac{1}{16}c_2^2(1 - \pi)^2$ then for $\beta$ large enough, an equilibrium in which $e_1^* > e_2^*$ exists only for $\gamma$ sufficiently small.

The conjunction of Propositions 5 and 6 implies the possibility of multiple (two) equilibria, one in which $M_1$ invests more and gets credit for having the story when both outlets report the same news, and one in which $M_2$ does. Because both media outlets value realized demand for their product, and because consumers systematically consume more from the outlet with larger investment, either media could be on top in equilibrium. The incentives for the secondary firm to invest are very different, however, depending on its bias. $M_1$, which favors the incumbent, has little incentive to invest because the news can only elicit a negative (from $M_1$’s perspective) electoral response from the voters, and it rarely wins the readership as the media with smaller investment.
Lemma 8. Media $M_i$’s equilibrium expected readership is higher than media $M_j$’s if and only if $e^*_i > e^*_j$.\[^6\]

The equilibrium expected readership is higher for the dominant media because it is more likely to get the story and because whenever both media outlets have the story, the voters consume news from the one with larger investment into getting the story. Things are different when $M_2$ is the media with lower investment. By discovering and reporting policy failure, $M_2$ can obtain its preferred outcome. Its incentive to invest increases as the likelihood and desirability of electing the challenger increases. If policy failure is sufficiently likely ($(1 - \pi)$ sufficiently high) and sufficiently desirable for $M_2$ ($c_2$ is sufficiently high), then $M_2$’s incentive to invest can be greater than that of $M_1$, even though $M_1$ obtains the readership if the voters see the same story in both media. In this case, there can be no equilibrium in which $e_2 < e_1$.

These various analyses generate a set of new predictions concerning the effects of Media competition on accountability. In particular, we show that, although for relatively high security of credit for the news, greater competition between the media outlets comes with higher political accountability, that intuitive relationship breaks down when security of credit is low. The ease with which media can claim credit for the competitor’s stories creates a bias in reporting that makes the pro-incumbent media reports irrelevant for accountability.

To get an intuition for this result, consider the graph below. It represents, as a function of $\gamma$, the equilibrium levels of effort in the equilibrium in which $M_2$ is the dominant newspaper, i.e. $e^*_2 > e^*_1$, as well as the corresponding accountability for $c_1 = .5, c_2 = .2, \pi = .65,$ and $\beta = 0$. Consider first the case, in which $\gamma < c_1 = .5$. In this case, there are two lines. The bottom blue line which represents $e^*_1$ and the top yellow line representing $e^*_2$. Because $M_1$ conceals evidence of failure when $\gamma < c_1$, $e^*_2$ is also the relevant measure of accountability. Notice that $e^*_1$ is increasing in $\gamma$, whereas $e^*_2$ is slightly decreasing in $\gamma$. In other words, as competition between the Media outlets increases, i.e. as $e^*_2$ and $e^*_1$ get closer to each other, accountability, measured by $e^*_2$, decreases.

When $\gamma \geq c_1$, $M_1$ does not suppress evidence of failure, consequently the relevant measure of accountability is $e^*_1 + e^*_2 - e^*_1e^*_2$. For $\gamma \geq c_1$, there are thus three lines to consider: (1) the blue line representing $e^*_1$, the intermediate red line representing $e^*_2$, and the top yellow line representing $e^*_1 + e^*_2 - e^*_1e^*_2$. Notice that in this case, accountability is increasing in $\gamma$.

\[^6\]The current argument in the proof does not yet cover $e^*_1 > e^*_2$ for the case in which $c_1 > 1 - 2\beta$ and $\gamma < \hat{\gamma}$.
Finally, we study which equilibrium is better in terms of accountability. The equilibrium with $M_1$ dominant sometimes induces better accountability than does the equilibrium with $M_2$ dominant. This happens when $M_1$ publishes all stories as the dominant media, but suppresses stories of policy failure when $M_2$ is the dominant media. Under these circumstances, the total effort invested by the two media and the probability of failure being revealed may be higher with $M_1$ dominant than with $M_2$ dominant – even if $M_2$, were it dominant, would be investing no less than $M_1$, and, of course, has a stronger preference for uncovering the news (of policy failure) that could be pivotal to the voters. $M_1$’s incentives to suppress are stronger when it is not the dominant media because the credit it would get for breaking the story would be more diluted than when it is the dominant media. While the same would, of course, be true for $M_2$ under these circumstances as well, it would not be experiencing the ideological disutility that comes with the revelation of failure, and so, as the smaller media, would be encouraged to invest into investigation more than $M_1$. The social optimality of $M_1$ dominant equilibrium occurs under the intermediate values of $\gamma$: not so high that the incentives to report are always overriding and not so low that the incentives to conceal becomes so strong that $M_1$ would act on it when it is the dominant media.

These dynamics can be seen on the following figure. It represents for $c_1 = .7, c_2 = .15, \pi = .8$, and $\beta = 0$, the following four quantities. The bottom green line, the intermediate yellow line and the red line represent respectively $e_2^*, e_1^*$, and $e_1^* + e_2^* - e_1^*e_2^*$ in the equilibrium in which $M_1$ is the dominant Media outlet. The remaining blue line represents measure of accountability when $M_2$ is the dominant news outlet. Notice that there is a discontinuity at $\gamma = .7$. Indeed, for $\gamma < c_1 = .7, M_1$ suppresses evidence of failure and accountability is mea-
sured solely via $e_2^*$. When $\gamma \geq c_1 = .7$, however, $M_1$ publishes all stories and accountability is measured via $e_1^* + e_2^* - e_1^*e_2^*$. Accountability is higher in the equilibrium in which $M_2$ is dominant when $\gamma$ is low, and this despite the fact that $M_1$ suppresses evidence of failure in that case, and when $\gamma$ is high. For intermediate values of $\gamma$, the red line is above the blue line, and accountability is higher in the equilibrium in which $M_1$ is the dominant news outlet. This occurs precisely for values of $\gamma$ for which $M_1$ suppresses evidence of failure when it is the smaller Media outlet, but does not when it is the dominant one.

Figure 3:

5 Appendix

We first specify our equilibrium concept:

Let $x = (x_1, x_2)$ represent a mixed media consumption strategy where $x_1 = \Pr(t = (1, 0))$ is the probability the consumer chooses $M_1$, $x_2 = \Pr(t = (0, 1))$ is the probability of choosing $M_2$, and $1 - x_1 - x_2 = \Pr(t = (0, 0))$ is the probability of consuming neither. Let $E[u_i(\sigma_i)]$ represent $M_i$’s expected utility in equilibrium given $\sigma_i$. (Note: for $\sigma_i = \emptyset$, this would be the weighted average of the equilibrium utilities when $\sigma_j \in \{\emptyset, 0\}$ or $\sigma_j \in \{\emptyset, 1\}$, as appropriate.)

A Perfect Bayesian Equilibrium strategy profile is

$a^*, (c_1^*, c_2^*), (m_1^O(\sigma_1), m_2^O(\sigma_2)), (m_1^U(m^O), m_2^U(m^O)), x^*(m; e^*, m^O(\sigma), m^U(m^O)), r^*(K, m; a^*, e^*)$

such that all of the following conditions hold:

(1)
1. For voters:

\[ r^*(K, m; a^*, e^*) = 1 \text{ if, and only if, } \Pr(\theta = \theta^H|K, m; a^*, e^*) \geq \lambda_C \]

\[ x^*(m, e^*) \text{ maximizes } (x_1 \ln(1+m_1)+x_2 \ln(1+m_2)+(1-x_1-x_2)(0)) \text{ s.t. if } m_1 = m_2 = 1 \]

and \( e^*_i < e^*_j \); then \( x_i = 0 \).

2. For Media outlets:

for \( i \in \{1, 2\} \), \( m_j^U(m^O) \) maximizes \( t_i(m^U(m^O)) \) given \( m_j^U(m^O) \);

for \( M_1 \): choose \( m_1^O(\sigma_1 = 1) \) that maximizes

\[
\beta + \sum_{m_2^O \in \{0,1\}} \Pr(m_2^O | \sigma_1, e^*, m_2^O*(\sigma_2))(1-2\beta) \left[ \gamma t_1(m^O) + (1-\gamma)t_1(m^U(m^O)) \right]; \quad (2)
\]

and \( m_1^O(\sigma_1 = 0) \) that maximizes

\[
\beta + \sum_{m_2^O \in \{0,1\}} \Pr(m_2^O | \sigma_1, e^*, m_2^O*(\sigma_2)) \left[ (1-2\beta)(\gamma t_1(m^O) + (1-\gamma)t_1(m^U(m^O))) - c_1 \max\{m_1^O, m_2^O\} \right]; \quad (3)
\]

for \( M_2 \): choose \( m_2^O(\sigma_1 = 1) \) that maximizes

\[
\beta + \sum_{m_1^O \in \{0,1\}} \Pr(m_1^O | \sigma_2, e^*, m_1^O*(\sigma_1))(1-2\beta) \left[ \gamma t_2(m^O) + (1-\gamma)t_2(m^U(m^O)) \right] - c_2 \quad (4)
\]

and \( m_2^O(\sigma_1 = 0) \) that maximizes

\[
\beta + \sum_{m_1^O \in \{0,1\}} \Pr(m_1^O | \sigma_2, e^*, m_1^O*(\sigma_1))(1-2\beta) \left[ \gamma t_2(m^O) + (1-\gamma)t_2(m^U(m^O)) \right]; \quad (5)
\]

for \( i \in \{1, 2\} \),

\[
e^*_i \in \arg \max_{[0,1]} \left( \begin{array}{c}
E[\theta|a^*(e_iE[u_i(\sigma_i = 1)]) + (1-e_i)E[u_i(\sigma_i = 0)|s = 1)] \\
+ (1-E[\theta|a^*])(e_iE[u_i(\sigma_i = 0)]) + (1-c_i)E[u_i(\sigma_i = 0)|s = 0)] - c_i^2
\end{array} \right).
\] \quad (6)

3. For the Politician:

\[
a^* = a_H \text{ if, and only if, at the equilibrium strategies specified above,}
\]

\[
\sum_{K \in \{0,0,1\}} \Pr(K|a_H,)r^*(K, m, a^*, e^*)B - \Psi \geq \sum_{K \in \{0,0,1\}} \Pr(K|a_L,)r^*(K, m, a^*, e^*)B. \quad (7)
\]

19
5.1 Preliminary Results

Proof of Lemma 1. The utility to the voters of electing the challenger is $\lambda C R$. The utility of reelecting the incumbent Politician, in turn, is $\Pr(\theta = \theta^H | K, m; a^*, e^*) R$. Consequently, the voters reelect the Politician if, and only if, $\Pr(\theta = \theta^H | K, m; a^*, e^*) \geq \lambda C$ and do not reelect when $\Pr(\theta = \theta^H | K, m; a^*, e^*) < \lambda C$. In particular, upon not receiving any evidence, i.e. $(m_1 = \emptyset, m_2 = \emptyset)$ and thus $K = \emptyset$, the voters reelect if, and only if, $\Pr(\theta = \theta^H | K = \emptyset, m; a^*, e^*) \geq \lambda C$. By assumption, we have $\Pr(\theta = \theta^H | K = \emptyset, m; a^*, e^*) < \lambda C$.

Suppose the voters learn that the outcome is success, upon observing message profile $m$. Then, we have $\Pr(\theta = \theta^H | K = 1, a^*) = \frac{\pi_{\theta}^* \lambda}{\sum_{\theta} \pi_{\theta}^* \lambda + \pi_{\theta}^* \lambda (1-\pi)} > \lambda$, because $\theta^H > \theta^L$. By assumption, we have $\lambda > \lambda C$. Thus, $\Pr(\theta = \theta^H | K = 1, a^*) > \lambda C$ and it is a best-response for the voters to reelect upon learning that the outcome is success.

Similarly, because $\theta^H > \theta^L$, we have $\Pr(\theta = \theta^H | K = 0, a^*) = \frac{(1-\pi_{\theta}^* \lambda)}{(1-\pi_{\theta}^* \lambda + (1-\pi_{\theta}^* \lambda) (1-\lambda)} < \lambda$. By Assumption 1, $\Pr(\theta = \theta^H | K = 0, a^*) < \lambda C$, and it is a best-response for the voters not to reelect upon learning that the outcome is failure.

Proof of Lemma 2. We have $t(m_1 = 0, m_2 = 0) = (0,0)$ by assumption.

WLOG, suppose $(m_1 = 1, m_2 = 0)$, then if the voters choose $t = (0,0)$ or $t = (0,1)$ they receive utility $\ln(1)$, while if they choose $t = (1,0)$ they receive $\ln(2) > \ln(1)$.

Finally, suppose $(m_1 = 1, m_2 = 1)$, then if the voters choose $t = (0,0)$ they receive utility $\ln(1)$, while if they choose $t = (1,0)$ or $t = (0,1)$ they receive $\ln(2) > \ln(1)$. We assume that if $e_i > e_j$ the voters prefer to read the story from $M_i$ rather than from $M_j$, consequently $t(m_1 = 1, m_2 = 1)$ equals $(1,0)$ if $e_1 > e_2$ and $(0,1)$ if $e_2 > e_1$. When $e_1 = e_2$ the voters are indifferent between $t = (1,0)$ and $t = (0,1)$.

Proof of Lemma 3. There are two cases to consider:

1) Suppose first that the original messages differ, i.e. $m^O = (m^O_1 = 0, m^O_2 = 1)$. If $M_i$ does not copy $M_j$’s original message $m^O_1 = 1$, then $t_i = 0$ whereas if it copies the message from $M_j$, i.e. sets $m^U_1 = m^O_1$, we have $t_i \geq 0$. Hence, $M_i$ is at least weakly better off copying $M_j$’s original message.

2) Suppose $m^O_1 = m^O_2$, then trivially $m^U_1 = m^O_1 = m^O_2$.

Proof of Lemma 4. We have

$$U_{M_i}(m_1(\sigma_1 = 1) = 1) = \beta + (1 - 2\beta) [e_2 t_1(1,1) + (1 - e_2)(1 - \gamma)t_1(1,1) + (1 - e_2)\gamma]$$

$$\geq \beta + (1 - 2\beta)e_2 Pr(m_2(\sigma_2 = 1) = 1)(1 - \gamma) t_1(1,1)$$

$$- e_1(1 - r(\emptyset)) [e_2(1 - Pr(m_2(\sigma_2 = 1) = 1)) + 1 - e_2]$$

$$= U_{M_i}(m_1(\sigma_1 = 1) = 0)$$

Similarly,
Proof of Lemma 6. Given Lemma 1, we have $r(\emptyset) = 1$. Consequently, we have

$$U_{M_1}(m_1(\sigma_1 = 0) = 1) = \beta + (1 - 2\beta)[e_2 t_1(1, 1) + (1 - e_2)(1 - \gamma)t_1(1, 1)] - c_1,$$

and

$$U_{M_1}(m_1(\sigma_1 = 0) = 0) = \beta + (1 - 2\beta)e_2(1 - \gamma)t_1(1, 1) - e_2c_1.$$ 

Rearranging terms yields $U_{M_1}(m_1(\sigma_1 = 0) = 0) \geq U_{M_1}(m_1(\sigma_1 = 0) = 1)$ if, and only if,

$$c_1 \geq (1 - 2\beta)\frac{t_1(1, 1)[1 - e_2 - \gamma + 2e_2\gamma]}{(1 - e_2)} + (1 - 2\beta)\gamma.$$

If $M_1$ is the dominant newspaper ($e_1 > e_2$), then $t_1(1, 1) = 1$. It follows that if $M_1$ is the dominant newspaper, $M_1$ conceals evidence of failure if, and only if,

$$c_1 \geq (1 - 2\beta) + (1 - 2\beta)\frac{e_2}{1 - e_2}\gamma.$$

If, however, $M_1$ is not the dominant newspaper ($e_2 > e_1$), then $t_1(1, 1) = 0$. It follows that if $M_1$ is not the dominant newspaper, then $M_1$ conceals evidence of failure if, and only if,

$$c_1 \geq (1 - 2\beta)\gamma.$$

Proof of Lemma 7. 1. Suppose that $M_1$ and $M_2$ do not conceal any evidence. In that case, the voters learn the policy outcome with probability $(e_1 + e_2 - e_1e_2)$. Hence, and given Lemma 1, the utility to the Politician of exerting high effort is given by

$$U_P(a_H|e_1, e_2, m_i^U, m_i^O, r) = \pi^a_H(e_1 + e_2 - e_1e_2)B + (1 - e_1)(1 - e_2)r(\emptyset)B - \Psi,$$

while the utility of exerting low effort is given by

$$U_P(a_L|e_1, e_2, m_i^U, m_i^O, r) = \pi^a_L(e_1 + e_2 - e_1e_2)B + (1 - e_1)(1 - e_2)r(\emptyset)B.$$
We have
\[ U_P(a_H|e_1, e_2, m_i^U, m_i^O, r) \geq U_P(a_L|e_1, e_2, m_i^U, m_i^O, r) \]
if, and only if,
\[ B \geq \frac{\Psi}{(\pi^{a_H} - \pi^{a_L})(e_1 + e_2 - e_1e_2)}. \]

2. Suppose \( M_2 \) publishes any signal \( \sigma_i = 0, 1 \), while \( M_1 \) conceals evidence of failure but publishes evidence of success. By Lemma 1, \( r(\emptyset) = 1 \). Thus, the utility to the Politician of exerting high effort is given by
\[ U_P(a_H|e_1, e_2, m_i^U, m_i^O, r) = \pi^{a_H}(e_1 + e_2 - e_1e_2)B + [(1 - e_1) + e_1(1 - \pi^{a_H})] (1 - e_2)B - \Psi, \]
while the utility of exerting low effort is given by
\[ U_P(a_L|e_1, e_2, m_i^U, m_i^O, r) = \pi^{a_L}(e_1 + e_2 - e_1e_2)B + [(1 - e_1) + e_1(1 - \pi^{a_L})] (1 - e_2)B. \]

Consequently,
\[ U_P(a_H|e_1, e_2, m_i^U, m_i^O, r) \geq U_P(a_L|e_1, e_2, m_i^U, m_i^O, r) \]
if, and only if,
\[ B \geq \frac{\Psi}{(\pi^{a_H} - \pi^{a_L})e_2}. \]

\[\square\]

**Proof of Proposition 1.** From Lemma we infer that \( M_1 \) always conceals evidence of failure in this setting. The utility to \( M_1 \) of exerting effort is thus given by
\[ U_{M_1}(e_1|e_2, m^O, m^U(m^O), t) = \beta - c_1 e_2 \pi - e_1^2. \]

Taking first order conditions, we get
\[ \frac{\partial U_{M_1}}{\partial e_1} = -2e_1 = 0, \]
and thus
\[ e_1 = 0. \]
The utility to $M_2$ of exerting effort is thus given by

$$U_{M_2}(e_2|e_1, m^o, m^U(m^o), t) = \beta - c_2 [1 - e_2(1 - \pi)] - e_2^2.$$  

Taking first order conditions, we get

$$\frac{\partial U_{M_1}}{\partial e_1} = c_2 (1 - \pi) - 2e_1 = 0,$$

and thus

$$e_2 = \frac{1}{2} c_2 (1 - \pi).$$

**Proof of Proposition 3.** We first consider the equilibrium in which $M_2$ exerts higher effort than $M_1$. In such an equilibrium, we have $t(1, 1) = (0, 1)$.

For Media outlet $M_1$ the utility of exerting effort is then given by

$$U_{M_1}(e_1|e_2, m^o, m^U(m^o), t) = e_1(1 - e_2) - c_1(1 - \pi)(e_1 + e_2 - e_1 e_2) - e_1^2.$$

Taking first order conditions, we get

$$\frac{\partial U_{M_1}}{\partial e_1} = 1 - e_2 - c_1(1 - \pi)(1 - e_2) - 2e_1 = 0,$$

and thus

$$e_1 = \frac{1}{2}(1 - e_2) - \frac{1}{2}c_1(1 - \pi)(1 - e_2).$$

For Media outlet $M_2$, in turn, the utility of exerting effort is given by

$$U_{M_2}(e_2|e_1, m^o, m^U(m^o), t) = e_2 - c_2 [1 - (1 - \pi)(e_1 + e_2 - e_1 e_2)] - e_2^2.$$

Taking first order conditions, we get

$$\frac{\partial U_{M_2}}{\partial e_2} = 1 + c_2 (1 - \pi)(1 - e_1) - 2e_2 = 0,$$

and thus

$$e_2 = \frac{1}{2} + \frac{1}{2}c_2 (1 - \pi)(1 - e_1).$$

Solving this system of equations yields
\[0 \leq e_1^* = \frac{(1 - c_1(1 - \pi))(1 - c_2(1 - \pi))}{4 + c_1 c_2 (1 - \pi)^2 - c_2 (1 - \pi)} < 1 - \frac{2 - 2c_2(1 - \pi)}{4 + c_1 c_2 (1 - \pi)^2 - c_2 (1 - \pi)} = e_2^* \leq 1\]

To see that in this case \(e_1^* < e_2^*\) for all \(\pi, c_1, c_2\), notice that \(e_1^*\) is decreasing in \(c_1\), while \(e_2^*\) is increasing in \(c_2\). For \(c_1 = c_2 = 0\), we have \(e_2^* = 1/2\) and \(e_2^* = 1/4\). Consequently, \(e_1^* < e_2^*\) for all \(\pi, c_1, c_2 \in (0, 1)\).

We next derive the equilibrium levels of the equilibrium in which \(M_1\) exerts higher effort. In such an equilibrium, we have \(t(1, 1) = (1, 0)\).

For Media outlet \(M_1\) the utility of exerting effort is then given by

\[U_{M_1}(e_1|e_2, m^O, m^U(m^O), t) = e_1 - c_1(1 - \pi)(e_1 + e_2 - e_1 e_2) - e_1^2.\]

Taking first order conditions, we get

\[\frac{\partial U_{M_1}}{\partial e_1} = 1 - c_1(1 - \pi)(1 - e_2) - 2e_1 = 0,\]

and thus

\[e_1 = \frac{1}{2} - \frac{1}{2} c_1(1 - \pi)(1 - e_2).\]

Note that the incentives for \(M_1\) of exerting effort are decreasing in its level of bias \(c_1\).

For Media outlet \(M_2\), in turn, the utility of exerting effort is given by

\[U_{M_2}(e_2|e_1, m^O, m^U(m^O), t) = (1 - e_1) e_2 - c_2 [1 - (1 - \pi)(e_1 + e_2 - e_1 e_2)] - e_2^2.\]

Taking first order conditions, we get

\[\frac{\partial U_{M_2}}{\partial e_2} = 1 - e_1 + c_2(1 - \pi)(1 - e_1) - 2e_2,\]

and thus

\[e_2 = \frac{1}{2}(1 - e_1) + \frac{1}{2} c_2(1 - \pi)(1 - e_1).\]

In the case of \(M_2\) the incentives to exert effort are increasing in its level of bias \(c_2\).

Solving this system of equations yields
\[
0 \leq e_2^* = \frac{(1 + c_1(1 - \pi))(1 + c_2(1 - \pi))}{4 + c_1 c_2 (1 - \pi)^2 + c_1 (1 - \pi)} < 1 - \frac{2 + 2c_1(1 - \pi)}{4 + c_1 (1 - \pi) + c_1 c_2 (1 - \pi)^2} = e_1^* \leq 1
\]

Notice that in this case as well \(e_1^*\) is decreasing in \(c_1\) and increasing in \(\pi\) while \(e_2^*\) is increasing in \(c_2\) and decreasing in \(\pi\). Rearranging terms, we find that \(e_1^* > e_2^*\) if, and only if, \(1 - 2c_1(1 - \pi) - c_2(1 - \pi) > 0\). Consequently, if \(\pi\) is sufficiently low, and \(c_1\) and \(c_2\) are sufficiently high, we have \(e_2^* > e_1^*\) and the equilibrium in which non-loyal readers choose to read Media outlet \(M_1\) upon observing \((m_1 = 1, m_2 = 1)\) does not exist. \(\square\)

5.2 Equilibria in the General Model

Proofs of Propositions 5 and 6 follow from the equilibrium construction in subsections 5.2.1 and 5.2.2 respectively.

5.2.1 Eq’m profile I, \(e_2^* > e_1^*\)

First, let \(\gamma < \frac{c_1}{1 - 2\beta}\). Then, from Lemma 6, \(M_1\) is suppressing the news of policy failure. We will construct the (equilibrium) values of \((e_1^*, e_2^*)\) that are consistent with this case condition and \(M_1\)’s optimal concealment strategy.

Given that the voters read Media outlet \(M_2\) when seeing the same messages, i.e. \(t(1, 1) = (0, 1)\), Media outlet \(M_1\)’s utility of exerting effort is given by

\[
U_{M_1}(e_1|e_2, m^O, m^U(m^O), t) = \beta + (1 - 2\beta)e_1\pi(1 - e_2)\gamma - c_1 e_2\pi - e_1^2.
\]

Taking first order conditions, we get

\[
\frac{\partial U_{M_1}}{\partial e_1} = (1 - 2\beta)\pi\gamma(1 - e_2) - 2e_1,
\]

and thus

\[
e_1 = \frac{1}{2}(1 - 2\beta)\pi\gamma(1 - e_2).
\]

For Media outlet \(M_2\), in turn, the utility of exerting effort is given by

\[
U_{M_2}(e_2|e_1, m^O, m^U(m^O), t) = \beta + (1 - 2\beta)[e_2 + (1 - e_2)e_1\pi(1 - \gamma)] - c_2[1 - (1 - \pi)e_2] - e_2^2.
\]

Taking first order conditions, we get

\[
\frac{\partial U_{M_2}}{\partial e_2} = (1 - 2\beta)[1 - e_1\pi(1 - \gamma)] + c_2(1 - \pi) - 2e_2,
\]

25
and thus
\[ e_2 = \frac{1}{2} (1 - 2\beta) [1 - e_1 \pi (1 - \gamma)] + \frac{1}{2} c_2 (1 - \pi). \]

Solving this system of equations yields
\[ 0 \leq e_1^* = \frac{(1 - 2\beta) \gamma \pi (1 + 2\beta - c_2 (1 - \pi))}{4 - (1 - 2\beta)^2 \gamma (1 - \gamma) \pi^2} < \frac{2 - 4\beta + 2c_2 (1 - \pi) - (1 - 2\beta)^2 \gamma (1 - \gamma) \pi^2}{4 - (1 - 2\beta)^2 \gamma (1 - \gamma) \pi^2} = e_2^* \leq 1. \]

Next, let \( \gamma \geq \frac{c_1}{1 - 2\beta} \). Then, from Lemma 6, \( M_1 \) is not suppressing the news of policy failure. We will construct the (equilibrium) values of \( (e_1^*, e_2^*) \) that are consistent with this case condition and \( M_1 \)'s optimal concealment strategy.

For Media outlet \( M_1 \), the utility of exerting effort is now then given by
\[ U_{M_1}(e_1|e_2, m^O, m^U(m^O), t) = \beta + (1 - 2\beta) e_1 (1 - e_2) \gamma - c_1 (1 - \pi) (e_1 + e_2 - e_1 e_2) - e_1^2. \]

Taking first order conditions, we get
\[ \frac{\partial U_{M_1}}{\partial e_1} = (1 - 2\beta) \gamma (1 - e_2) - c_1 (1 - \pi) (1 - e_2) - 2e_1, \]
and thus
\[ e_1 = \frac{1}{2} (1 - 2\beta) \gamma (1 - e_2) - \frac{1}{2} c_1 (1 - \pi) (1 - e_2). \]

For Media outlet \( M_2 \), in turn, the utility of exerting effort is given by
\[ U_{M_2}(e_2|e_1, m^O, m^U(m^O), t) = \beta + (1 - 2\beta) [e_2 + (1 - e_2) e_1 (1 - \gamma)] - c_2 [1 - (1 - \pi) (e_1 + e_2 - e_1 e_2)] - e_2^2. \]

Taking first order conditions, we get
\[ \frac{\partial U_{M_2}}{\partial e_2} = (1 - 2\beta) [1 - e_1 (1 - \gamma)] + c_2 (1 - \pi) (1 - e_1) - 2e_2, \]
and thus
\[ e_2 = \frac{1}{2} (1 - 2\beta) [1 - e_1 (1 - \gamma)] + \frac{1}{2} c_2 (1 - \pi) (1 - e_1). \]

Solving this system of equations yields
\[0 \leq e_1^* = \frac{(\gamma(1 - 2\beta) - c_1(1 - \pi))(1 + 2\beta - c_2(1 - \pi))}{4 + c_1(1 - \gamma + c_2(1 - \pi)^2 - \pi + \gamma\pi) - \gamma(1 - \gamma + c_2(1 - \pi))} < 1 - \frac{2 - 2c_2(1 - \pi_H)}{4 + c_1(1 - \gamma + c_2(1 - \pi)^2 - \pi + \gamma\pi) - \gamma(1 - \gamma + c_2(1 - \pi))} = e_2^* \leq 1\]

### 5.2.2 Equilibrium Profile II, \(e_1^* > e_2^*\)

Given \(e_1 < 1 - 2\beta\), \(M_1\) does not conceal the news of policy failure.

The expected utilities of effort for the media are

\[U_{M_2}(e_2|\cdot) = \beta + (1 - 2\beta)e_2(1 - e_1)\gamma - c_2(1 - (1 - \pi)(1 - (1 - e_1)(1 - e_2))) - e_2^2\]

\[U_{M_1}(e_1|\cdot) = \beta + (1 - 2\beta)[1 - (1 - e_1)(1 - e_2) - \gamma e_2(1 - e_1)] - c_1(1 - \pi)(1 - (1 - e_1)(1 - e_2)) - e_1^2\]

Taking the first-order conditions, we get

\[\frac{\partial U_{M_2}}{\partial e_1} = (1 - 2\beta)(1 - e_1)\gamma + c_2(1 - \pi)(1 - e_1) - 2e_2\]

and

\[\frac{\partial U_{M_1}}{\partial e_1} = (1 - 2\beta)((1 - e_2) + \gamma e_2) - c_1(1 - \pi)(1 - e_2) - 2e_1.\]

The pair of best responses are, then,

\[e_2 = \frac{1}{2}[(1 - 2\beta)\gamma + c_2(1 - \pi)](1 - e_1)\]

and

\[e_1 = \frac{1}{2}[(1 - 2\beta) - c_1(1 - \pi) + e_2(c_1(1 - \pi) - (1 - 2\beta)(1 - \gamma))].\]

Substituting and solving the system for the equilibrium values of \(e_1\) and \(e_2\), we get

\[e_2^* = \frac{((1 - 2\beta)\gamma + c_2(1 - \pi))(1 + 2\beta + c_1(1 - \pi))}{4 - (1 - 2\beta)(1 - \gamma) - c_1(1 - \pi))(1 - 2\beta)\gamma + c_2(1 - \pi))}\]

\[e_1^* = \frac{(-1 + 2\beta(1 - \gamma) + \gamma + c_1(1 - \pi))(1 - 2\beta)\gamma + c_2(1 - \pi)) + 2(1 - 2\beta - c_1(1 - \pi))}{4 - (1 - 2\beta)(1 - \gamma) - c_1(1 - \pi))(1 - 2\beta)\gamma + c_2(1 - \pi))}\]

From the best response for \(M_2\), \(e_1 > e_2\) iff

\[e_1 > \frac{1}{2}[(1 - 2\beta)\gamma + c_2(1 - \pi)](1 - e_1),\]
which, isolating $e_1$ can be re-written as

$$e_1 > \frac{(1 - 2\beta)\gamma + c_2(1 - \pi)}{2 + (1 - 2\beta)\gamma + c_2(1 - \pi)}.$$

Substituting in the derived value of $e_1^*$ and simplifying, we obtain the following quadratic inequality in terms of $\gamma$:

$$\gamma^2(1 - 2\beta)^2 - \gamma(1 - 2\beta)[2 - c_2(1 - \pi)] + 2[(1 - 2\beta) - c_1(1 - \pi) - c_2(1 - \pi)] > 0$$

The statement follows from analyzing when the real roots of this quadratic equation exist subject to $\gamma \leq 1$.

**Proof of Lemma 8.** Consider equilibrium with $e_2^* > e_1^*$. The $(1 - 2\beta)$ mass of voters who actively choose their news source choose $M_2$ in equilibrium with probability $e_2 + (1 - \gamma)e_1(1 - e_2)$ and choose $M_1$ with probability $\gamma e_1(1 - e_2)$. Given $\gamma \leq 1$ and $e_2 \leq 1$, and $e_2 > e_1$, we have

$$e_2 + (1 - \gamma)e_1(1 - e_2) \geq e_2 > e_1 \geq \gamma e_1(1 - e_2).$$

Hence, $M_2$ enjoys higher readership.

Consider next the equilibrium with $e_1^* > e_2^*$. If $c_1 \leq 1 - 2\beta$ or if $c_1 > 1 - 2\beta$ and $\gamma > \hat{\gamma}$, there is no news suppression in equilibrium, and the proof follows symmetrically to the argument for the case with $e_2^* > e_1^*$ (switching the relevant indecies from 1 to 2 and conversely). \(\square\)

**References**


Cagé, Julia et al. 2014. “Media competition, information provision and political participation.” *Unpublished manuscript, Harvard University*.


