Media and Gridlock

(preliminary - comments welcome)

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Abstract

I develop a model of the relation between media and political obstructionism. While it is possible an opposition party’s actions are a substitute for media in providing information to the public, I show the opposite is true: strategic incentives for the opposition make the effect of a less informative media even worse. The model also predicts that, if media accuracy declines, several related phenomena occur that are consistent with recent trends in U.S. politics: relatively greater polarization of more partisan voters, declining majority party approval ratings, increased political turnover, declining opposition party approval ratings even just prior to turnover, and exacerbation of these effects as approval ratings decline.

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1 Introduction

One can expect that a political party in power is more subject to discipline by voters in more informative media environments. However, media are not the only source of relevant information for voters. They may also learn from the opposition party; and not just from what they say, which is often cheap talk, but from their actions. An outcome that is likely especially salient to voters is the extent to which the majority party is simply able to pass its agenda—that is, whether the opposition acts in an obstructionist way or not. This paper studies the effect of the media environment on this basic aspect of the legislative process. While it is possible an opposition party’s actions are a substitute for media in providing information to the public, I show the opposite is true: strategic obstructionism makes the effect of less informative media even worse. As media accuracy declines, the opposition obstructs more often, causing the informativeness of its actions, and the ability of the party in power to pass good policy when it actually wants to, to decline as well.

The motivation for this work is the increase in gridlock in U.S. politics that has occurred over the last few decades. The trend seems to have become especially severe in the last several years. Presidents from both parties have made major new policy proposals that the opposition has essentially been unwilling to compromise on, including George W. Bush’s proposed social security reform, and Obama’s proposed health care reform (only passed due to the Democrats briefly holding a filibuster-proof super-majority) and jobs bill (recently declared “dead” by House leader Eric Cantor). Issues that used to be non-issues (such as increasing the debt ceiling and approving judicial nominees) have become highly contentious. More formal analysis confirms this view; Binder (1999) showed gridlock trended up over the 1980s and 90s and cloture motions, which are associated with filibusters, have grown sharply over time, hitting a record high in the 110th Congress (2007-08), and then a new high in the 111th.\(^1\) The present paper focuses on the potential role of media underlying these patterns (while recognizing media is clearly not the only, or even most important, factor; more on this below).

I develop a simple game theoretic model to analyze strategic obstructionism. In the model there are two political parties, one in a majority position, and the other the minority. The majority proposes a new policy, and the minority either passes or blocks it. The model is based on the U.S. political structure in which even if the Congress and presidency are controlled by

one party, the opposition can still block legislation via the filibuster. Each party is also one of two types, “high” or “low.” A high type party is non-strategic and acts only on high-minded principle, attempting to support non-partisan, social welfare-improving legislation. Low types often act in a strategic, self-interested way—attempting to pass partisan, welfare-reducing policies, and to maximize their future election prospects. The type space is meant to represent political idealism or altruism. Given the acrimony of recent public discourse, which often focuses on, essentially, the moral legitimacy of the each side’s motives—who is truly trying to do what’s best for the country, as opposed to “playing politics”—this seems to be a key dimension politicians are now judged and compete on. However, the type space can also loosely be interpreted as representing ideology (centrism versus extremism) or even valence (high versus low), which are more commonly analyzed in the literature.

While liberal and conservative voters support their respective parties regardless of their type, centrist voters prefer to elect high types to office, regardless of party. However, it is difficult to tell a party’s type, and difficult to tell whether a policy it supported or opposed is welfare-improving or partisan. For example, Republicans argued that the Affordable Care Act (a.k.a. Obamacare) was a “government takeover of healthcare” and implicitly partisan in a socially harmful way, while Democrats argued it would “enhance the quality of care for all Americans.” Which claim was closer to the truth was unclear to many voters.

Thus, in the model the two parties battle for the political center by signaling their types via their political actions. The key question I examine is how the media environment affects this signaling behavior. I model this environment in a very simple way: with a single parameter denoting the media’s informativeness to centrists regarding the policy proposal. Arguably, recent changes in the media environment can be represented by a decline in this parameter.

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2If there is a Congress/presidency power split, one can think of the party controlling the presidency as the majority, since it is likely the public thinks of it as the leader in developing new policy, and thus gives the president most of the credit for the legislation as an achievement. A recent quote by a senior House Republican aide regarding passing the president’s proposed jobs plan supports this: “Obama is on the ropes; why do we appear ready to hand him a win?” (http://www.politico.com/news/stories/0911/63214.html#/ixzz1XyQP8HGC).

3Sometimes Congress proposes and passes legislation that the president has the option to veto though; in this (relatively infrequent) case, the president would be equivalent to the minority in the model.

4It would be a stretch to literally interpret the type space as ideology or valence since the high type is non-strategic. While it is natural to think an idealistic or altruistic type would behave this way, it is less clear a centrist or high valence type would.

5I do not model the incentives and behavior of media firms explicitly as this has been the focus of much of the previous literature. See, e.g. Gentzkow and Shapiro (2006) and Mullainathan and Shleifer (2005), for important contributions.
I discuss this claim and supporting evidence in detail below. But regardless of its empirical validity, which is admittedly unclear, it is important to understand how this basic parameter affects political behavior.

Given the model’s setup, it is straightforward that a low type majority party will be more likely to propose self-serving policy as media becomes less informative, if the partisan benefits are sufficiently high. What is less clear is how a low type minority’s behavior is affected. If it became more likely to block policy, this would cause blocking to signal low type, which would reduce the incentive to do so. Still, I show that under a range of parameter values, a low minority indeed does block new policy proposals—especially those that are actually socially beneficial—more often as media accuracy declines. In fact, for some parameters the minority simply always blocks. This is because while passing the policy would improve the minority’s reputation, the majority’s reputation would be improved as well. When the news is accurate and supports a policy being optimal, the main effect of blocking policy is to make the minority look bad. When the news is inaccurate, the main effect is to make the majority look bad.

The model thus implies less informative media will cause parties to act in a more partisan way in both their policy proposals and responses. As a result, filibusters and gridlock will occur more often. Observed polarization of the parties will increase, consistent with what is now considered a stylized fact in the political science literature. The model also makes several auxiliary predictions of effects of declining media informativeness that appear consistent with recent observed behavior. First, partisan voters are likely to become more polarized due to increased gridlock, consistent with survey data showing these voters’ beliefs have diverged over time. Second, news and policy outcomes in which the majority loses reputation are more likely to occur. This is consistent with approval ratings for Congress generally declining over time. Third, relatedly, the majority’s chances of re-election are reduced, increasing political turnover. Control of the US House of Representatives has switched from Democrat to Republican three times since 1994; this had not happened once in the previous 40 years. Fourth, when turnover is most likely to occur, this is due to the majority losing reputation, and not the minority gaining it. In fact, when the majority’s reputation declines, the minority’s does as well.

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6See Layman, Carsey, and Horowitz (2006) for a discussion of this large literature.

7Whether the general public has polarized as well is more controversial; see Fiorina, Abrams, and Pope (2005) for the case against this occurring. However, one of their arguments is that apparent changes in voter opinion are merely a function of politician actions changing. This is exactly what the model of the present paper predicts.
Surveys show that prior to turnover the majority’s approval ratings (unsurprisingly) decline, but the minority’s ratings are also generally lower than in the previous year as well. Finally, the model implies a positive feedback process in which gridlock and the other effects become more likely as reputations worsen, and reputations worsen due to gridlock. This is consistent with evidence that all the trends just discussed have been exacerbated over time. While these phenomena are not only, or even mostly, explained by the model, the model yields insight into their causes, and the range of accurate predictions is evidence of the model’s validity.

Before proceeding, I discuss the relation of this paper to extant literature. The political economics literature on media often focuses on electoral competition, in which it is assumed the winner implements its agenda, rather than the legislative process. See Prat and Strömberg (2011) for a very recent and thorough review; they do not discuss any work on opposition party behavior or gridlock. Snyder and Strömberg (2010) is an especially relevant empirical study, as they find that members of Congress vote in a more partisan manner when they are covered less closely by local media. Their paper does not discuss formal theory extensively, however. The theory paper that is most closely related may be Chan and Suen (2009), as they also analyze the media’s role as a watchdog regarding the quality of policy proposals. At first glance it may appear that their conclusion—that more partisan media decreases the partisanship of policy—is at odds with the conclusion I reach. However, these conclusions are actually consistent, since in their model the media actually is more informative when it is more partisan.\(^8\) The literature on political accountability (e.g., Adsera, Boix, and Payne (2003)) is also related. It focuses on how media can reduce political corruption. Corruption and obstructionism are similar in that they both cause welfare losses, yet they are clearly distinct phenomena. A particularly relevant difference is new media may be more informative regarding corruption as it is likely closer to hard information, which is relatively less susceptible to partisan bias.

As discussed above, the political science literature widely accepts that party polarization has increased over time, i.e. the mean ideologies of members of the two major parties have grown apart. Clearly, if true this is likely a very important factor behind increased gridlock, and there is indeed research supporting this idea (Binder (1999), Jones (2001)). In fact, in the model of this paper, sufficiently polarized party ideologies is a necessary condition for maximal gridlock. But sufficiently uninformative media is a necessary condition as well. Thus,\(^8\)

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\(^8\)One of the key contributions of their paper is showing exactly how this may occur. As discussed below, however, this effect (of media partisanship on informativeness) could theoretically go in either direction.
one contribution of the present paper is just to highlight the role of media, and formalize its
effects on political signaling. A more subtle issue is raised as well, however. Measurements
of the ideologies of the parties are based on the parties’ actions. Since actions are affected
by strategic considerations, it is not clear that polarized actions imply polarized ideologies.
That is, the parties’ actions may be becoming more polarized over time for reasons other
than changing ideologies. This paper hence shows declining media accuracy is an alternative
explanation for the observed (i.e., measured) polarization of the parties. I am not aware of
the political science literature accounting for this issue.

2 The Model

The majority party moves first, proposing a policy, $X$, either efficient, $E$, or partisan but
caus[ing social deadweight loss, $D$ ($X \in \{D, E\}$). If $D$ is passed it provides a benefit to the
majority party, and cost to the minority party, both equal to $\alpha$, and a loss to society. The
simplest interpretation of $\alpha$ is a measure of the extent to which the parties’ ideologies are
polarized: the larger $\alpha$ is, the further parties’ preferences are from each other, and from the
social optimum. If $E$ is passed it provides no direct benefit or cost to either party, but a
benefit to society (the magnitude of this and the deadweight loss are unimportant; the payoff
of the status quo is normalized to zero).

The minority has two options as well for its action, $Y$, accept ($A$) or block ($B$) ($Y \in
\{A, B\}$). In reality, the parties bargain over a richer policy space; $X$ can be thought of as the
post-bargaining proposal (i.e., the bargaining process is exogenous). It is clear that in reality
the bargaining does not always reach a point that both parties accept.

Before taking action the minority observes news reports, and how they are interpreted by
the public. This aggregate interpretation is denoted $r$. The aggregation boils the news report
down to either $r_E$ or $r_D$ and is “correct” with probability $\pi \in [0.5, 1]$ ($\pi = \Pr(r = r_E|E) =
\Pr(r = r_D|D)$). The minority, regardless of type, has a private information set, denoted $I$.
With probability $\phi \in (0.5, 1)$ the minority knows if the proposal is $E$ or $D$ (denoted $I = E$ or
$I = D$), otherwise, the minority’s private information set is empty ($I = \emptyset$). If the majority
chooses a policy in an area the minority does not have expertise on, the minority may not be
any better informed on the policy than the general public.
As mentioned above, I argue that, for several reasons, it is reasonable to model media change over recent decades by a decline in $\pi$. First, new media (cable television, Internet news websites, and talk radio, which all evolved in the 1980s and later) in the U.S. are more partisan than traditional media (Baum and Groeling (2008)). News delivered with partisan spin may be less informative than traditional news, especially to centrists, for a variety of reasons. This is perhaps especially likely for news on the partisanship of a new policy proposal, which may be a relatively soft, non-verifiable type of information, and hence especially susceptible to bias and misinformation (Gentzkow and Shapiro (2006)).

Second, the news cycle has sped up, reducing time available to vet stories and increasing the chances of inaccurate reporting. Third, most newspapers that have survived Internet competition have had to cut staff to do so, reducing editorial oversight and as a result also increasing reporting mistakes. Finally, the evidence that the public thinks that media accuracy has declined is very strong—see Figure 1. Unless people have been wildly misled (which we cannot rule out!) this indicates accuracy has declined at least somewhat. Still, this evidence is only suggestive and it is not clear what effects on knowledge recent media changes have truly had; investigating this issue more carefully is certainly an important area for future work.

Each party is one of two types, high or low ($\theta_i \in \{\bar{\theta}, \underline{\theta}\}$ for $i \in \{\text{maj}, \text{min}\}$). To ease notation let $\bar{\theta}_i$ and $\underline{\theta}_i$ denote $\theta_i = \bar{\theta}$ and $\theta_i = \underline{\theta}$, respectively. If the majority party is the high type it always proposes $E$. If the minority is the high type, it acts non-strategically and always accepts when $I = E$ and rejects when $I = D$. When $I = \emptyset$, the high type minority follows public opinion (accepts if the public interprets the news as $r_E$, and blocks otherwise). This can be interpreted as following “democratic principles.” Low types act like high types with probability $\epsilon \in (0, 0.5)$ and act strategically otherwise (their objective will be defined shortly).

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9Bernhardt, Krasa, and Polborn (2008) and Stone (2011) provide examples of theories for how the media becoming more partisan can cause the citizenry to be less informed, and provide some supportive evidence.

10If knowledge of whether policy is simply passed or blocked, which is harder information, was increasing, this could actually strengthen the forces analyzed in this paper.


12See Silverman and Jarvis (2009), who says, “In October of last year, the Sentinel’s public editor wrote a column that warned of a ‘frightening’ spike in the paper’s number of corrections... ‘When the Sentinel tightened its financial belt back in June, it lost a wealth of seasoned veterans, many of them editors,’ Pynn wrote... ‘They also scrutinized the work of reporters,’ ” (p.xiv). Most news websites (and likely nearly all blogs) do not have the same standards of accuracy for reporting as traditional media.

13See Gentzkow and Shapiro (2008) for an excellent discussion of the relationship between media competition and informativeness in particular.

14Note that a high type minority’s beliefs about $X$ when $I = \emptyset$ are not modeled. The assumption of the high type following public opinion is just meant to capture the idea that even a non-strategic party is sometimes influenced by public opinion, which seems very plausible.
It seems reasonable to think even strategic actors occasionally are persuaded or simply choose to “do the right thing.” Alternatively, in reality when a party is observed acting in an idealistic way this does not mean the party is always idealistic. This parameter captures this effect, creating some noise weakening the link between party types and actions. Let $\lambda_{maj}^X$ denote the probability the majority acts like a high type ($\lambda_{maj} + \epsilon(1 - \lambda_{maj})$), and define $\lambda_{min}^Y$ analogously.

There are three types of voters: liberals, conservatives and centrists. The centrists’ prior beliefs that the parties are the high type are $\lambda_{maj}$ and $\lambda_{min}$, with $0.5 \geq \lambda_{maj} > \lambda_{min}$. I assume $0.5 \geq \lambda_{maj}$ since it is implausible either party is likely idealistic, and $\lambda_{maj} > \lambda_{min}$ since the majority party likely has a reputational advantage (given that it is in the majority position). Ignore other voters’ beliefs for now; the issue of turn-out is ignored now as well. Liberal (conservative) voters are assumed to always vote for the liberal (conservative) party. Centrist voters may vote for either party, and the probability their overall vote results in re-election of the majority is $f(\tilde{\lambda}_{maj} - \tilde{\lambda}_{min})$ (the difference in posterior reputations), with $f'(\cdot) > 0$. The objective function for the majority party is assumed to be linear in this term and the direct benefit of the policy with probability $\psi \in (0.5, 1)$: $u_{maj} = f(\tilde{\lambda}_{maj} - \tilde{\lambda}_{min}) + \alpha Pr(A|X = D)I(X = D)$, with $I(D)$ an indicator function. Similarly, the minority’s objective...
is to maximize $u_{\text{min}} = -f(\tilde{\lambda}_{\text{maj}} - \tilde{\lambda}_{\text{min}}) - \alpha I(A, D)$. With probability $1 - \psi$ the strategic majority is myopic and just wants to maximize $\alpha Pr(A|D)I(D)$ (without loss of generality ignore this possibility for the minority).\textsuperscript{15}

Centrist voters update beliefs on the parties’ types (conditional on the news and both parties’ actions) in a Bayesian way. Since partisan voters always vote the same way I avoid imposing any structure on their belief updating process, since this structure is not needed for analyzing party actions.

To summarize, the timing of the game is the following. First, nature selects the parties’ types. Then the majority proposes a policy. Then news on the proposal is reported. (The public’s interpretation of the news is common knowledge, perhaps via publicly reported opinion polls.) Then the minority acts on the proposal. Then voters update beliefs and the parties receive their payoffs. The timing is illustrated in Figure 2.

The solution concept is Perfect Bayesian Equilibrium (PBE). A strategy for the minority is a function $\sigma(r, I) = Pr(A|r, I)$. Equilibrium strategies are denoted by *’s. Proofs are in the appendix, if not stated otherwise. The model is highly stylized and questionable assumptions are discussed further in the final section.

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\textsuperscript{15} Whether or not the strategic majority is myopic is transient, in that being myopic today is independent of whether the party would continue to be myopic if re-elected. This captures the possibility that the partisan benefits of a policy may vary—at times they may be dominant, and at other times, not.
3 Analysis

3.1 Equilibria

I first focus on characterizing the conditions for an equilibrium in which gridlock is most likely to occur. In the most extreme case a strategic low majority always proposes $D$ (this maximizes the probability a high type minority plays $B$) and a strategic low minority always plays $B$, regardless of $I$ and $r$. This equilibrium requires that only three incentive compatibility conditions (ICCs) are satisfied. There are two for the minority: it must prefer to block when $r = r_D$ and $I = E$, and when $r = r_E$ and $I = E$. If these conditions hold, then blocking will also be preferred when $I = \emptyset$ or $I = D$, since the reputation effects are the same and expected partisan costs of passing the policy are weakly greater. For a strategic majority, it is always incentive compatible when myopic to play $D$, since no weight is placed on reputation. Thus there is only one ICC for the majority that must be satisfied, which is the ICC to play $D$ when non-myopic:\footnote{Notation is abused here somewhat but the interpretation should still be clear (e.g., $Pr(A|D)$ is the probability of acceptance given the policy is inefficient).}

\[
Pr(A|D)(E(f(\tilde{\lambda}_{maj} - \tilde{\lambda}_{min})|A, D) + \alpha) + Pr(B|D)E(f(\tilde{\lambda}_{maj} - \tilde{\lambda}_{min})|B, D) \geq
Pr(A|E)E(f(\tilde{\lambda}_{maj} - \tilde{\lambda}_{min})|A, E) + Pr(B|E)E(f(\tilde{\lambda}_{maj} - \tilde{\lambda}_{min})|B, E). \tag{1}
\]

$Pr(A|D)$ is greater than the probability a non-strategic minority passes an inefficient policy, $\lambda^Y_{min}(1 - \pi)(1 - \phi)$, which is strictly positive. Therefore $Pr(A|D)$ must be strictly positive, so the left-hand side (LHS) is strictly increasing in $\alpha$ while the RHS is unaffected by $\alpha$. Thus, since all the $f()$ terms are bounded, for sufficiently large $\alpha$ the condition holds. Assuming $\alpha$ is this large thus allows us to ignore $\psi$ for now.

When $I = E$ the minority only cares about reputation, so the first ICC for the minority requires

\[
\frac{\tilde{\lambda}_{maj}(B, r_D) - \tilde{\lambda}_{min}(B, r_D)}{Pr(B, r_D|\tilde{\theta}_{maj})\lambda_{maj} - Pr(B, r_D|\tilde{\theta}_{min})\lambda_{min}} \leq \frac{\tilde{\lambda}_{maj}(A, r_D) - \tilde{\lambda}_{min}(A, r_D)}{Pr(A, r_D|\tilde{\theta}_{maj})\lambda_{maj} - Pr(A, r_D|\tilde{\theta}_{min})\lambda_{min}}.
\]

(All of the probabilities are the centrist voters’ equilibrium beliefs.) Suppose $\pi$ equals its lower
bound, 0.5. This implies $Pr(r_D) = Pr(r_D|\hat{\theta}_{maj}) = Pr(r_D|\hat{\theta}_{min}) = 0.5$, and so the ICC can be written:

$$\frac{Pr(B|r_D, \hat{\theta}_{maj})\lambda_{maj} - Pr(B|r_D, \hat{\theta}_{min})\lambda_{min}}{Pr(B|r_D)} \leq \frac{Pr(A|r_D, \hat{\theta}_{maj})\lambda_{maj} - Pr(A|r_D, \hat{\theta}_{min})\lambda_{min}}{Pr(A|r_D)}.$$  \hspace{1cm} (2)

Then using the simple fact that $Pr(B|\cdot)$ equals $1 - Pr(A|\cdot)$, the ICC can be re-written

$$\lambda_{maj} - \lambda_{min} \leq \frac{Pr(A|r_D, \hat{\theta}_{maj})\lambda_{maj} - Pr(A|r_D, \hat{\theta}_{min})\lambda_{min}}{Pr(A|r_D)} \leftrightarrow \lambda_{maj} - \lambda_{min} \leq \tilde{\lambda}_{maj}(A, r_D) - \tilde{\lambda}_{min}(A, r_D).$$  \hspace{1cm} (3)

Intuitively, if $\pi = 0.5$, then $r_D$ provides no direct information about $\theta_{maj}$. So the difference in posteriors conditional on $(A, r_D)$ is greater than that conditional on $(B, r_D)$ iff the posterior difference conditional on $A$ is greater than the prior difference. By the same logic the second ICC can be written

$$\lambda_{maj} - \lambda_{min} \leq \tilde{\lambda}_{maj}(A, r_D) - \tilde{\lambda}_{min}(A, r_D).$$  \hspace{1cm} (4)

It is shown in the appendix that whenever (4) is satisfied, then (3) must be satisfied, so attention here is restricted to (4). It is straightforward that (4) is equivalent to

$$(Pr(A, r_E|\hat{\theta}_{maj}) - Pr(A, r_E))\lambda_{maj} \geq (Pr(A, r_E|\hat{\theta}_{min}) - Pr(A, r_E))\lambda_{min}.$$  \hspace{1cm} (5)

This clearly holds strictly if $\lambda_{min} = 0, \lambda_{maj} > 0$ and $Pr(A, r_E|\hat{\theta}_{maj}) - Pr(A, r_E) > 0$. This last inequality indeed holds since $Pr(A, r_E|\hat{\theta}_{maj}) = 0.5\lambda_{min}^Y$ and $Pr(A, r_E) = 0.5\lambda_{min}^Y(1 - \phi(1 - \lambda_{maj}^X)).$ By continuity, both ICCs also must then also hold for some $\lambda_{min} > 0, \pi > 0.5$, and thus the equilibrium exists for sufficiently small $\lambda_{min}$ and $\pi$ (and large $\alpha$). I also show in the appendix that (4) actually cannot be satisfied for sufficiently large $\pi$, and thus this proposed equilibrium cannot exist then. These results are formally summarized as follows.

**Proposition 3.1.** If $\pi$ and $\lambda_{min}$ are sufficiently small, and $\alpha$ sufficiently large, then there exists a total gridlock PBE in which a strategic majority always plays $D$, and a strategic minority always plays $B$ ($\sigma^*(r, I) = 0 \forall r, I$). This PBE fails to exist if $\pi$ is sufficiently large.

I refer to this case as “total gridlock” because, as discussed above, it is clear that, for fixed
parameter values at least, blocking could not occur more often in any other equilibrium. The minority blocks even when both the news and its private information indicate the policy is efficient because blocking indicates there is a relatively high chance the minority is informed that the policy is partisan, given that the news is fairly uninformative. A strategic majority proposes a partisan policy because of the chance it will “slip by” a non-strategic minority (this is the importance of the assumption $\phi < 1$). A strategic minority has no incentive to deviate and pass the policy (i.e., attempt to counter-signal) because of the assumption that $\epsilon > 0$. This means that even when the minority acts like a high type there is a decent chance it was a fluke. And acting like the high type in this way also makes the majority look like a high type.

The intuition for the importance of small $\lambda_{\min}$ is that this implies the minority’s actions mainly affect the majority’s reputation. When $\lambda_{\min}$ is close to zero, the minority cannot directly lose, or even gain, much through its actions. Since blocking hurts $\lambda_{maj}$ (due to the chance of the minority being the high type and $I \neq \emptyset$), it is optimal to block. The importance of $\pi$ is that when it is small, the news is uninformative, so signaling mainly occurs through the minority’s actions. When $\pi$ is large, $r = r_E$ indicates $X$ is likely $E$ and thus $B$ is a strong sign the minority is low type.

Since, as referred to above, (4) may be violated while (3) still holds (but not vice versa), the next pure strategy equilibrium to consider is the one in which $\sigma^*(r_E, E) = 1$, and $\sigma^*(r, I) = 0$ for $(r, I) \neq (r_E, E)$. For this to be an equilibrium, again assuming $\pi = 0.5$, (4) must now hold in reverse, equivalent to $\lambda_{maj} - \lambda_{min} \leq \frac{Pr(B|\tilde{\theta}_{maj}, r_E)\lambda_{maj} - Pr(B|\tilde{\theta}_{min}, r_E)\lambda_{min}}{Pr(B|r_E)}$. In the appendix it is shown that this condition cannot hold for the parameter space considered. This result relies on the assumption of $\phi > 0.5$, as this causes $A$ to be a relatively strong signal $I = E$, and $B$ to signal $\tilde{\theta}_{min}$. It also relies on $\lambda_{maj} \leq 0.5$, since if $\lambda_{maj}$ was too high, then $Y = A$ would not help its reputation much (by a logic similar to why $Y = B$ does not hurt the minority much when $\lambda_{min}$ is small, discussed above). Thus, there is no pure strategy equilibrium in which $\sigma^*(r_E, I) = 1$ for any $I$, given $\pi = 0.5$ and $X^* = D$. There does exist a mixed strategy equilibrium since all posterior reputations are continuous in the $\sigma^*$’s, so there exists some $\sigma^*(r_E, E) \in (0, 1)$ such that the minority is indifferent between $A$ and $B$. Given this, it is incentive compatible for $\sigma^*(r_E, \emptyset) = 0$ and $\sigma^*(r_E, D) = 0$. For $\pi$ close to 1, by an

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The minimal gain is due to the non-linearity of Bayesian updating.
argument very similar to that made in the previous proof it cannot be true that \( \sigma^*(r_E, E) < 1 \), as the minority gains reputation benefits by playing \( A \) when \( r = r_E \) even if voters expect \( \sigma^*(r_E, E) = 1 \). Thus, this mixed strategy equilibrium does not exist for large \( \pi \).

To return to (2), it is equivalent to \( \lambda_{maj} - \lambda_{min} \leq \frac{\lambda_{min}^\phi \lambda_{maj}^\phi - \lambda_{maj}^\phi \lambda_{min}^\phi}{\lambda_{maj}^\phi \lambda_{min}^\phi} \). This implies the condition can be written as a quadratic in \( \epsilon \) that has a quite elegant solution: it holds iff

\[
\epsilon \geq \frac{\lambda_{maj} \lambda_{min}}{(1 - \lambda_{maj})(1 - \lambda_{min})}.
\] (6)

The condition does not depend on \( \phi \) because \( \tilde{\lambda}_{maj}(A, r_D) - \tilde{\lambda}_{min}(A, r_D) \) does not depend on \( \phi \), because \( (A, r_D) \) can only occur in equilibrium when \( I = E \) (so the prior of this occurring is irrelevant). The condition means for blocking to be beneficial, \( \epsilon \) must be sufficiently large. The key intuition can be seen by the case of \( \epsilon = 0 \). Then \( \tilde{\lambda}_{maj}(A, r_D) = \tilde{\lambda}_{min}(A, r_D) = 1 \), and so the IC will not hold given \( \lambda_{maj} > \lambda_{min} \). When \( \epsilon \) is larger, \( (A, r_D) \) is more likely to be a fluke (for both the majority and minority, but more so for the latter, given \( \lambda_{maj} > \lambda_{min} \)), so \( \tilde{\lambda}_{maj}(A, r_D) > \tilde{\lambda}_{min}(A, r_D) \). Thus, \( \epsilon \) sufficiently large is required for this ICC to hold. These results are summarized as follows.

**Proposition 3.2.** If \( \pi \) is sufficiently small, \( \alpha \) and \( \epsilon \) are sufficiently large, and a total gridlock PBE fails to exist, then the unique PBE is a partial gridlock PBE in which the strategic majority always plays \( D \), and the minority plays \( \sigma^*(r_E, E) \in (0, 1) \) and \( \sigma^*(r, I) = 0 \) otherwise. This PBE does not exist if \( \pi \) is sufficiently large.

The intuition for why it cannot be the case that \( \sigma^*(r_E, E) = 1 \) when \( \pi \) is small is that in this case \( A \) is a strong signal that \( I = E \) and thus the majority is the high type. When \( \pi \) is large, it is already likely the majority is high (given \( r = r_E \)), so the main effect of playing \( B \) is to make the minority look low. So the minority is better off always blocking for small \( \pi \) and sometimes accepting for large \( \pi \).

Examples of the regions of the parameter space in which total and partial gridlock exist are presented in Figure 3. The figure shows, first and foremost, that the existence of at least one of these equilibria is robust to variation in the parameters \( \lambda_{maj}, \lambda_{min}, \epsilon \) and \( \phi \). The equilibria both fail to exist only for fairly small portions of the upper two panels (when \( \epsilon \) is smaller), in the areas labeled ‘Counter-signaling’. In those areas the first IC is violated—the minority wants to play \( A \) even when \( r = r_D \), assuming centrists do not expect this to happen. I refer
To this as counter-signaling since it is effective only to counter the centrists’ expectation. The figure shows this type of behavior is more likely when the parties are more responsible for their actions (small $\epsilon$) and $\lambda_{\text{min}}$ is not too small or large, so there are substantial gains from acting cooperatively, and $\lambda_{\text{maj}}$ is large, so the voters are more skeptical of the minority when it plays $B$. Total gridlock occurs for more values of $\lambda_{\text{min}}$ when $\epsilon$ and $\phi$ are larger, and is generally more likely for lower $\lambda_{\text{min}}$. The intuition for these forces is discussed above.

Figure 3: Parameter regions for total, partial gridlock equilibria; $\pi = 0.55$ (horizontal axis = $\lambda_{\text{min}}$; vertical axis = $\lambda_{\text{maj}}$).

Next, I examine the conditions for the opposite type of equilibrium—one in which $E$ is proposed, and passed, as often as possible. It is clear that a myopic majority always has at least a weak incentive to propose $D$, strict so long as $\pi < 1$. Suppose the majority always proposes $E$ when non-myopic (incentive compatibility will be checked shortly). As discussed above, for $\pi$ sufficiently large, the minority always gains reputational benefits by playing $A$ when $r = r_E$ whether voters expect $\sigma^*(r) = 0$ always, or $\sigma^*(r_E, E) = 1$ and the majority always plays $D$; this is similarly shown true when $E$ is played more often. This implies the minority may at least sometimes accept when $I \neq E$ in equilibrium. Now suppose the minority always
played \( A \) when \( r = r_E, I = E \) or \( r = r_E, I = \emptyset \). Then when voters observed the pair \( (B, r_E) \), it would signal \( I = D \), implying \( \tilde{\lambda}_{maj} = 0 \) if \( \pi < 1 \).\(^{18}\) This would give the minority an incentive to deviate and play \( B \) when \( I = \emptyset \). Thus the minority cannot always accept when \( r = r_E, I = \emptyset \) in equilibrium, so the minority must play a mixed strategy at that information set. The minority will still strictly prefer to play \( A \) when \( r = r_E, I = E \) (since there is no chance of incurring the partisan cost in that case). If \( \pi = 1 \), then \( \sigma^*(r_E, \emptyset) \) could not be less than 1 because then \( \tilde{\lambda}_{maj}(B, r_E) \) would equal 0. Therefore, when \( \pi = 1 \), then \( (B, r_E) \) only occurs off the equilibrium path. Off-path beliefs that prevent this deviation are any \( \tilde{\lambda}_{maj}(B, r_E) \) greater than \( \tilde{\lambda}_{maj}(A, r_E) \) and \( \tilde{\lambda}_{min}(B, r_E) \) less than \( \lambda_{min} \). Since the chance of \( D \) passing shrinks to zero as \( \pi \) goes to one, and the majority does incur reputational costs when \( r = r_D \), for fixed \( \alpha \) and sufficiently large \( \pi \) a non-myopic majority will indeed propose \( E \). It is possible now that a strategic minority will at least sometimes play \( A \) when \( r = r_D \), but this will never occur when \( I \neq E \) so long as \( \alpha \) and \( \pi \) are large. And again, as above, if \( \alpha \) is large enough a strategic majority will play \( D \) for low enough \( \pi \), causing this new (relatively) cooperative equilibrium to fail to exist. These results are formalized as follows.

**Proposition 3.3.** If \( \pi \) is sufficiently large, then there exists a cooperative PBE in which the strategic majority always plays \( E \) when it is non-myopic, and the strategic minority plays \( \sigma^*(r_E, E) = 1, \sigma^*(r_E, \emptyset) \in [0, 1] \) (=1 only if \( \pi = 1 \)), \( \sigma^*(r_D, E) \in [0, 1] \) and \( \sigma^* = 0 \) otherwise. If \( \pi = 1 \), then \( \tilde{\lambda}_{maj}(B, r_E) > \tilde{\lambda}_{maj}(A, r_E) \) and \( \tilde{\lambda}_{min}(B, r_E) < \lambda_{min} \). If \( \pi \) is sufficiently small and \( \alpha \) sufficiently large, this PBE fails to exist.

Intuitively, the media is a very effective watchdog when \( \pi \) is high, forcing a forward-looking but low majority to “do the right thing,” and a low minority to be relatively likely to do so as well. Political competition alone (i.e. in the absence of informative media) is not sufficient to accomplish this. The parameter \( \psi < 1 \) implies \( D \) is sometimes proposed in equilibrium. This simply allows the avoidance of complicated, but conceptually similar, equilibria in which both parties play mixed strategies.\(^{19}\) This means the media is not a perfect watchdog, and the minority is still a useful back-up.

\(^{18}\)The pair \( (B, r_E) \) would only occur when the minority acted cynically and \( I = D \). Since only cynical majorities propose \( D \), this would imply \( \tilde{\lambda}_{maj} = 0 \).

\(^{19}\)It can be shown that if \( \psi = 1 \) there is no pure strategy equilibrium in which the majority always plays \( E \). This is because, since there is always some chance of \( D \) passing for \( \pi < 1 \), there must be some reputational cost of \( r = r_E \) to deter the proposal of \( D \). But there cannot be reputation changes on the equilibrium path if the majority always takes the same action.
To summarize, if $\alpha$ is large, when $\pi$ is small there exists a gridlock PBE in which the minority usually or always plays $B$ and the majority always plays $D$. When $\pi$ is large there exists a cooperative PBE in which the majority usually plays $E$, and minority usually $A$. The gridlock equilibria do not exist when $\pi$ is large and the cooperative PBE does not exist when $\pi$ is small.

### 3.2 Gridlock, Polarization and Welfare

While the names given to the two classes of equilibria allude to their qualitative difference, this subsection formally analyzes this difference, and how it relates to the media environment. First I formalize how the probability of the policy being blocked differs across equilibria and proposals.

**Lemma 3.4.** For any gridlock PBE with $\pi_g$ and cooperative PBE with $\pi_c$, $\pi_g \leq \pi_c$,

1. $\text{Pr}(B|E, \text{gridlock PBE}) > \text{Pr}(B|E, \text{cooperative PBE})$;
2. $\text{Pr}(B|D, \text{gridlock PBE}) < \text{Pr}(B|D, \text{cooperative PBE})$ iff $\pi_c$ sufficiently large.

The first part says efficient policies are more likely to be blocked in gridlock than cooperative equilibria. This holds independent of differences in the minority’s behavior across equilibria; the result is just due to the news being more likely to be inaccurate in gridlock equilibria. When the policy is efficient, it is blocked if the news is inaccurate unless the minority is the high type and informed.

The second part implies blocking bad policies is also more likely in gridlock equilibria when media accuracy across equilibria is similar. This result is due to differences in minority behavior—the strategic minority may sometimes play $A$ even when $I = \emptyset$ in cooperative equilibria because the reputational benefits of $A$ are stronger in cooperative equilibria. Thus the minority plays $A$ more often in cooperative PBE than gridlock PBE even when $X = D$ for $\pi_c = \pi_g$. However, when $\pi_c$ is high enough, this will cause the minority to correctly block more often.

These results hint at legislative and welfare differences across equilibria—blocking $E$ is more likely in gridlock PBE, which is socially bad, and blocking $D$ may be more likely in cooperative PBE, which is socially good. However, the overall (unconditional on $X$) differences in blocking behavior and welfare are ambiguous. The following results clarify these ambiguities.
**Proposition 3.5.** For any \( \pi_g \leq \pi_c \), \( B \) is more likely to be played in a gridlock equilibrium with \( \pi = \pi_g \) than a cooperative equilibrium with \( \pi = \pi_c \).

This result is very interesting first because it shows that it is actually unambiguous that blocking occurs more often in gridlock PBE for the entire parameter space, and second, because it actually does not even rely on differences in the majority’s behavior across PBE types. That is, the result holds even if the majority is equally likely to propose \( D \) in any media environment. This is surprising, since given \( D \) is proposed, as shown in Lemma 3.4 blocking occurs more often in cooperative PBE for large \( \pi_c \). Therefore one would think that if parameters are such that \( D \) is proposed often, then \( Pr(B) \) would be increasing in \( \pi \). The result that blocking is decreasing in \( \pi \) for the entire parameter space relies on two assumptions regarding the boundary of the space, \( \phi > 0.5 \) and \( \lambda_{maj} > \lambda_{min} \) (and thus \( \lambda_{maj}^X > \lambda_{min}^Y \)). The importance of the latter is that since \( Pr(D) = 1 - \lambda_{maj}^X \), the upper bound of \( \lambda_{min}^Y \) is decreasing as \( Pr(D) \) increases. Since \( Pr(B) \) is larger for smaller \( \lambda_{min}^Y \) for all \( \pi \), this counter-acts the effect of larger \( Pr(D) \) on \( \frac{dPr(B)}{d\pi} \). To see the importance of large \( \phi \), suppose \( \phi = 1 \). Then, given \( D \) is proposed, increasing \( \pi \) has no effect on the likelihood of blocking (it occurs with probability 1 for all \( \pi \)). This illustrates how, in general, larger \( \phi \) reduces \( \frac{dPr(B)}{d\pi} \).

The overall welfare effects are not as clean.

**Proposition 3.6.** For any gridlock PBE with \( \pi_g \) and cooperative PBE with \( \pi_c \), \( \pi_g \leq \pi_c \), if \( \pi_c \) or \( \psi \) is sufficiently large, then welfare higher in cooperative PBE.

Welfare can be written as \( Pr(A|E)Pr(E)W(E) - Pr(A|D)Pr(D)W(D) \), with \( W(E) \) denoting the social benefit of \( E \) and \( W(D) \) denoting the loss from \( D \). If \( Pr(A|E,\text{cooperative}) \geq Pr(A|E,\text{gridlock}) \) and \( Pr(A|D,\text{cooperative}) \leq Pr(A|D,\text{gridlock}) \), then welfare would be greater in cooperative PBE for all \( W(E), W(D) \). However, by Lemma 3.4 this is only guaranteed to be the case if \( \pi_c \) is sufficiently large. If not, the \( W(D) \) effect can still be shrunk to zero by \( \psi \) going to 1. (A formal proof of this is omitted.)

Regarding polarization of voters, it is natural to think that partisan voters’ opinions of the opposing party declines when the two parties disagree, especially given the altruism interpretation of the type space. If, say, partisan voters are sure their party wants to do what is best for the country (is high type), and unsure about the opposition, their opinions of the opposition’s type would naturally decline when the parties fail to pass legislation. I thus
avoid explicitly modeling the partisan voters’ belief updating process as it is unnecessary to make this point. Therefore it is natural to think that polarization of voters increases as the likelihood of party disagreement increases, and so these results also imply declining $\pi$ causes polarization of partisan voters, but not necessarily centrists.\textsuperscript{20} This is consistent with evidence that partisan voters do appear to disagree more today than in the past.\textsuperscript{21} I note it is also very likely that, conditional on party disagreement, voter polarization would increase more in a more partisan media environment. That is, increased voter polarization via more partisan media does not require changes in politician behavior. This paper does not argue against this point, only that it would be enhanced by the media’s direct effect on politician behavior as well.

### 3.3 Reputation and Re-election

In this subsection I characterize other important observable differences between gridlock and cooperative equilibria—their effects on the reputations of the parties and the majority’s likelihood of re-election. I say the majority (minority) loses reputation when $\tilde{\lambda}_{maj} < \lambda_{maj}$ ($\tilde{\lambda}_{min} < \lambda_{min}$) and the majority loses relative reputation when $\tilde{\lambda}_{maj} - \tilde{\lambda}_{min} < \lambda_{maj} - \lambda_{min}$.

**Proposition 3.7.** For any gridlock PBE with sufficiently small $\pi_g$ and cooperative PBE with sufficiently large $\pi_c$, the majority is more likely to both lose reputation and lose relative reputation in the gridlock PBE than the cooperative PBE.

The result is fairly intuitive, given the forces differentiating the types of equilibria—the majority is more likely to act in a partisan way in gridlock PBE, so it is natural that the majority’s reputation is likelier to decline as a result. Perhaps it is also intuitive then that the minority is likely to gain relative reputation as well, especially given that the minority acts last. The following related result may be more surprising, however.

**Corollary 3.8.** In gridlock PBE outcomes in which the majority loses relative reputation, the minority loses reputation.

\textsuperscript{20}If centrists are Bayesian, their priors on average equal their posteriors.

\textsuperscript{21}From Pildes (2011): “The partisan gap in approval ratings for President Obama is larger than it has ever been for a President at this stage; one year in, only 18% of Republicans, but 82% of Democrats, approve of Obama’s performance - a gap of 64 points. From the Eisenhower through the Carter years, this gap in one-year approval ratings never exceeded 34 points; since then, it has averaged 48 points.”

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A sketch of the proof is the following (the details are straightforward and omitted). In total gridlock PBE, the majority loses relative reputation when \( Y = B \). But \( \Pr(B|\hat{\theta}_{\min}) > \Pr(B|\hat{\theta}_{\min}) \), i.e. the minority is more likely to block when it is the low type, implying \( B \) worsens the minority’s reputation. The argument is exactly the same for partial gridlock PBE when \( r = r_D \) (when \( r = r_E \) the majority does not lose relative reputation whether \( Y \) is \( A \) or \( B \)). Thus, when the minority’s electoral chances improve due to the realizations of \( r \) and \( Y \) in gridlock PBE it is not because the minority takes an action causing it to look more virtuous to voters. On the contrary, the minority’s reputation worsens due to the action; it just manages to worsen the majority’s reputation even more severely.

Intuitively, Proposition 3.7 implies the majority is less likely to be re-elected in gridlock PBE, as compared to cooperative PBE. However, this is not unambiguously the case since the magnitudes of the reputational changes are different across equilibria as well. It is difficult to analytically characterize comparative statics for re-election probabilities, so these are presented graphically for various parameter values in Figure 4. It shows how the majority’s probability of re-election is in fact generally greater in cooperative PBE. Before discussing this further I present one additional analytical result.

**Proposition 3.9.** Let \( \lambda_{\min} = \delta \lambda_{\maj} \). Let \( \delta^*(\lambda_{maj}) \) equal the min \( \delta \) such that \( \tilde{\lambda}_{\min}(r_D,B) > \tilde{\lambda}_{maj}(r_D,B) \). Then, for gridlock PBE, \( \delta^*(\lambda_{maj}) \) is weakly increasing in \( \lambda_{maj} \) (strictly if \( \pi > 0.5 \)).

This result says that for a given percentage reputational advantage for the majority, a reversal in reputation advantage (i.e., \( \tilde{\lambda}_{\min} > \tilde{\lambda}_{maj} \)) resulting from \( (r_D,B) \) is more likely when the majority has a worse initial reputation. Figure 4 illustrates this—it shows how the re-election probabilities are very similar for the two types of equilibria, except when \( \lambda_{\min} \) is fairly close to \( \lambda_{maj} \). This is because, due to the concavity of \( f() \), sharp changes only occur when there is a somewhat large probability of a reversal occurring, and reversals can only occur when the priors are similar.\(^{22}\) However, as the proposition shows, the priors can be less similar, percentage-wise, when they both start low. The figure shows this, as in the top left panel, with \( \lambda_{maj} = 0.1 \), reversals first occur when \( \lambda_{\min} \) is 17-18% less than \( \lambda_{maj} \). In the

\(^{22}\)The figure presents results for a particular form of the function \( f() \). The more non-linear this function is, the greater the gap between gridlock and cooperative re-election probabilities are when \( \lambda_{\min} \) is close to \( \lambda_{maj} \), as a more non-linear function implies greater effects of small differences in reputation on the outcome.
bottom right panel, with $\lambda_{maj} = 0.4$, reversals first occur when $\lambda_{min}$ is around 10% less than $\lambda_{maj}$.

Figure 4: Re-election probabilities; $\pi = 0.55$ in gridlock PBE, $\pi = 0.95$ in cooperative PBE; $\epsilon = 0.25, \phi = 0.75, \psi = 0.95, \alpha = 2, f(\tilde{\lambda}_{maj} - \tilde{\lambda}_{min}) = 0.5(1 + (\tilde{\lambda}_{maj} - \tilde{\lambda}_{min})^{0.3})$ if $\tilde{\lambda}_{maj} \geq \tilde{\lambda}_{min}$, and $= 0.5(1 - (\tilde{\lambda}_{min} - \tilde{\lambda}_{maj})^{0.3})$ otherwise.

The empirical implications of these results are that in less informative media environments we should see: 1) a greater likelihood of approval ratings for the majority party, and thus Congress overall, declining (Proposition 3.7, Corollary 3.8), 2) a decreased probability of the majority party being re-elected (Proposition 3.7, Figure 4), 3) lower ratings for even the minority party just before turnover (Corollary 3.8), and 4) an exacerbation of both of these trends as approval ratings decline (Propositions 3.1, 3.9). As discussed briefly in the introduction, these implications are consistent with recent trends in U.S. politics. Approval ratings for Congress overall in late 2011 were at historical lows.23 Control of the House of Representatives has changed three times since 1994, after not changing once in the previous

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40 years. Democrats, who re-took control at the end of 2006, and Republicans, who re-took control at the end of 2010, each had slightly lower approval ratings in that year than the previous one.\textsuperscript{24} Moreover, the cycle of turnover may be speeding up (as turnover occurred in 1994, 2006 and 2010), and usage and threats of the filibuster seem to be increasing over time as well, as discussed above. While there are no doubt many possible explanations for these phenomena, the point of this paper is to show how the emergence of new media could be a direct causal factor. Giving parties greater incentives to both propose inefficient partisan policy, and block policy whether it is partisan or not, could result in all of these effects.

4 Concluding remarks

This paper has shown that a decline in the informativeness of media can, in addition to increasing the propensity of parties to make bad policy proposals, also increase obstructionism of good policy. One can think of a political actor being more likely to propose a special interest-serving policy, or to block a welfare-improving policy, in a partisan media environment knowing its actions will be provided intellectual cover by its advocates in the press. Obstructionist behavior hurts the minority’s reputation, but hurts the majority’s even more, especially when the minority’s reputation is low, so it has little to lose, and the majority’s is high. The results may help explain why in recent years in U.S. politics there appears to have been a positive feedback process in which polarized political actions have caused lower approval ratings, which have in turn caused further polarization, and so on.

The model is highly stylized and ignores numerous potentially important factors. One is turnout. If turnout were uncertain, parties may have even greater incentives to act in a polarized way in more partisan media environments as this behavior may be more effective in reaching less mainstream voters.\textsuperscript{25} Another questionable assumption is that the social value of the policy is not observed by voters even if it is passed. If it were perfectly observable, then strategic minorities would have even stronger incentives to block good policy, but this could

\textsuperscript{24}See http://www.pollingreport.com/cong_rep.htm and http://www.pollingreport.com/cong_dem.htm. Since the wording of questions varied slightly across polls, I ignored “unsure” responses and compared the ratio of mean percent “approve” to mean “disapprove” for all polls in 2005 and 2009 to all polls from the first 10 months (prior to the election) from 2006 and 2010, respectively. The ratios are 0.82 and 0.78 for Democrats in 2005 and 2006, and 0.53, 0.5 for Republicans in 2009 and 2010.

\textsuperscript{25}Nie, Miller III, Golde, Butler, and Winneg (2010) finds that consumers of cable and Internet news hold more extreme political views than consumers of just cable news.
also cause strategic parties to be less likely to propose self-serving policies. In reality, however, voters likely learn about the actual social benefits/costs of enacted policy from the media, so this knowledge could also be reduced in modern media environments. The assumption that voters are strategically sophisticated and Bayesian update about party types is also questionable. If voters took the minority’s action at face value, without accounting for its strategic incentives, clearly the minority would have a stronger incentive to block proposals (so the counter-signaling issue would be less relevant). As pointed out by Snyder and Strömberg (2010), the media affects the selection of politicians, so it might be ideal to make $\lambda_{maj}$ and $\lambda_{min}$ endogenous. If these were positive correlated with $\pi$ that would also strengthen the paper’s predictions.

Another alternative explanation for increased gridlock is that norms for political cooperation have deteriorated over time. It is possible that in the past the parties had an agreement (unspoken or not) that they would not obstruct one another too often, at least on issues in which it was fairly clear there existed some bipartisan action better than no action, even though obstructionism could lead to political (i.e., future electoral) gain. It is intuitive that once these norms begin to be violated this would cause a lack of trust undermining future compliance. However, making the case for this theory would beg the question of what caused the initial violation. Declining media accuracy is likely one of the leading culprits.

It is not clear what the policy implications are of this paper. The model highlights the social benefits of more informative media; how to achieve this is of course not obvious. The Fairness Doctrine may warrant reconsideration, or even stronger policy, such as Canada’s prohibition of the broadcast of “false or misleading news.” The model does not imply that, given that the media cannot be made more informative, a political system in which the opposition party could not obstruct would be preferable. While this would increase the chance of good policies being implemented, it would also increase that of bad policies. The relative costs, benefits and likelihoods of these events under political systems with and without allowing filibustering would have to be considered.

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References


A Proofs

A.1 Proof of Proposition 3.1

First I show (4) holding implies (2) holds. This is true if \( \tilde{\lambda}_{maj}(A, r_E) - \tilde{\lambda}_{min}(A, r_E) \leq \tilde{\lambda}_{maj}(A, r_D) - \tilde{\lambda}_{min}(A, r_D) \). For \( \pi = 0.5 \) this is equivalent to

\[
\frac{\Pr(A|r_D, \bar{\theta}_{maj})\lambda_{maj} - \Pr(A|r_D, \bar{\theta}_{min})\lambda_{min}}{\Pr(A|r_D)} \leq \frac{\Pr(A|r_E, \bar{\theta}_{maj})\lambda_{maj} - \Pr(A|r_E, \bar{\theta}_{min})\lambda_{min}}{\Pr(A|r_E)}.
\]

\( \Pr(A|r_D) = \phi \lambda_{min} \lambda_{maj} \) and \( \Pr(A|r_E) = \lambda_{min}(1 - \phi(1 - \lambda_{maj})) \). \( \Pr(A|r_E, \bar{\theta}_{min}) = (1 - \phi(1 - \lambda_{maj})) \) and \( \Pr(A|r_D, \bar{\theta}_{min}) = \phi \lambda_{maj} \). Thus

\[
\frac{\Pr(A|r_E, \bar{\theta}_{maj})}{\Pr(A|r_E)} = \frac{\Pr(A|r_D, \bar{\theta}_{maj})}{\Pr(A|r_D)}
\]

and so the terms involving \( \lambda_{min} \) cancel and disappear. So it just needs to be shown that

\[\Pr(A|r_E, \bar{\theta}_{maj})\Pr(A|r_D) \leq \Pr(A|r_D, \bar{\theta}_{maj})\Pr(A|r_E),\]

i.e. \( \lambda_{min} \phi \lambda_{maj} \lambda_{maj} \leq \phi \lambda_{min} \lambda_{maj} (1 - \phi(1 - \lambda_{maj})), \) i.e. \( \lambda_{maj} \leq (1 - \phi(1 - \lambda_{maj})), \) i.e. \( \lambda_{maj} \leq 1, \) which is clearly true.

Showing (4) reduces to \( \Pr(A, r_E | \bar{\theta}_{maj}) - \Pr(A, r_E) \lambda_{maj} \geq (\Pr(A, r_E | \bar{\theta}_{min}) - \Pr(A, r_E)) \lambda_{min} \) is straightforward given (4) can be written \( \lambda_{maj} - \lambda_{min} \leq \frac{\Pr(A|r_E, \bar{\theta}_{maj})\lambda_{maj} - \Pr(A|r_E, \bar{\theta}_{min})\lambda_{min}}{\Pr(A|r_E)}. \) To show (4) cannot hold for large \( \pi, \) first note \( \tilde{\lambda}_{min}(B, r_E) = \Pr(B, r_E | \bar{\theta}_{min})\lambda_{min} / \Pr(B, r_E) \) and \( \Pr(B, r_E | \bar{\theta}_{min}) = \phi(1 - \pi)(1 - \lambda_{maj}). \) Since \( \Pr(B, r_E | \bar{\theta}_{min}) = (1 - \epsilon)\Pr(r_E) + \epsilon\Pr(B, r_E | \bar{\theta}_{min}) > 24
0 for all \( \pi \), \( Pr(B, r_E) > 0 \) for all \( \pi \) and does not converge to 0 as \( \pi \) goes to 1, so \( \lim_{\pi \to 1} \lambda_{\min}(B, r_E) = 0 \). Since \( \lambda_{\min}(A, r_E) = Pr(A, r_E|\bar{\theta}_{\min}) \lambda_{\min}/Pr(A, r_E) \) and \( Pr(A, r_E|\bar{\theta}_{\min}) = \pi \lambda_{maj}^X + (1 - \phi)(1 - \pi) (1 - \lambda_{maj}^X) > 0 \) for all \( \pi \), this implies \( \lim_{\pi \to 1} \lambda_{\min}(A, r_E) > 0 \). \( \lambda_{maj}(A, r_E) = Pr(A, r_E|\bar{\theta}_{maj}) \lambda_{maj}/Pr(A, r_E) \), \( \lambda_{min}(A, r_E) = Pr(A, r_E|\bar{\theta}_{min}) \lambda_{maj}/Pr(A, r_E) \). 

**A.2 Proof of Proposition 3.2**

I want to show \( \lambda_{maj} - \lambda_{min} > \frac{Pr(B|\bar{\theta}_{maj}, r_E) \lambda_{maj} - Pr(B|\bar{\theta}_{min}, r_E) \lambda_{min}}{Pr(B|r_E)} \) given centrists believe \( \sigma^*(r_E, E) = 1 \) (that is, the minority will have an incentive to deviate from the action the centrists expect when \( r = r_E, I = E \)). First note \( Pr(B|r_E) = \phi(1 - \lambda_{maj}^X) + (1 - \phi)(1 - \lambda_{min}^Y) \), and thus a lower bound for \( Pr(B|r_E) \) is \( 1 - \lambda_{maj}^X \). Showing the inequality holds when \( Pr(B|r_E) \) equals this lower bound is sufficient. Given \( Pr(B|r_E) \) equals this lower bound, the inequality is linear in \( \lambda_{min} \), thus we just need to show it is satisfied when \( \lambda_{min} \) equals its lower and upper bounds, 0 and \( \lambda_{maj} \). For \( \lambda_{min} = 0 \) I need to show \( Pr(B|\bar{\theta}_{maj}, r_E) < Pr(B|r_E) \), i.e. \( Pr(B|\bar{\theta}_{maj}, r_E) < 1 - \lambda_{maj}^X \). This is \( (1 - \phi)(1 - \lambda_{min}^Y) < 1 - \lambda_{maj}^X \), i.e. \( (1 - \phi)(1 - \epsilon) < 1 - \lambda_{maj}^X \), i.e. \( 1 - \phi < 1 - \lambda_{maj} \). This is true, given the assumptions already made of \( \lambda_{maj} \leq 0.5 \) and \( \phi > 0.5 \). For \( \lambda_{min} = \lambda_{maj} \), I need to show \( Pr(B|\bar{\theta}_{maj}, r_E) < Pr(B|\bar{\theta}_{min}, r_E) \), or \( (1 - \phi)(1 - \lambda_{min}^Y) < \phi(1 - \lambda_{maj}^X) \). Since in this case \( 1 - \lambda_{min}^Y = 1 - \lambda_{maj}^X \), this condition is also true due to \( \phi > 0.5 \).

**A.3 Proof of Proposition 3.3**

The main point that needs to be shown is that the non-myopic majority plays \( E \). It is sufficient to show in the limit as \( \pi \) goes to 1 the majority’s expected relative reputation when \( r = r_E \) is greater than when \( r = r_D \), and does not shrink to zero, since the probability of \( D \) passing does shrink to zero, so reputation is all that matters. When \( r = r_E \) the majority actually has a smaller advantage when \( X = A \) than \( X = B \) (given the analysis of the minority’s incentives discussed) and in the limit as \( \pi \) goes to 1, \( \lambda_{maj}(B, r_D) = 0 \) and \( \lambda_{min}(B, r_D) > k \) for some \( k > 0 \). Thus \( \lambda_{min}(B, r_D) > \lambda_{maj}(B, r_D) \), so it is sufficient to show \( \lambda_{maj}(A, r_E) > \lambda_{min}(A, r_E) \) when \( \pi = 1 \). This is equivalent to \( Pr(A|\bar{\theta}_{maj}) \lambda_{maj} \geq Pr(A, r_E|\bar{\theta}_{min}) \lambda_{min} \leftrightarrow (1 - (1 - \sigma^*(r_E, \emptyset))(1 - \phi)(1 - \lambda_{min}^Y)) \lambda_{maj} \geq \lambda_{maj}^X \lambda_{min} \). This expression is linear in \( \lambda_{min} \) so it is sufficient to show it
holds at the boundaries, $\lambda_{maj}$ and 0, which is easily shown true for all $\sigma^*(r_E, \emptyset)$.

### A.4 Proof of Lemma 3.4

$Pr(B|E, \text{gridlock PBE}) > 1 - \pi_g + \pi_g(1 - \lambda^Y_{\min})(1 - \phi)$ and $Pr(B|E, \text{cooperative PBE}) \leq 1 - \pi_c + \pi_c(1 - \lambda^Y_{\min})(1 - \phi)$. The former is weakly greater given $\pi_g \leq \pi_c$. This proves part 1. To prove part 2, $Pr(B|D, \text{gridlock PBE}) > \pi_g + (1 - \pi_g)(1 - \lambda^Y_{\min}(1 - \phi))$ and $Pr(B|D, \text{cooperative PBE}) \in [\pi_c + (1 - \pi_c)\phi, \pi_c + (1 - \pi_c)(1 - \lambda^Y_{\min}(1 - \phi))]$. This implies $Pr(B|D, \text{gridlock PBE})$ is greater when $\pi_g = \pi_c$. $Pr(B|D, \text{gridlock PBE})$ is smaller when $\pi_g < 1$ and $\pi_c$ is sufficiently close to 1.

### A.5 Proof of Proposition 3.5

Let $Pr_g(B)$ ($Pr_c(B)$) denote the probability $B$ is played in gridlock (cooperative) equilibrium (same for $Pr_g(D)$, etc.). The claim is $Pr_g(B) \geq Pr_c(B)$ for all $\pi_c \geq \pi_g$. It is sufficient to show the claim holds when blocking is played least often in gridlock equilibrium ($\sigma^*(r_E, E) = 1$) and most often in cooperative equilibrium ($\sigma^*(r_E, \emptyset) = 0$). Since $Pr_c(B|D) \geq Pr_c(B|E)$, it is sufficient to show $Pr_g(B) \geq Pr_c(B)$ when $Pr_c(D)$ is at its upper bound, $Pr_g(D)$. Together this implies it is sufficient to show

$$
Pr_g(B) = Pr_g(D)Pr_g(B|D) + Pr_g(E)Pr_g(B|E) = Pr_g(D)(\pi_g + (1 - \pi_g)(1 - (1 - \phi)(\lambda_{min} + (1 - \lambda_{min})\phi))) + Pr_g(E)(\pi_g(1 - \phi)(1 - \epsilon)(1 - \lambda_{min}) + (1 - \pi_g)(1 - \phi(\lambda_{min} + (1 - \lambda_{min})\epsilon)))
$$

is decreasing in $\pi_g$. This is equivalent to showing $Pr_g(D)(1 - \phi)(\lambda_{min} + (1 - \lambda_{min})\epsilon) < Pr_g(E)(1 - (1 - \phi)(1 - \epsilon)(1 - \lambda_{min}) - \phi(\lambda_{min} + (1 - \lambda_{min})\epsilon))$. To do this first note $\lambda_{min} + (1 - \lambda_{min})\epsilon \leq Pr_g(E)$, so it is sufficient to show $Pr_g(D)(1 - \phi) < 1 - (1 - \phi)(1 - \epsilon)(1 - \lambda_{min}) - \phi(\lambda_{min} + (1 - \lambda_{min})\epsilon)$. The condition always holds with $\phi = 1$. Thus, since both sides are linear in $\phi$, if the inequality holds when $\phi = 0.5$ (its lower bound) we are done. This requires $0.5 Pr_g(D) < 1 - 0.5(1 - \epsilon)(1 - \lambda_{min}) - 0.5(\lambda_{min} + (1 - \lambda_{min})\epsilon)$. This is shown by again using the fact that $\lambda_{min} + (1 - \lambda_{min})\epsilon \leq Pr_g(E) = 1 - Pr_g(D)$. Given this, $1 - Pr_g(D)$ can be substituted for $\lambda_{min} + (1 - \lambda_{min})\epsilon$ to provide a sufficient condition for the result, which is indeed satisfied.
A.6 Proof of Proposition 3.7

From the proof of Proposition 3.1, we know in total gridlock PBE the majority loses relative reputation when \( Y = B \) for all \( r \). The majority also loses (absolute) reputation in this case, since \( Pr(B|r; \hat{\theta}_{maj}) > Pr(B|r; \bar{\theta}_{maj}) \) for all \( r \). The probability \( Y = B \) is greater than \( 1 - \lambda_{min}^{Y} \).

In partial gridlock PBE, the majority loses reputation and relative reputation when \( (r,Y) = (r_D,B) \) by a similar argument. The probability of this occurring is strictly greater than \( 0.5(1 - \lambda_{min}^{Y}) \) when \( \pi = 0.5 \). Thus the probability the majority loses reputation and relative reputation in gridlock PBE is strictly greater than \( 0.5(1 - \lambda_{min}^{Y}) \) for \( \pi \) in a neighborhood of 0.5. In cooperative PBE, when \( \pi = 1 \) the majority only loses relative and absolute reputation when \( r = r_D \) (and thus \( Y = B \)), which occurs with probability \( (1 - \psi)(1 - \lambda_{maj}^{X}) \) (otherwise, \( X = E \) so \( r = r_E; Y = A \) and \( \lambda_{maj}(r_E, A) > \lambda_{maj} \)). It may be possible to show that \( Pr(r_E, B) \rightarrow 0 \) and \( Pr(r_D, A) \rightarrow 0 \) as \( \pi \rightarrow 1 \) (the former would be due to \( \sigma^*(r_E, \emptyset) \rightarrow 1 \), the latter is straightforward). If so, the probability of the events \( (r_E, B) \) and \( (r_D, A) \) would be arbitrarily small for \( \pi \) close to 1, so we could ignore these events. If not, the claim would only hold for \( \pi = 1 \). Either way, to prove the result we would next need to show \( Pr(r_D, B) \) is strictly less than \( 0.5(1 - \lambda_{min}^{Y}) \). This is true due to the assumptions \( \psi > 0.5 \) and \( \lambda_{maj} > \lambda_{min}^{Y} \).

A.7 Proof of Proposition 3.9

\( \lambda_{min}(r_D, B) > \lambda_{maj}(r_D, B) \) iff \( Pr(r_D, B|\bar{\theta}_{min}) \lambda_{min} > Pr(r_D|\bar{\theta}_{maj}) \lambda_{maj} \), i.e. \( Pr(r_D, B|\bar{\theta}_{min})\delta > Pr(r_D|\bar{\theta}_{maj}) \). Note \( Pr(r_D, B|\bar{\theta}_{min}) = \lambda_{maj}^{X}(1 - \pi)(1 - \phi) + (1 - \lambda_{maj}^{X})\pi = \lambda_{maj}^{Y}(1 - \phi)(1 - \pi) + \pi \) and \( Pr(r_D, B|\bar{\theta}_{maj}) = (1 - \pi)(\lambda_{min}^{Y}(1 - \phi) + (1 - \lambda_{min}^{Y})) = (1 - \pi)(1 - \phi\lambda_{min}) = (1 - \pi)(1 - \phi(\delta\lambda_{maj}(1 - \epsilon) - \epsilon)) \). Thus we need to show \( Pr(r_D, B|\bar{\theta}_{min})\delta > (1 - \pi)(1 - \phi(\delta\lambda_{maj}(1 - \epsilon) - \epsilon)) \), i.e. \( Pr(r_D, B|\bar{\theta}_{min}) + \phi\lambda_{maj}(1 - \epsilon)(1 - \pi)\delta > (1 - \pi)(1 - \phi\epsilon) \). It is clear then if \( (Pr(r_D, B|\bar{\theta}_{min}) + \lambda_{maj}(1 - \epsilon)(1 - \pi)) \) is decreasing in \( \lambda_{maj} \) we have proven the result. The derivative of this expression is \( (1 - \epsilon)((1 - \pi)(1 - \phi) - \pi) + \phi(1 - \epsilon)(1 - \pi) = (1 - \epsilon)(1 - \pi) - (1 - \epsilon)\pi = (1 - \epsilon)(1 - 2\pi) \leq 0 \) (\( < 0 \) if \( \pi > 0.5 \)).