The Spin Doctor Meets the Rational Voter: Electoral Competition when Mass Media have Agenda-Setting Effects

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Abstract

In a multidimensional policy space, citizens vote on the basis of which issue(s) they consider as more salient. An issue becomes salient if it is known that problems related to it have occurred. Mass media outlets inform readers and viewers about which problems have taken place, but there is a limited amount of available space on each of them, so that an excluding choice must be made.

I develop a simple model of electoral competition, characterised by the fact that mass media outlets have agenda-setting effects. In a two-issue, one-newspaper environment, I define as "spin" the ability of the incumbent politician to make the story about the favorite issue sexier, so that it is published for sure, at the expense of the story about the other issue. I compare this case to the one of balanced reporting, and to the one where the newspaper acts as a watchdog, by giving priority to the issue owned by the challenger's party.

As a function of the editorial policy of the newspaper, the model offers testable predictions about the kind of news being published, and the effects thereof on the electoral outcome. Moreover, I discuss the welfare costs of media capture by the incumbent government, and the circumstances under which it would be ex ante optimal for the incumbent politician to commit not to engage himself in spin activity. This is true when there is aggregate uncertainty on the electoral outcome and the electorate is ideologically polarised.

1 Introduction

Information is fundamental in making rational choices: in the political economy field, it plays a crucial role in shaping electoral choices made by voters. When confronted with the problem of electing their representatives for the next term, citizens are interested in obtaining pieces of information about the current state of affairs and the policy platforms offered by candidates. While on some issues direct experience can provide valuable pieces of information to voters[1], on some others mass media outlets are the only source of information. As the size of the polity for which elections are held increases, the fraction of issues over which mass media outlets are the only source of information for citizens typically increases[2].

Given (the knowledge of) candidates' characteristics and platforms, the expected suitability of different candidates to the electoral position may depend on the current state of affairs. According to Petrocik [1996], citizens have an instrumental attitude towards the electoral process, in that they want to elect the candidate who is reckoned as better at handling the most pressing problems facing the country. Moreover, they have a priori views about which political party gathers the candidates who have a comparative advantage in solving problems related to a given issue. This is a theory of issue ownership: a political party is said to own an issue if citizens believe that its candidates are comparatively more able to solve problems related to it, given that they occur, than candidates belonging to the other party[3].

In a multidimensional policy space, as it is the one implicitly assumed by a theory of issue ownership, citizens cast their vote on the basis of the vector of weights they attach to the different issues. In turn the weight attached to a given issue is an increasing function of the number and magnitude of problems related to it that are known to have occurred. The idea is that mass media outlets provide pieces of news about which problems have occurred in the

[1] This is certainly true for relevant economic figures like the inflation and the unemployment rate, whereas direct experience can provide pieces of information about the purchasing power of money and the job status of people belonging to the reference group. It is also true for other issues, like crime and health care.

[2] By the same token, as the size of the polity increases, it is the case that direct experience -for those issues where it is feasible- is less and less reliable as a source of information about the general (i.e non-local) conditions regarding those issues.

[3] According to Petrocik [1996], one should distinguish between owned and leased issues, where the former identify issues on which a given party is reckoned as more capable on a long-term basis, while the latter represent issues on which the incumbent's performance is constantly assessed, i.e. the ownership thereof can change in the short term as well.

different fields: by shaping their information set, mass media outlets concur in determining the salience structure entertained by citizens, i.e. in setting their agenda[4].

When a problem related to a given issue happens, a story about it can be published on the newspaper or featured on the TV news broadcast; however, it can be the case that problems pertaining to different issues take place at the same time, and more than one story can potentially be published. In fact, the physical space on a newspaper and the amount of available time in a TV news broadcast are scarce resources. This is coupled with the limited amount of attention readers and viewers are typically willing or able to spend. For example, stories on a newspaper are given an implicit ranking by their position, with a higher priority attached to front page ones.

The ranking is even stronger for TV news broadcasts: in this case, the viewer is directly forced by the order with which stories are presented, and by the amount of time devoted to each of them. In general, the managing editor of the newspaper or the TV news program must decide which story is newsworthy, and within this subset of published stories she must decide what to emphasize, namely what to publish or broadcast as the lead story[5].

If citizens are influenced in their voting decision by the topics newspapers and TV news broadcasts decide to cover, political parties have strong incentives to reshape or manipulate the agenda of mass media outlets at their own advantage. In particular, if the issue ownership hypothesis correctly describes how rational citizens vote, then each political party would strongly appreciate the fact that media outlets emphasise events pertaining to the owned issue. This is what political marketing is exactly about.

Take a situation with two parties competing with their candidates for an electoral office. Within an issue ownership perspective, first of all each candidate would focus her campaign on the set of owned issues[6]. Moreover, each candidate would try to induce news providers

[4] The term "agenda" derives from the public opinion literature; its Latin etymology ("things that must be done") definitely resonates with this idea of problems that require some (prompt) policy action by the elected politician.

[5] Apart from this choice between different facts and issues, of any given event journalists and news editors can decide which aspect to emphasize, i.e. how to *frame* it. More on this in section 2.2.

[6] In fact, Benoit, Petrocik and Hansen [2003] analyse acceptance speeches and TV ads of U.S. presidential candidates from 1952 through 2000. They show that candidates -and especially Republicans- strongly focus their campaign on owned issues.

to feature stories about these owned issues, and disregard potential pieces of news about the policy fields owned by the opponent's party. Such interaction between parties and news providers clearly has some zero sum game features, as the contrasting pressures of the two parties on media outlets may end up offsetting each other.

However, the incumbent party may enjoy a comparative advantage in its relationship with the mass media. There is a set of reasons for this to be the case. First, there is a natural tendency for journalists to watch attentively the activities of the incumbent politician, as these produce direct consequences on citizens' lives. The incumbent politician can exploit such media attention and purposely concentrate his efforts on owned issues: by reporting what the incumbent is doing, journalists end up emphasizing the policy fields that are owned by the incumbent. Second, the incumbent politician's party can have larger financial resources than the challenger: these resources might be used to set up a more efficient public relations department, which outperforms the challenger's one. Third, the incumbent politician can stipulate an implicit agreement with news providers: in exchange for a more intense coverage of the owned issues now, he could offer easier access to newsworthy pieces of information in the future, of which he is the monopolistic supplier, at least as long as he is in office[7].

In this paper I build a simple model of electoral competition where the mass media have agenda-setting effects: an incumbent politician and a challenger compete for an electoral office. I assume that there is a single newspaper, and two issues about which citizens care: one is owned by the incumbent's party, the other by the challenger's. Problems pertaining to the two issues can occur, with given and independent probabilities: if a problem occurs, a verifiable signal is issued, and can be published as a story on the newspaper: however, on the newspaper itself there is room for only one story to be published[8].

In this set up, I define as "spin" the ability of the incumbent politician to make the story

[7] As discussed by Dyck and Zingales [2003] in the context of financial markets, there is often an implicit *quid pro quo* in the relationship between journalists and corporations as institutional sources of information. Corporate sources provide journalists privileged access to information, in exchange for a more favorable coverage.

[8] As noted above, when several newsworthy events take place at the same time, the managing editor of the newspaper is confronted with the choice of what to publish and what to disregard, and the relative emphasis to give to published stories. In this model I depict these decisions in a very stark fashion, by assuming that on the newspaper there is room for only one story to be published.

about the owned issue more palatable to the newspaper's editor. If there is spin, given that both problems have occurred, the story about the issue owned by the incumbent is always published. I compare this regime of media capture through spin to two other polar cases. If the editorial policy is one of *balanced reporting*, the managing editor is indifferent about which story to publish, i.e. it is as if he decides by tossing a fair coin. In the *watchdog* case the newspaper always gives priority to the issue that is owned by the challenger's party.

As a function of the editorial policy of the newspaper, the model offers predictions about the coverage of issues by the newspaper and the effects of this coverage on the electoral outcome.

First -by construction- the model suggests that *ex ante* it is more likely to read stories about the issue owned by the incumbent if there is spin than with balanced reporting, and *a fortiori* in the watchdog case. Second, if all voters are informed by reading the newspaper, they elect for sure the candidate whose party owns the issue that is featured in the published story. Third, given that the two problems are equally likely to arise (symmetric case) if there is spin the negative effect on total votes accruing to the incumbent of a story about the challenger's problem is larger in absolute terms than the positive effect of a story about the incumbent's issue, taking the case of no piece of news being published as a benchmark. Vice versa in the *watchdog* case. These effects are on the contrary equal when reporting is balanced.

The model is also suitable to analyse the social welfare costs of spin, which arise when the problem owned by the challenger's party happens to be more serious than the one owned by the incumbent's.

Finally, I investigate the structure of the incentives to spin the news that are faced by the incumbent politician, under the assumption that he is office-motivated and that spin activity is costless. Here it is crucial to distinguish between an *ex ante* perspective, i.e. before the uncertainty about the state of the world is resolved, and an *ex post* one, which is relevant when both problems are known to have occurred and can potentially be published as stories on the newspaper. It turns out that *ex post* it is always optimal for the incumbent to exert

spin and induce the editor to publish for sure the favorable story. *Ex ante* incentives on the contrary depend on whether uninformed voters are present: if all voters are informed, *ex ante* as well the incumbent prefers to exert spin to the maximum extent.

If uninformed voters are present, ex ante incentives depend on the shape of the distribution of the *ex ante* bias of rational voters, i.e. of their individual predisposition to vote one candidate or the other, before knowing what has happened in the issue space. When this distribution is unimodal, i.e. there are more moderate than radical voters, the incumbent's *ex ante* payoff is maximised with complete spin. On the other hand, with a polarised distribution of the bias, i.e. when there are more radical Republicans and Democrats than citizens with a moderate bias, the model delivers the interesting and *prima facie* counterintuitive result that it would be optimal for the incumbent to induce the newspaper to have a watchdog editorial policy, i.e. to publish for sure the story about the issue owned by the *challenger*. Of course in this case a credibility issue emerges, as *ex post* incentives drive the incumbent in the opposite direction of complete spin.

The paper is organised as follows: in section 2 I overview the related literature, both in the political economy and in the public opinion field; section 3 presents and solves the model. Section 4 concludes, and provide some directions to empirically test the model's implications.

2 Related literature

The model I present in this paper is on the intersection between three research areas. First, albeit in a very simplified fashion, it deals with a policy space that is multidimensional, as citizens care about more than one issue at the same time. This is a traditional topic in the collective choice literature. However, I assume that the salience structure entertained by citizens across these issues is not exogenously fixed, but rather depends on mass media coverage. Thus the model heavily draws from the public opinion literature on agenda-setting effects, which specifically deals with the effects of the media agenda on the public agenda. Third, the model easily fits within the growing political economy literature on the links between mass media behaviour and electoral competition.

2.1 Multidimensional policy space models

When the policy space is unidimensional, the regularity conditions under which a Condorcet winner exists, i.e. a policy platform that would win against any other platform in a pairwise competition, are quite weak (Black [1948], Gans and Smart [1996]). On the other hand, within a multidimensional policy space, much stricter conditions of symmetry on the distribution of citizens' bliss points are needed, in order to guarantee the existence of a Condorcet winner (Plott [1967], Davis, de Groot and Hinich [1972], Grandmont [1978]).

The previous results apply to a direct democracy. In fact, modern democracies are representative, in that the most relevant policy choices are made by representatives, to whom citizens have delegated the power to decide on their behalf. If this is the case, the nature itself of political institutions imposes some further conditions on the structure of the voting game. These restrictions might help identify a Condorcet winner.

If citizens are electing their representatives and not directly choosing the policy platform to be implemented, it is more likely that their vote is not only affected by the platforms themselves, but also by other factors over which candidates have less control, or no control at all, e.g. an ideological bias in favour of one or the other candidate. Probabilistic voting models (Hinich [1977], Coughlin and Nitzan [1981], Ledyard [1981, 1984]) incorporate this uncertainty faced by candidates and -under mild conditions on the joint distribution of these external factors- predict a unique equilibrium of the voting game.

Citizen-candidate models of electoral competition (Osborne and Slivinsky [1996], Besley and Coate [1997]), whereas each citizen may run as a candidate, but cannot precommit to offer policy platforms that are different from the one she would prefer as a private citizen, represent a different modelling route which avoids the non-existence of a Condorcet winner in a multidimensional policy space. If candidates are citizens who cannot precommit, but -in order to run- must also belong to already established political parties, then the parties' constituency itself might put constraints on the identity of candidates and therefore on the policy platforms that are offered to voters. The model presented in the next section is in fact based on this idea of political parties as determining candidates' characteristics *ex ante*.

A common feature of all the models discussed above is that the salience structure entertained by citizens, i.e. how they rank the importance of the different issues, is exogenously given. This salience structure has important implications on the features of the political equilibrium. For example, within a citizen-candidate framework with political parties, Besley and Coate [2000, 2003] show that -if citizens have only one vote to cast in order to decide on multiple issues- the position on non-salient issues that is preferred by the majority of them might not be implemented[9].

In the political economy literature proper there are few departures from the assumption of an exogenous salience structure. Cantillon [2001] studies how different electoral rules provide different incentives for political parties to introduce new issues within their platforms. Political parties must decide how much effort to devote to the different policy issues. The effort party A puts on issue i determines the weight given by voters in evaluating party A's position on the issue itself, so that a party-specific salience structure emerges in equilibrium.

Strömberg [2001] develops a model of the interaction between electoral competition and news provision by mass media outlets. He assumes that the incumbent politician must allocate a fixed budget between a general program of public expenditures, and a specific one, which delivers utility only to a subset of citizens. Newspapers can publish pieces of news about the two programs, which consist of reports about the realised utility of a sample of citizens. The more news are published about each program, the more citizens are able to precisely estimate the incumbent's competence on it and hence -when voting- they would give more weight to the program about which they are more informed. Similarly to the one presented in the next section, this is a model of endogenous salience structure that is based on an information story, without any reference to preference changes.

[9] According to Besley and Coate, the institutional solution to this "inefficiency" result consists in unbundling the non salient issue from the salient one, i.e. by letting citizens decide on it with an additional and separate vote.

2.2 The theory of agenda setting effects

The theory of agenda setting effects is built around the idea that mass media can influence the importance readers and viewers attribute to different issues[10]. Cohen [1963] notes that the press "[...]may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about. The world will look different to different people depending on the map that is drawn for them by writers, editors, and publishers of the paper they read." Hence editors and journalists enjoy relevant degrees of freedom in the choice of what is newsworthy, and this way they can influence the salience structure entertained by citizens.

McCombs and Shaw [1972] is the seminal empirical contribution that explicitly tests the presence of agenda-setting effects arising from the mass media. During the 1968 U.S. presidential election, a sample of voters in Chapel Hill, Carolina, was asked to mention what were the key issues of the campaign. These mentions were matched with the pattern of news coverage by newspapers and network television news in the previous month: the found correlation between these measures of the media and the public agenda was always positive and typically very large.

After McCombs and Shaw [1972] there has been a host of empirical studies aimed at testing for the presence of agenda-setting effects, either replicating their simple correlation exercise, or adopting more sophisticated empirical designs, which range from cross sectional and longitudinal to experimental ones.

Experimental evidence, as the one provided by Iyengar *et al.* [1982], lends the strongest support to the agenda setting hypothesis. Both the treatment and the control group agreed to view what were alleged to be recordings of the previous evening's TV news program: individuals in the control group watched the original program, while those in the treatment viewed an altered version of it, with increased coverage of a given national issue. Before and after the experiment, individuals in both groups were asked about the most important problem. Controlling for the *ex ante* personal agenda, individuals in the treatment group

[10]For more detailed surveys about the literature on agenda-setting effects, see Erbring, Goldenberg and Miller [1980], Iyengar, Kinder and Peters [1982], Iyengar and Simon [2000] and McCombs [2002].

systematically attached a higher *ex post* importance to the issue whose coverage had been increased.

The mass media are not only capable of increasing the public's attention on a particular issue: their influence can go one step further and affect the way a given issue is thought about by readers and viewers. The theory of *issue priming*[11] describes how readers and viewers, when assessing a given situation or individual, are biased towards giving a higher weight to the aspect that the mass media more extensively cover. For example, Iyengar and Kinder [1987] find that the intense coverage by the mass media of the Iran hostage crisis during the last days of the 1980 presidential campaign induced citizens to assess Carter and Reagan on their supposed ability to deal with terrorist threats.

As underlined in the introduction, it could be true that voters generally reckon candidates coming from a given party as better at handling a given issue. This is the concept of issue ownership, as introduced by Petrocik [1996]. By analysing news content, answers to open-ended questions about issue salience, and the vote itself for presidential elections between 1960 and 1992, he shows that candidates tend to emphasise owned issues in their political speeches. He also shows that, if issues owned by the Democratic (Republican) party are salient, Republican (Democratic) citizens are less willing to go and vote for their candidate, independents are more willing to vote for the Democratic (Republican) candidate, and *vice versa* for the Democrats' (Republicans') turnout[12].

2.3 Mass media and electoral competition

There is a growing literature in political economy which takes into explicit account the role played by the mass media as providers of information to citizens. Within this literature, one can trace at least three different ways of analysing the links between mass media behaviour and electoral competition.

[11] See Krosnick and Miller [1996] for a review of this literature.

[12] The coverage of owned issues, and especially its variation during electoral campaigns, can be informative about the political position of a given mass media outlet. In Puglisi [2006] I provide an account of the agenda setting behavior of the New York Times in the period 1946-1997. The main finding is that the Times displays Democratic partisanship, with some watchdog aspects, in that -during presidential campaigns- it systematically gives more coverage to topics owned by the Democratic party (civil rights, health care, labor and social welfare), but only so when the incumbent president is a Republican.

The first approach, which is due to Strömberg [2001, 2004a, 2004b], is focused on the idea that the distinction between informed and uniformed voters depends on the access to mass media channels. Politicians are more willing to offer favorable policies to informed citizens, i.e. citizens that have access to the mass media. The idea is that these citizens are potentially aware of the fact that they have been targeted by favorable policies, and can thus reward politicians with their vote. In turn, the increasing returns' nature of information supply that is intrinsic of the mass media makes it optimal to publish articles and broadcast programmes which target large and sufficiently affluent groups. In a world without the mass media, small and internally homogenous groups, which are able to organise themselves into lobbies, can typically obtain favorable policies[13], at the expense of large and unorganised groups, e.g. consumers. On the contrary, the presence and diffusion of the mass media creates a countervailing force in favour of these large groups. In support of his theory, Strömberg provides evidence about the territorial allocation of public funds from the Federal Emergency Relief Administration (FERA) program in the U.S. during the early 30s, as a function of radio diffusion.

The second line of research investigates the links between the information provided by the mass media and the accountability of elected politicians. In an asymmetric information environment voters must assess the performance of the incumbent politician with respect to the assigned policy tasks. The more mass media outlets inform citizens about this performance, the more they will be able to punish or reward the incumbent with their vote. If this is the case, the incumbent politician will have stronger *ex ante* incentives to exert effort. Besley and Burgess [2001] develop a simple model of political agency, in which the effort a reelection-seeking incumbent puts is an increasing function of media access by citizens. The authors test the model against panel data on the sixteen major Indian states during the 1958-1992 period, and find that the responsiveness of state governments to falls in food production and flood damage, as proxied by public distribution of food and expenditure on calamity relief, is stronger where newspaper circulation is higher: in particular, what seems

[13] However, this is not the case if in a citizen-candidate frawework voters strategically elect a politician with the opposite bias. See Besley and Coate [2001].

to matter is the circulation of newspapers written in the local language.

Again within a political agency framework, the model by Besley and Prat [2006] is based on the idea that politicians face clear electoral incentives to alter the set of news citizens read and watch. In their model bad quality politicians have an incentive to bribe mass media outlets in order to induce them not to publish the news about their bad quality. This media capture by the incumbent government is less likely to occur when there are more independent mass media outlets. This is the case, because each of them must be paid the entire additional revenue that would accrue to the only outlet that would publish the bad news.

The model I develop here is closely related to Besley and Prat's, as it is based on the same idea that politicians have incentives to manipulate the information set enjoyed by voters for electoral purposes, but its specific focus is different, as my aim is to study agenda-setting effects and the role of political marketing in a multidimensional policy space. Moreover, while Besley and Prat assume that the incumbent politician tries to manipulate mass media outlets by buying their silence on the bad news, in my model the incumbent politician is not bribing news providers, but is simply exerting spin, i.e. is trying to make the story about the owned problem more palatable to the taste of the managing editor of the newspaper. In other terms, the incumbent politician exploits the fact that -in the presence of a plurality of newsworthy stories- the editor of a newspaper must decide what to publish and what to leave out. Consistently with the issue ownership hypothesis, such choice is not politically neutral, to the extent that a majority of citizens reckons different political parties as more competent on different issues.

Finally, Bernhardt, Krasa and Polborn [2006] propose a model of electoral competition with two mass media outlets, which must decide their editorial policy, i.e. how much coverage to give to good and bad news about the two running candidates. They assume that citizens enjoy politically relevant news because of their entertainment value, and prefer to read stories that are consistent with their political position. Within this framework, the authors show that the polarisation of the electorate might lead to inefficient electoral outcomes, if it is the case that the newspaper read by the median voter is a biased one, i.e. -according to its

editorial policy- it would only publish stories that are favorable to one of the two candidates. The model I develop here is similar to the Bernhardt *et al.* one because of its focus on the electoral effects of the editorial policy of media outlets. However, I differently assume that -in the presence of more than one newsworthy event- the newspaper's editor must always decide which story to publish and which one to leave out, with no room for the contemporaneous publication of both stories. Within the stylised structure of the model, this assumption is meant to portray the fact that on any given day a media outlet must decide which story would be published or broadcasted first. Also, while I do not analyse the case of multiple media outlets, I explictly consider the issue of whether a newspaper (or any political actor which is able to influence it) can credibly commit to a given editorial policy.

3 The model

3.1 Signals and news

Citiziens must elect their representative for the next term. There is an incumbent politician and a challenger: for concreteness, I assume that the incumbent is a Republican, while the challenger is a Democrat. Citizens want to elect the politician who is thought to be better at handling the most pressing problem facing the country. Moreover, voters have got a priori views about the relative abilities of candidates coming from different parties in handling different issues, in accord with the theory of issue ownership. In order to keep the model tractable, I assume that there are only two issues, one being owned by the Republican party, the other by the Democratic one. In the present context, I will define issue "a" as being owned by party "A" if voters prefer to elect a candidate from party A, given that they know for sure that some problem is arising in that field, while no problem pertaining to other field has happened. To fix ideas, let the issue owned by the Republicans be Homeland Security, and Health Care the one owned by the Democrats[14].

More formally, I assume that the state of nature comprises two events, i.e. $x_R \in \{0,1\}$ and $x_D \in \{0,1\}$. $x_R = 1$ stands for the occurence of a problem in the Republican field, while

[14] See Puglisi [2006] for an analysis of issue ownership in the U.S., from the 50s to the late 90s.

$x_R = 0$ means the lack of such problem; the same applies to x_D. I assume that the two events are independent and that $pr(x_i = 1) \equiv p_i \in (0, 1)$, with $i \in \{R, D\}$. I will also specifically focus on the symmetric case in which $p_R = p_D = p$.

Given that $x_i = 1$, with $i \in \{R, D\}$, a verifiable signal s_i is issued: this signal can be published on the only existing newspaper as a piece of news. Voters read the newspaper and acquire valuable information that can be used to optimally cast their vote during the forthcoming elections. In the present set up, signals are perfect, i.e. $pr(s_i = 1 \,|x_i = 1\,) = 1$ for both fields. Coming back to the initial example, the problem in the Homeland Security field is represented by the threat of a terroristic attack and $s_R = 1$ could stand for the discovery of an Al Qaida cell in Chicago; on the other side, the relevant problem in the Health Care field could be represented by gaps in coverage in the private insurance system and $s_D = 1$ is the release of figures about the number of individuals not being covered by any form of health insurance.

The crucial assumption is that the newspaper can publish only one piece of news during the campaign, and thus is confronted with a choice when both problems occur, i.e. when $x_R = x_D = 1$: this happens with *ex ante* probability $p_R \cdot p_D$.

In the real world, when many events happen, the managing editor of a newspaper must decide which event shall become the lead story of the day, and be published on the front page. I will denote with $\bar{p}$ the probability with which the signal about the Republican problem s_R is published, given that the signal about the Democratic problem as well has been issued and can potentially be published. Within this simple setup with two issues and room for only one story to be published, $\bar{p}$ represents the *editorial policy* of the newspaper. Even if $\bar{p}$ is a continuous variable, I will mainly focus my attention on three polar cases: in the first case (the one of *balanced reporting*) the newspaper hasn't any ideological bias and is not subject to any influence by the incumbent politician, and thus publishes the Republican news with given probability $\bar{p} = \frac{1}{2}$ when both problems occur. In the second case, there is *spin* by the incumbent politician, i.e. he is able to make the news about the owned problem being published for sure when both problems occur, i.e. $\bar{p} = 1$. In the third case the editorial policy

is of a watchdog kind and the newspaper -in the presence of both problems- would publish the story about the problem owned by the challenger's party.

More formally, $n \in \{\varnothing, D, R\}$ is the piece of news that the newspaper decides to publish; of course, when no problem occurs, i.e. with probability $(1-p_R)(1-p_D)$ no news with political content can be published and thus nothing appears on the front page: $n = \varnothing$. When the Republican problem occurs while the Democratic one does not, which happens with probability $p_R(1-p_D)$, the Republican news is published for sure, i.e. $pr(n = R\,|s_R = 1, s_D = 0\,) = 1$. The converse is true when the Democratic problem occurs in the lack of the Republican one, i.e. $pr(n = D\,|s_R = 0, s_D = 1\,) = 1$; finally, as mentioned before, $pr(n = R\,|s_R = 1, s_D = 1\,) \equiv \bar{p}$.

The *ex ante* probability of reading a Democratic news, given p_R, p_D and $\bar{p}$, can be written as follows:

$$pr(n = D) = p_D(1 - p_R \cdot \bar{p}) \tag{1}$$

which is of course decreasing in $\bar{p}$. Conversely, the *ex ante* probability of reading a Republican news is the following:

$$pr(n = R) = p_R[1 - p_D(1 - \bar{p})] \tag{2}$$

In the symmetric case, it is straightforward to check that with balanced reporting it is equally likely *ex ante* to read a piece of news about the Republican or the Democratic problem. In the presence of spin, it is more likely to read a piece of news about the Republican problem than about the Democratic one, and vice versa in the watchdog case.

In the asymmetric case, a weaker result can be established:

Proposition 1 *In the asymmetric case, with balanced reporting the ex ante probability of reading a piece of news about the Republican issue is higher (lower) than the one of reading about the Democratic problem iff* $p_R > p_D$ *(*$p_R < p_D$*).*

If there is spin, the ex ante likelihood of a piece of news about the Republican problem is

higher than the one of reading about the Democratic one iff $p_R > \frac{p_D}{1+p_D}$. *When the newspaper behaves like a watchdog, it is more likely to read the Republican news if* $p_R > \frac{p_D}{1-p_D}$.

Proposition 1 states that in the general case, with balanced reporting it is more likely *ex ante* to read news about the Republican problem than about the Democratic one as long as $p_R > p_D$, i.e. the relationship between the *ex ante* probabilities of the two problems is directly translated into the issue balance of the newspaper. With spin, the condition for having a higher *ex ante* probability of news about the Republican problem than about the Democratic one is on the other hand weaker, as $\frac{p_D}{1+p_D} < p_D$. Vice versa when the editorial policy is of a watchdog type.

3.2 News and voting behaviour

As mentioned in the previous section, voters acquire pieces of information about the true state of the world by reading the newspaper during the campaign: even if signals are perfect, the newspaper has only one slot on the front page and thus voters are equipped with a less than perfect information structure. More formally, I assume that there is a continuum of rational voters who must decide on whether to reconfirm the incumbent or elect the challenger: all citizens *ex ante* know p_R and p_D, and can read the piece of news $n \in \{\varnothing, D, R\}$ on the newspaper. However, citizens differ among themselves according to an *ex ante* bias η in favour of the challenger.

Voters' optimal decision rule is represented in the following table:

$$\begin{array}{|lcl|}
\hline
v(n,\bar{p};\eta) = 1 & \Leftrightarrow & E(x_R - x_D \,|n;\bar{p}) > \eta \\
\hline
v(n,\bar{p};\eta) = \frac{1}{2} & \Leftrightarrow & E(x_R - x_D \,|n;\bar{p}) = \eta \\
\hline
v(n,\bar{p};\eta) = 0 & \Leftrightarrow & E(x_R - x_D \,|n;\bar{p}) < \eta \\
\hline
\end{array} \tag{3}$$

where $v(n,\bar{p};\eta)$ is the probability of a citizen with bias η voting for the Republican incumbent, when she reads the story n on the newspaper, as a function of $\bar{p}$; $E(.)$ is the expectation operator and η, as mentioned above, is the bias in favour of the Democratic challenger. This bias factor η is distributed in the population according to the known cumulative distribution

function $G(.)$, which is symmetric around zero, i.e. $G(0) = \frac{1}{2}$, and $G(y) = 1 - G(-y)$, for all y. One should note how in this model there is no aggregate uncertainty, as the factor η determines an empirical distribution of votes for the two candidates, which is certain[15].

The decision rule featured in table 3 can be rationalised as follows. Suppose that the occurence of the Democratic or the Republican problem implies a utility cost of one to each citizen, unless the candidate who owns the issue is elected, in which case the problem is solved entirely. On the other hand, the elected candidate cannot do anything about the problem he does not own. Conditionally on the editorial policy $\bar{p}$ and the published story n, the expected utility for a citizen with bias η of voting the Republican candidate can be written as

$$u_R(n, \bar{p}; \eta) = E(-x_D \,|n; \bar{p})$$

where the utility cost of one is incurred only if the Democratic problem occurs. On the other hand, the expected utility of voting Democrat is the following:

$$u_D(n, \bar{p}; \eta) = E(-x_R \,|n; \bar{p}) + \eta.$$

This voter would reelect the incumbent if $u_R(n, \bar{p}; \eta) > u_D(n, \bar{p}; \eta)$, which corresponds to the decision rule stated above.

Let $\pi(\bar{p}, n)$ be the probability of the incumbent being reelected when the story n is published, again as a function of $\bar{p}$. Likewise, let $f(\bar{p}, n) \equiv G\left[E(x_R - x_D \,|n; \bar{p})\right]$ be the share of citizens voting for the incumbent when the piece of news n is published, given $\bar{p}$. The electoral prospects of the incumbent can be summarised as follows:

$\pi(\bar{p}, n) = 1$	$\Leftrightarrow$	$f(\bar{p}, n) > \frac{1}{2}$
$\pi(\bar{p}, n) = \frac{1}{2}$	$\Leftrightarrow$	$f(\bar{p}, n) = \frac{1}{2}$
$\pi(\bar{p}, n) = 0$	$\Leftrightarrow$	$f(\bar{p}, n) < \frac{1}{2}$

The incumbent is reconfirmed in office for sure if more than half of the population votes for

[15] The only exception occurs with the measure-zero fraction of voters for which $E(x_R - x_D \,|n; \bar{p}) = \eta$: these voters mix their vote with equal probabilities, as implied by decision rule (3).

him; he is for sure defeated if more than a half of citizens votes for the challenger, while he stands a 50/50 chance of being reelected if votes are equally split.

Within this framework, it is easy to prove the following proposition:

Proposition 2 *If there is no aggregate uncertainty, the following statements are true:*

a. *if the story about the Republican problem is published on the newspaper, the Republican incumbent is reelected for sure;*

b. *if the story about the Democratic problem is published, the challenger is elected for sure;*

c. *If no political news appear on the newspaper, the incumbent and the challenger are equally likely to be elected.*

Proof. *In the appendix.* ■

The probability for the incumbent to be reelected depends on the voting behaviour of the median citizen, namely the one characterised by $\eta = 0$. In general, when citizens read on the newspaper a piece of news about the Republican problem, they are sure that the Republican problem is present, as the signal is perfect, but they do not know whether the Democratic problem has occurred as well. By Bayes' rule, the *ex post* probability of $x_D = 1$ given $n = R$ can be calculated as follows:

$$pr(x_D = 1 \,|n = R) = \frac{p_R p_D \bar{p}}{p_R(1 - p_D) + p_R p_D \bar{p}}.$$

Such probability is always less than one. Therefore the median voter's dominant strategy when $n = R$ is to reelect for sure the Republican incumbent, as with some non-null probability the Democratic problem is truly absent. It is certainly absent under the watchdog regime, as in that case it would have been published for sure. For further reference, it is important to note that this *ex post* probability is an increasing function of the editorial policy $\bar{p}$. By the same token, when $n = D$, the *ex post* probability of $x_R = 1$ is given by

$$pr(x_R = 1 \,|n = D\,) = \frac{p_R p_D(1-\bar{p})}{(1-p_R)p_D + p_R p_D(1-\bar{p})},$$

which again is always less than one. Hence, when $n = D$, the median voter finds it optimal to elect the challenger for sure. Furthermore, this *ex post* likelihood of having a Republican problem when $n = D$ is decreasing in $\bar{p}$, in all its relevant range[16], and equals zero when $\bar{p} = 1$. Finally, when $n = \varnothing$, citizens are sure that neither problem has occurred. In particular, the median voter is exactly indifferent between the two candidates, so that the symmetric decision rule dictates $v(n = \varnothing, \bar{p}; \eta = 0) = \frac{1}{2}$: therefore the incumbent is reconfirmed with probability $\frac{1}{2}$.

Consistently with Petrocik's findings, the model thus suggests a causal link between issue coverage by the media during campaigns and the electoral outcome. However, it does so within a framework where voters/readers are rational Bayesian updaters, but enjoy a less than complete information about the current state of affairs.

3.3 The electoral effects of news

What are the overall effects on the electoral outcome of what is published on the newspaper, as a function of its editorial policy? In terms of reelection probabilities, proposition 2 shows that, in the lack of aggregate uncertainty, the winning candidate is for sure the one whose owned story[17] has been published on the newspaper. This is always the case, regardless of the spin regime, i.e. the value taken by the editorial policy $\bar{p}$. However, one could be interested not only in the probability of the incumbent winning the electoral contest, but also in the number of votes he gathers in equilibrium, as a function of n and $\bar{p}$. In fact, as shown below, the model suggests that the effects of favorable vs. unfavorable news on the number of votes accruing to the incumbent depend on the editorial policy of the media outlet. This is an implication of the model that in principle can be empirically tested.

[16] The intuition behind these two monotonicity results in the ex post probabilities is quite straightforward. When the piece of news about the Republican problem is published, the higher $\bar{p}$, the more likely it is that the Democratic problem was indeed present, but the newspaper decided to give room to the Republican one. Conversely, when $n = D$, the higher $\bar{p}$, the less likely it is that the Republican problem is present, as it is more likely that it would be directly published on the newspaper as a piece of news.

[17] More precisely, a story signalling the presence of a problem in the owned field.

Along these lines, one could take the case of no news, i.e. $n = \varnothing$, as a benchmark, and consider the differential effect of a Republican and a Democratic story on the overall votes received by the incumbent. More formally, one would be interested in comparing $|E(f(\bar{p}, R) - f(\bar{p}, \varnothing))|$ against $|E(f(\bar{p}, D) - f(\bar{p}, \varnothing))|$, where again $E(.)$ is the expectation operator.

In the symmetric case of $p_R = p_D = p$, one can prove the following proposition:

Proposition 3 *In the symmetric case, if the editorial policy is balanced, the effect on the number of votes accruing to the incumbent of a story about the Republican problem is the same in absolute terms as the effect of a story about the Democratic problem.*

If there is spin, the electoral effect of the Democratic story is larger than the one stemming from the Republican story. Vice versa when the editorial policy is of a watchdog type.

Proof. *In the appendix.* ■

This proposition is focused on the differential effects on the electoral outcome of a piece of news about the problem owned by the incumbent (i.e. a story that is favorable to the incumbent) *versus* a story about the problem owned by the challenger (i.e. an unfavorable story), as a function of the editorial policy. If such policy is balanced, these differential effects on the number of votes gathered by the incumbent are the same. On the contrary, in the presence of spin the electoral effect of the less favorable piece of news is stronger than the one stemming from the favorable story. In fact, when the editorial policy of the newspaper is tilted in favor of the incumbent, voters attach a higher *ex post* probability to the presence of the Democratic problem when $n = R$, and a lower *ex post* probability to the Republican problem when $n = D$. When $\bar{p} = 0$, the publication of the Republican story triggers a vote gain for the incumbent which is larger than the loss connected with the publication of the Democratic story.

Thus, the model predicts that, when the media are captured by the incumbent government, news that are "bad" from his perspective have a stronger impact on the number of votes received by him than good news: this result indeed resonates with some arguments put forward in the political science literature, for example the claim by Campbell *et al.* [1966] (as

quoted in Hibbs [2000]), according to which "[...]A party already in power is rewarded much less for good times than it is punished for bad times [...]". Proposition 3 suggests that this difference between the electoral punishment and reward of the incumbent's performance may be linked with the role of mass media as agenda setters, and be a function of the comparative advantage of the incumbent himself in dealing with them, as compared to the challenger.

3.4 The welfare effects of the spin regime

Up to now, I have assumed that the two problems are equally serious from the point of view of citizens (see section 3.2). Intuitively, this implies that the editorial policy has no effects on citizens' welfare, even if it affects the electoral outcome. Indeed, when both problems have occurred and the story to be published depends on the editorial policy $\bar{p}$, voters are indifferent about which politician to elect, exactly because the solution of one problem comes with the other problem being left unsolved, and no problem is more serious than the other.

In this section I break the symmetry in the seriousness of the two problems, and in particular -in order to focus on the potential welfare costs of media capture by the incumbent- I assume that the problem owned by the challenger is more serious than the one owned by the incumbent[18]. To be more specific, the utility cost of the Republican problem is again normalised to one, while the utility cost of the Democratic one equals $c_D > 1$. It follows that the decision rule (3) for a voter with bias η can be rewritten as

$v(n, \bar{p}; \eta) = 1$	$\Leftrightarrow$	$E(x_R - c_D x_D \,\vert n; \bar{p}) > \eta$
$v(n, \bar{p}; \eta) = \frac{1}{2}$	$\Leftrightarrow$	$E(x_R - c_D x_D \,\vert n; \bar{p}) = \eta$
$v(n, \bar{p}; \eta) = 0$	$\Leftrightarrow$	$E(x_R - c_D x_D \,\vert n; \bar{p}) < \eta$

If the Democratic problem is more serious than the Republican one, it is straighforward to check that the Democratic challenger would *a fortiori* win when the Democratic story is published on the newspaper. When $n = R$, it is still the case that the Republican incumbent is reelected for sure if the seriousness of the Democratic problem is not too large. More

[18] Again within an issue ownership framework, Gautier and Souberyan [2006] analyse how political cycles can arise from the fact that the incumbent politican contributes to the solving of the owned problem, henceforth increasing the comparative seriousness of the problem owned by the challenger.

formally:

Claim 4 *If $p_D \cdot c_D < 1$, when the Republican story is published the Republican incumbent wins the elections for sure, regardless of the editorial policy $\bar{p}$.*

Proof. In the appendix. ■

The intuition behind this claim is that the seriousness of the Democratic problem might induce readers to disregard the publication of the Republican story and vote for the Democratic candidate. Also, the more probable the Democratic problem on an *ex ante* basis (as represented by p_D), the larger the effect of the seriousness thereof.

The relevant question here concerns the welfare effects of the editorial policy $\bar{p}$. As there is a plurality of citizens who differ according to their bias η, a measure of social welfare must aggregate the utilities of these citizens. A relatively agnostic way of doing this is to adopt an utilitarian perspective, and calculate total welfare as the unweighted sum of citizens' utilities. If this is the case, the following proposition holds:

Proposition 5 *When the problem owned by the challenger's party is more serious than the one owned by the incumbent's, total welfare of citizens is maximized by an editorial policy of a watchdog type (i.e. by $\bar{p} = 0$).*

Proof. In the appendix. ■

The proposition suggests that the welfare-maximizing editorial policy is the one that gives priority to the most serious problem. If this problem happens to be the one owned by the challenger's party, then the socially efficient editorial policy has some watchdog flavour into it, as it gives preferential coverage to the topic on which the incumbent's party is perceived as weak[19]. By the same token, any comparative advantage of the incumbent in exerting spin would entail a welfare costs for citizens, to the extent that the incumbent exploits such advantage by setting $\bar{p} = 1$. This is the topic of the next section.

[19] Bernhardt, Krasa and Polborn [2006] similarly show that the editorial policy of the newspaper read by the median voter could induce inefficient electoral outcomes. This happens when the newspaper has an editorial policy in favor of one candidate, but the realized quality of the other candidate is higher.

3.5 The incumbent's incentives to spin activity

Regarding the incumbent's incentives with respect to spin activity, one can distinguish between an *ex post* perspective, i.e. after the realisation of the contingency in which both the Republican and the Democratic problem arise, and an *ex ante* one, i.e. before the state of nature is realised. It is clear that in the framework developed here spin activity can effectively take place only when both the Republican and the Democratic story can potentially be published, and the managing editor of the newspaper could be induced to give priority to the incumbent's story. However, it is relevant to know whether such *ex post* incentives to exert spin are matched by similar incentives *ex ante*, or some commitment issues arise, because of a discrepancy between the *ex ante* and the *ex post* stage.

Regarding the incumbent's utility function, I assume that he is risk neutral and office motivated, namely he obtains an ego-rent $R > 0$ if reelected for the next term and zero otherwise. Moreover, in what follows I will assume that the incumbent can directly and at no cost fix $\bar{p}$.

As discussed in the previous sections, the model is characterised by the lack of aggregate uncertainty, both in the version with the two problems being equally serious, and in the one where the Democratic problem is more serious than the Republican one. The only knife-edge case occurs when $n = \varnothing$, as pivotal voters (i.e. those with $\eta = 0$) are indifferent between the two candidates and mix their vote with equal probabilities. It is also generally the case that the Republican candidate is reelected for sure when $n = R$ and the challenger wins when $n = D$. The only exception occurs when the Democratic problem is so serious that there are values of $\bar{p}$, such that the Democratic challenger would prevail even when $n = R$ (see Claim 4).[20] Within this framework, it is straightforward to prove the following proposition:

Proposition 6 *When there is no aggregate uncertainty and the two problems are equally serious, both ex ante and ex post it is optimal for the incumbent politician to exert spin to the maximum extent and fix* $\bar{p} = 1$.

[20] In this case, the incumbent is not interested in influencing the editorial policy of the newspaper, exactly because he would win no matter which story happens to be published.

The same holds when the Democratic problem is more serious than the Republican one, under the condition that $p_D \cdot c_D < 1$.

Proof. *In the appendix.* ■

The lack of aggregate uncertainty implies that the incumbent politician is not facing any commitment issue, as both his *ex ante* and *ex post* payoff are strictly increasing in $\bar{p}$. The former result is in turn due to the fact that he is sure to win the elections when $n = R$, and sure to be defeated when $n = D$. In other words, the probabilities of the incumbent being reelected when $n = R$ or $n = D$ are independent of $\bar{p}$: hence, by setting $\bar{p} = 1$, the incumbent is merely maximizing the probability of the favourable event $n = R$, and minimizing the likelihood of $n = D$, without any adverse effect on the **conditional** probabilities of winning the elections. It is exactly this lack of aggregate uncertainty that makes $\pi(\bar{p}, R)$ and $\pi(\bar{p}, D)$ independent of $\bar{p}$.

In order to have a larger picture of the commitment issue, it is useful to consider a more general model, which makes the electoral outcome probabilistic, by allowing for the presence of noise voters[21]. However, in order to obtain closed-form solutions, I will restrict my attention to the simpler case in which the Democratic and Republican problems are equally serious.

More formally, in the general case only a fraction $\mu \in (0, 1]$ of voters are informed, i.e. they read the newspaper during the campaign, and respond in a consistent way to what they read; in particular, in order to cast their vote, they follow decision rule (3), given their individual bias η. The remainder share of citizens is on the contrary made of uninformed individuals, who decide how to vote without reading the newspaper. From the point of view of the other political actors featured in the model, how these uninformed citizens will vote is not a priori certain. Thus, let ξ be the fraction of uninformed voters who vote for the challenger: ξ is the realization of a symmetric random variable with finite support $[0, 1]$ and cumulative distribution function $H(.)$ and density function $h(.)$. The symmetry of the random variable ξ around $\frac{1}{2}$ implies that uninformed voters are *unbiased*, as the probability that a fraction less than $\bar{\xi}$ votes for the incumbent is exactly equal to the probability that a fraction less than $\bar{\xi}$

[21] See Baron [1994].

votes for the challenger. Summing up, given $\bar{p}$ and $n \in \{\varnothing, D, R\}$, the incumbent wins the elections if

$$\mu \cdot f(\bar{p}, n) + (1-\mu)(1-\xi) > \mu[1 - f(\bar{p}, n)] + (1-\mu) \cdot \xi \tag{4}$$

In order to simplify the analysis, I will henceforth assume that ξ, the fraction of uninformed citizens casting their vote for the challenger, is distributed according to a uniform distribution on the interval $[0, 1]$.

Within this general set up, one can prove the following proposition, in which the *ex ante* incentives to engage in spin activity depend on the polarisation of the informed electorate:

Proposition 7 *When spin activity is costless and uninformed voters are present, ex post it is always optimal for the incumbent politician to exert spin to the maximum extent and fix* $\bar{p} = 1$.

When uninformed voters are present and uniformly distributed, ex ante incentives to exert spin depend on the distribution of the ex ante bias η *of informed voters, in the following way:*

a) If η *is distributed according to a unimodal distribution, it is optimal to spin the news completely and fix* $\bar{p} = 1$.

b) If η *is distributed according to a uniform distribution, the incumbent politician is ex ante indifferent to the final level of spin.*

c) If η *is distributed according to a U-shaped distribution, it would be optimal for the incumbent to fix* $\bar{p} = 0$.

Proof. *In the appendix.* ■

As detailed in the appendix, there is a tradeoff involved in the *ex ante* choice of the editorial policy $\bar{p}$: a higher $\bar{p}$ gives a higher weight to $\pi(\bar{p}, R) > \pi(\bar{p}, D)$, but both these conditional probabilities are themselves decreasing in $\bar{p}$. I will call the former a weight effect, while the second is a slope effect.

Regarding the weight effect, by increasing marginally $\bar{p}$, the incumbent gives more weight to the case in which the Republican news is published, at the expense of the case in which the

Democratic story is. This effect is of course positive, as the probability of being reelected is higher when the story about the owned issue is published. On the other side, the slope effect depends on the fact that with noise voters the conditional probabilities of being reelected are an increasing function of the fraction of rational citiziens that vote for the incumbent. In turn, because of Bayes' rule, these fractions of rational citizens voting for the incumbent are decreasing functions of $\bar{p}$. In fact, if rational voters read a Republican story and know that $\bar{p}$ is very high, they would attribute a correspondingly high probability to the fact that the Democratic problem is present, but has been disgregarded to leave room to the Republican story. Hence, citizens starting with a moderate bias in favour of the Democrats would not be convinced by the Republican story to reelect the incumbent. By the same token, if rational voters read a Democratic story and know that $\bar{p}$ is high, they would attach a high probability to the fact that there is no Republican problem out there. In particular, if $\bar{p}$ equals one, the fact of reading the Democratic story is sufficient to conclude that there is no Republican problem to be tackled by the next president. If this is the case, citizens that start with a strong bias in favour of the Republicans would be convinced to vote for the Democratic candidate.

When there are no uninformed voters, the slope effect is null, as the electoral outcome is a deterministic function of the voting behaviour of the citizen with median bias $\eta = 0$. It follows that *ex ante* as well the incumbent finds it optimal to fix $\bar{p} = 1$.

However, when noise voters are present, the solution of the trade off depends on the shape of the distribution of informed voters, as the conditional probabilities of being reelected positively depend on the fraction of rational citizens voting for the incumbent, and these fractions are in turn decreasing with $\bar{p}$. With a U-shaped distribution, the rational electorate is polarised, in the sense that there are large groups of strong Republicans and Democrats, and a small mass of moderate voters, without a strong a priori bias towards one of the two parties.

With a polarised electorate, the slope effect dominates the weight effect, and the incumbent politician *ex ante* would find it optimal to commit to $\bar{p} = 0$. The intuition behind this

result goes as follows: with a bimodal distribution of the bias, there are few moderate citizens that would be induced to tilt their vote towards the incumbent, as a function of the piece of news they read. The positive weight effect of increasing $\bar{p}$ is therefore "emptied" by the scarcity of moderate swing voters. On the other hand, the slope effect is still present, and does not depend on the distribution of the bias.

The crucial point here is that a credibility issue emerges, as citizens know that *ex post* the incumbent politician always finds it optimal to fix $\bar{p} = 1$, and push his preferred story on the newspaper. It is unclear which kind of commitment technologies the incumbent politician could adopt, in order to solve the time inconsistency problem. Even if private ownership of mass media outlets could increase the transaction costs faced by the incumbent government when trying to strike a deal with them, it would not completely eliminate the comparative advantage of the incumbent vis-à-vis the challenger in this relationship.

4 Concluding remarks

In this paper, I have developed a simple model of electoral competition, characterised by the fact that mass media have agenda-setting effects: information conveyed to citizens by a newspaper determine their salience structure, on the basis of which they cast their vote. In accord with Petrocik's [1996] concept of issue ownership, voters want to elect the politician who is thought to be better at handling the most relevant problem facing the country, and they entertain a priori views about the relative abilities of candidates belonging to different parties with respect to different problems. Within a simplified setup with one newspaper and two issues, I assume that the occurence of a problem regarding each of these two issues represents a newsworthy story, which can be published on the newspaper.

The crucial idea is that there is a limited amount of space on the newspaper itself, so that -when both problems occur- the managing editor of the newspaper must decide which story to publish. In this set up, "spin" stands for the activity through which the incumbent politician makes the story about the owned issue more palatable to the newspaper's editor. I compare the case in which the incumbent politician can make his favorite story prevail and be published for sure, to the case in which the managing editor of the newspaper -if a choice

must be made- is indifferent about what to publish, i.e. there is balanced reporting. I also look at the case when the newspaper's editor -in a watchdog kind of way- gives priority to the story about the problem over which the incumbent is perceived as less competent than the challenger.

Given this simplified setup, the model offers two testable predictions about the electoral effects of news, a counterintuitive insight about the incentives to manipulate mass media outlets, and a suggestion about how to estimate their partisan position.

The first prediction is that there is a causal link between the topics being covered by mass media outlets during the campaign and the electoral outcome. In fact, if all voters are informed by the newspaper, the model predicts that they would elect for sure the candidate whose story is published, i.e. the Republican one if the story about the Republican problem is published, and the Democrat if the Democratic story is published. This is consistent with some of Petrocik's [1996] findings about issue coverage during presidential campaigns and the electoral outcome. A crucial assumption of the model is that readers are rational Bayesian updaters, who however must confront a limited amount of space on the newspaper (and -within themselves- a limited amount of available attention to politically relevant stories).

The second prediction is that voters would more strongly react to news about issues owned by the challenger, if it is known that the editorial policy of the newspaper is in fact captured by the incumbent. In particular, the model predicts that in the spin case the (negative) effect on total votes accruing to the incumbent himself of a story about the issue owned by the challenger is larger in absolute terms than the positive effect of a story about the incumbent's issue, taking the case of no piece of news being published as a benchmark. Vice versa when the editorial policy is of a watchdog type. These effects are on the contrary equal if there is no spin.

A counterintuitive insight arising out of the model is that the incumbent government (or any other politically motivated actor) may face diverging *ex ante* and *ex post* incentives to manipulate the news media. While *ex post* it is always optimal for the incumbent to spin the news and have the story about the owned problem being published for sure, at the

expense of the one owned by the challenger, it might be *ex ante* optimal for the incumbent that the newspaper followed a watchdog-like editorial policy, which would give priority to the problem owned by the challenger. This only occurs when there is aggregate uncertainty about the electoral outcome (i.e. uninformed voters are present) and there is polarisation in the ideological stance of informed citizens. The intuition behind this result is that with a polarised electorate there are fewer moderate readers that would be convinced to vote for the Republican by the (*ex ante* more frequent) presence of the Republican story. On the other hand, the Bayesian mechanism -through which rational voters take into account the bias of the editorial policy when assessing the likelihood of the problem not featured on the newspaper- would still reduce the *ex post* probability of the Republican incumbent being reelected, conditionally on the news being published. A commitment problem arises here, because *ex post*, i.e. given the occurence of both problems, the incumbent would always find it optimal to spin the news to the maximum extent.

Finally, as similarly argued by Baron [2006], the model suggests to look at the *ex ante* choice of issues covered by a given media outlet, in order to investigate its partisan position. Indeed, to the extent that different policy issues are more or less electorally advantageous to different political parties, this *ex ante* choice reveals something about the political stance of that media outlet. From an empirical point of view, there are different ways of implementing this suggestion. First, one can analyse the variation in the coverage of owned issues across different media outlets, in order to classify them on an ideological scale. A second approach would be to analyse the time series variation in the coverage of topics by a given media outlet. The purpose of this exercise is to check whether during electoral campaigns (i.e. when the agenda setting power of the media outlet has the highest potential of influencing voters' choices) there is in fact an increase in the coverage of issues owned by one political party or the other. Puglisi [2006] follows this route, in studying the editorial policy of the New York Times, from 1946 to 1997. Of course these two approaches might be jointly used in the analysis of a panel of media outlets across time. A third approach is more consistent with the focus of the present model on the relationship between the mass media -taken as

a whole- and the incumbent government. The idea would be to look at the cross-country variation in issue coverage by media outlets, in order to investigate whether indices of media freedom are systematically correlated with the amount of coverage devoted to issues owned by the incumbent party, especially during electoral campaigns.

An important caveat regarding the type of claims that can be derived from these empirical approaches is that it is particularly difficult to isolate the influence of demand and supply factors[22] on issue coverage. In other terms, identifying the political stance of a newspaper is much easier than identifying its determinants, which would typically require some exogenous variation in one of the two sets of factors.

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A Proofs

Proof of Proposition 2. Starting from statement a), the incumbent is reelected for sure if $G\left[E(x_R - x_D \,|n = R; \bar{p})\right] > \frac{1}{2}$. Given that $G(0) = \frac{1}{2}$, and the fact that $G(.)$ is an increasing function, it will suffice to show that $E(x_R - x_D \,|R; \bar{p}) > 0$, i.e. that the median voter strictly prefers the incumbent over the challenger. But this is exactly the case, as

$$E(x_R - x_D \,|R; \bar{p}) = 1 - \frac{p_R p_D \bar{p}}{p_R(1-p_D) + p_R p_D \bar{p}} = \frac{p_R(1-p_D)}{p_R(1-p_D) + p_R p_D \bar{p}} \tag{5}$$

is strictly greater than zero. Hence $\pi(\bar{p}, R) = 1$, for all $\bar{p}$.

Regarding statement b), the median voter's utility when $n = D$ reads as follows:

$$E(x_R - x_D \,|D; \bar{p}) = -\frac{(1-p_R)p_D}{(1-p_R)p_D + p_R p_D(1-\bar{p})}, \tag{6}$$

which is always strictly less than zero, for all values of the exogenous parameters. Thus, when $n = D$, a strict majority of voters prefers to elect the Democratic challenger, and $\pi(\bar{p}, D) = 0$. Finally, when $n = \varnothing$, citizens are sure that no problem in either field has occurred and therefore their voting choice depends only on whether η is greater or smaller than zero. However, the median voter is exactly indifferent between the two candidates: in fact

$$E(x_R - x_D \,|\varnothing; \bar{p}) = 0$$

so that she will mix her voting decision with equal probabilities and $\pi(\bar{p}, \varnothing) = \frac{1}{2}$. ■

Proof of Proposition 3. First, it is true that $E[f(\bar{p}, n = \varnothing)] = G[E(x_R - x_D \,|\varnothing; \bar{p})] = G(0) = \frac{1}{2}$. Then, using expression (5), one can obtain a closed form solution for the share of votes accruing to the incumbent when $n = R$, i.e.

$$f(\bar{p}, R) \equiv G[E(x_R - x_D \,|n = R; \bar{p})] = G\left[\frac{p(1-p)}{p(1-p) + p^2 \cdot \bar{p}}\right]$$

which is decreasing in $\bar{p}$. It follows that

$$|E(f(\bar{p}, R) - f(\varnothing))| = G\left[\frac{p(1-p)}{p(1-p) + p^2 \cdot \bar{p}}\right] - \frac{1}{2}, \tag{7}$$

as $E(x_R - x_D \,|R; \bar{p})$ is greater than zero.

On the other side, by making use of expression (6), the share of votes the incumbent receives when $n = D$ reads as follows:

$$f(\bar{p}, D) \equiv G[E(x_R - x_D \,|n = D; \bar{p})] = G\left[-\frac{p(1-p)}{p(1-p) + p^2 \cdot (1-\bar{p})}\right]. \tag{8}$$

This share is again decreasing in $\bar{p}$. Using the previous result about $f(\varnothing)$, expression (8) and

the symmetry of $G(.)$, one can obtain the following:

$$|E(f(\bar{p}, D) - f(\varnothing))| = G\left[\frac{p(1-p)}{p(1-p) + p^2 \cdot (1-\bar{p})}\right] - \frac{1}{2}, \tag{9}$$

as $\pi(D; \bar{p})$ is surely less than zero.

Let us define the function $g(\bar{p}) \equiv |E(f(\bar{p}, D) - f(\varnothing))| - |E(f(\bar{p}, R) - f(\varnothing))|$. From equations (7) and (9), this function boils down to the following:

$$g(\bar{p}) = G\left[\frac{p(1-p)}{p(1-p) + p^2 \cdot (1-\bar{p})}\right] - G\left[\frac{p(1-p)}{p(1-p) + p^2 \cdot \bar{p}}\right].$$

It is easy to see how $g(\bar{p})|_{\bar{p}=\frac{1}{2}} = 0$, and $g'(\bar{p}) > 0$: hence the result in the proposition is proven. ■

Proof of Claim 4. When $n = R$, the Republican incumbent is reconfirmed into office if the median citizen votes for him, i.e. if

$$1 - c_D \frac{p_R p_D \bar{p}}{p_R(1-p_D) + p_R p_D \bar{p}} > 0.$$

This condition can be rewritten as

$$c_D < 1 + \frac{1-p_D}{p_D \cdot \bar{p}}. \tag{10}$$

The right hand side of inequality 10 is decreasing in the editorial policy $\bar{p}$. This is the case, because the larger $\bar{p}$, the more readers know that there is a higher *ex post* probability that the Democratic news has been left out from the newspaper. It is easy to check that, under the assumption that $c_D p_D < 1$, this inequality is satisfied even when $\bar{p} = 1$, hence it is so for all values of $\bar{p}$. ■

Proof of Proposition 5. The proof looks at two different cases, as a function of whether (as stated by Claim 4) the Republican candidate wins the elections for sure when the Republican news is published, for all values of $\bar{p}$. As discussed in the text, it is in fact straightforward to check that -when $c_D > 1$- the Democratic challenger would *a fortiori* always win the elections

when the Democratic story is published.

First, suppose that $p_D \cdot c_D < 1$, i.e. Claim 4 holds. Hence the expected utility of a citizen with *ex ante* bias η, as a function of the editorial policy $\bar{p}$, reads as follows:

$$u(\bar{p};\eta) = (1-p_R)p_D \cdot \eta + p_R p_D \bar{p} \cdot (-c_D) + p_R p_D (1-\bar{p})[-1+\eta] + (1-p_R)(1-p_D)\frac{1}{2}\eta,$$

which can be rewritten as

$$u(\bar{p};\eta) = \frac{1}{2}\eta[1+p_D-p_R+p_R p_D] - p_R p_D + p_R p_D \bar{p}(1-c_D-\eta).$$

If we adopt a utilitarian perspective, the social welfare of citizens is calculated as the unweighted sum of their utilities: ■

$$U(\bar{p}) \equiv \int_{-\infty}^{+\infty} u(\bar{p};\eta) dG(\eta) = p_R p_D \bar{p}(1-c_D) - p_R p_D, \tag{11}$$

where I have exploited the fact that η is a symmetric distribution around zero, and hence its expectation is zero. When $c_D = 1$, total welfare does not depend on the editorial policy $\bar{p}$, while when $c_D > 1$ the welfare-maximizing editorial policy is $\bar{p} = 0$.

Second, assume that $p_D \cdot c_D \geq 1$. It follows that there exists a threshold level of the editorial policy $\bar{p}^* = \frac{1-p_D}{(c_D-1)p_D}$, such that if $\bar{p} > \bar{p}^*$ the Democratic candidate is elected for sure even when $n = R$. If $\bar{p} < \bar{p}^*$ the Republican incumbent is reconfirmed for sure while the median voter is indifferent between the two candidates when $\bar{p} = \bar{p}^*$. If $\bar{p} > \bar{p}^*$, the expected utility of a citizen with bias η can be written as follows:

$$u(\bar{p};\eta) = -p_R + \eta\left[p_D + p_R - p_R p_D + \frac{1}{2}(1-p_R)(1-p_D)\right],$$

so that total welfare is

$$U(\bar{p}) = -p_R.$$

If $\bar{p} < \bar{p}^*$, the candidate who owns the issue featured on the newspaper wins the elections,

hence total welfare is again expressed by the function (11). On this subdomain the welfare-maximizing editorial policy is $\bar{p} = 0$, which implies that total welfare equals $-p_R p_D$. This level of total welfare is in turn always larger than $-p_R$.

Proof of Proposition 6. The proposition deals with both the case of the two problems being equally serious, and the case in which the Democratic problem is more serious than the Republican one, but not "too serious", as implied by the condition that $p_D \cdot c_D < 1$. Claim 4 hence implies that the Republican candidate is reelected for sure when $n = R$, regardless of the editorial policy $\bar{p}$. First, I will show that *ex post*, namely when $x_R = x_D = 1$, it is always optimal for the incumbent politician to spin completely the newspaper, and fix $\bar{p} = 1$. Indeed, by Proposition 2, when $n = R$ the incumbent is reelected for sure, while he is surely defeated when $n = D$: hence the incumbent decides to spin the newspaper completely, in order to obtain a sure gain of $R > 0$. This is also true for the case in which the Democratic problem is more serious, but not too much, as discussed above.

Second, regarding *ex ante* incentives in the case of two problems being equally serious, let $\bar{p}^C \in [0, 1]$ the level of spin to which the incumbent politician can precommit: his expected payoff, as a function of $\bar{p}^C$, can be written as follows:

$$E\Pi(\bar{p}^C) = R\left\{\pi(\bar{p}^C, R)\left[p_R(1-p_D) + p_R p_D \bar{p}^C\right] + \pi(\bar{p}^C, D)\left[(1-p_R)p_D + p_R p_D(1-\bar{p}^C)\right] + k\right\}, \tag{12}$$

where $k \equiv \frac{1}{2}[(1-p_R)(1-p_D)]$ is the probability of winning the elections given $n = \varnothing$, weighted by the ex ante likelihood of $n = \varnothing$. But in this set up without aggregate uncertainty, it is true that $\pi(\bar{p}^C, R) = 1$ and $\pi(\bar{p}^C, D) = 0$, for all values of $\bar{p}^C$: therefore the ex ante payoff $E\Pi(\bar{p}^C)$ is strictly increasing in $\bar{p}^C$, and the incumbent, ex ante as well, finds it optimal to fix $\bar{p}^C = 1$. It is easy to check how the same reasoning applies to the case of a comparatively more serious Democratic problem. ■

Proof of Proposition 7. Regarding the first part of the proposition, the probability of the

incumbent being reelected, given $n = R$ and the expected spin $\bar{p}^E$, can be written as follows:

$$\pi(\bar{p}^E, R) = \frac{1-2\mu}{2(1-\mu)} + \frac{\mu}{1-\mu} \cdot f(\bar{p}^E, R),$$

which is derived by making use of condition (4) and exploiting the fact that ξ is uniformly distributed on the interval $[0, 1]$. Given that η is distributed according to the known cdf $G(.)$, $f(\bar{p}^E, R)$ equals $G\left(\frac{p_R(1-p_D)}{p_R(1-p_D)+p_R p_D \bar{p}^E}\right)$. By the same token, the probability of confirming the incumbent in office when $n = D$ can be written as follows:

$$\pi(\bar{p}^E, D) = \frac{1-2\mu}{2(1-\mu)} + \frac{\mu}{1-\mu} \cdot f(\bar{p}^E, D),$$

where $f(\bar{p}^E, D) = G\left(-\frac{(1-p_R)p_D}{(1-p_R)p_D+p_R p_D(1-\bar{p}^E)}\right)$. Given that $G(.)$ is an increasing function, it is true that $\pi(\bar{p}^E, R) > \pi(\bar{p}^E, D)$ for all $\bar{p}^E \in [0, 1]$, and the first part of the proposition is proven.

Regarding the second part of the proposition, let $\bar{p}^C \in [0, 1]$ the editorial policy to which the incumbent politician can commit ex ante: his expected payoff, as a function of $\bar{p}^C$, is given by expression (12).

Within the general model with uninformed voters, there is a tradeoff involved in the choice of $\bar{p}^C$: a higher $\bar{p}^C$ gives a higher weight to $\pi(\bar{p}^C, R) > \pi(\bar{p}^C, D)$, but both these conditional probabilities are themselves decreasing in $\bar{p}^C$. The static problem solved by the incumbent politician is the following:

$$\max_{\bar{p}^C} E\Pi(\bar{p}^C) \qquad \text{(P)}$$
$$\text{s.t. } \bar{p}^C \in [0, 1]$$

In order to prove the second part of the proposition, I will adopt some notational shortcuts. Let $\tilde{x} \equiv \frac{p_R(1-p_D)}{p_R(1-p_D)+p_R p_D \bar{p}^C} = E(x_R - x_D \,|R; \bar{p}^C)$ and $\tilde{y} \equiv -\frac{(1-p_R)p_D}{(1-p_R)p_D+p_R p_D(1-\bar{p}^C)} = E(x_R - x_D \,|D; \bar{p}^C)$. Moreover, let $\tilde{G}(x) \equiv \frac{1-2\mu}{2(1-\mu)} + \frac{\mu}{1-\mu} G(x)$, and let $\tilde{g}(x)$ be similarly defined, i.e.

$\tilde{g}(x) \equiv \frac{1-2\mu}{2(1-\mu)} + \frac{\mu}{1-\mu} g(x)$. After some manipulation, the first derivative of $E\Pi(\bar{p}^C)$ can be written as:

$$E\Pi'(\bar{p}^C) = M \cdot [G(\tilde{x}) - G(\tilde{y}) + g(\tilde{y}) \cdot \tilde{y} - g(\tilde{x}) \cdot \tilde{x}],$$

where $M \equiv \frac{R\mu}{1-\mu} p_R p_D$, and $\tilde{x}$ and $\tilde{y}$ are (decreasing) functions of $\bar{p}^C$.

Regarding point a) in the proposition, the idea is to search for a sufficient condition, such that $E\Pi'(\bar{p}^C) > 0$, for all $\bar{p}^C \in [0, 1]$: if this is the case, it is optimal for the incumbent to fix $\bar{p}^C = 1$. This condition is fulfilled if

$$G(\tilde{x}) - g(\tilde{x}) \cdot \tilde{x} > G(\tilde{y}) - g(\tilde{y}) \cdot \tilde{y}$$

for all $\bar{p}^C \in [\tilde{p}, 1]$. Define $M(x) \equiv G(x) - g(x) \cdot x$: just because $\tilde{x} > 0 > \tilde{y}$ for all $\bar{p}^C$ in the relevant range, to obtain the result it will suffice to show that $M(x)$ is an increasing function of x. Assuming that $g(.)$ is differentiable, this condition boils down to the following:

$$M'(x) = -g'(x) \cdot x > 0$$

But this exactly corresponds to the condition that η is unimodal around zero. Therefore the first derivative of $E\Pi(\bar{p}^C)$ is positive in the relevant range.

By the same token, if η is uniformly distributed, it is true that $g'(x) = 0$, for all x. Then $M(x)$ does not depend on x, and in turn $E\Pi(\bar{p}^C)$ does not depend on $\bar{p}^C$, so that the incumbent is ex ante indifferent to the level of spin he could possibly commit to.

Finally, when η is U-shaped around zero, it is true that $g'(x) \cdot x > 0$. This condition exactly implies that $M'(x) < 0$, so that the incumbent would ex ante prefer to commit to $\bar{p}^C = 0$, i.e. to a watchdog-like editorial policy. ■