THE SPIN DOCTOR MEETS THE RATIONAL VOTER:
ELECTORAL COMPETITION WITH AGENDA-SETTING EFFECTS

RICCARDO PUGLISI

LSE and STICERD

The Spin Doctor Meets the Rational Voter: Electoral Competition with Agenda-Setting Effects.

Riccardo Puglisi*
LSE and STICERD

Abstract

In a multidimensional policy space, citizens cast their vote on the basis of which policy issue they reckon as being more salient. During the campaign, mass media outlets provide pieces of news about events occurring in the different fields: these events represent problems that deserve some policy action by the elected politician.

Voters want to elect the politician who is thought to be more capable of handling the most relevant problem facing the country, and they have a priori views about the relative abilities of candidates belonging to different parties with respect to different problems. An issue is owned by a given party if its candidates are thought to be more capable of solving problems being related to the issue itself, given that they occur.

I develop a simple model of electoral competition with agenda-setting effects. There are two issues, one owned by the Republican Party, the other by the Democrats: 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 on the newspaper: however, on the newspaper itself there is room for only one story to be published. In this set up, I define as "spin" the ability of the incumbent politician to make the story 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; conversely, in the no-spin case the managing editor decides what to publish by tossing a fair coin.

As a function of the spin regime, the model offers testable predictions about the kind of news being published during the campaign, citizens' optimal voting behaviour and the differential effect of published stories on aggregate votes. Moreover, the paper discusses the circumstances under which it would be ex ante optimal for the incumbent politician to commit not to engage himself in spin activity.

1 Introduction

The standard model of electoral choice is typically based on the idea that there is only one dimension along which voters and, possibly, candidates have different preferences: such dimension could be the marginal tax rate on income, the level of provision of a public good, or any other policy variable that matters with respect to

---

1

the problem being studied. If candidates are only motivated by winning the office and can commit to any policy platform, there are some conditions on the shape of voters' preferences, such that in equilibrium candidates converge to the same policy platform, that is the one being preferred by the median voter.

On the other hand, when the policy space is multidimensional, the presence of Condorcet cycles is a generic outcome of the game; there are indeed some very restrictive conditions on the shape of the distribution of voters' bliss points in the policy space, such that there is an equilibrium platform. If this is not the case, one can specify a subset of the policy space, which is made of platforms that can be beaten only by platforms belonging to the same subset.

It is true that in the real world political elections are always concerned with a plurality of issues, so that any unidimensional analysis of the electoral process sounds as a simplifying tool, which is meant to emphasize the collective choice of a single policy variable. How do citizens cast their vote when policy platforms are intrinsically multidimensional? Take a voter and any given couple of policy platforms: if she could decide separately for each dimension, i.e. cast a separate vote on each dimension, it is likely that on some dimensions she would weakly prefer the first platform, while the opposite is true for the complementary subset of dimensions. However, here the citizen has got only one vote to cast and, assuming that she is rational, she would weight the different dimensions through her utility function, and come to a final compromising choice. The crucial point is that such choice is a function of the weights that are implicit in the utility function, i.e. of the relative importance attached to different policy issues by the voter herself. This ranking of policy issues can be called **salience structure**, or, by borrowing a term from the public opinion's literature, voter's **agenda**.

Typically, political economy models of electoral choice in a multidimensional policy space are based on an exogenously given salience structure: on the contrary, the simple model presented here is one of the first attempts of endogenising this salience structure, as a function of voters' information set. In fact, in the previous discussion the salience structure was reckoned as an implicit feature of voter's preferences, so that any change in this salience structure amounts to a change in her preferences. A theory of endogenous preferences is a very unfirm ground for the analysis, even if it is a definitely interesting subject: the point I want to make here is that one can analyse changes in the voters' agenda without framing the argument in terms of endogenous preferences, just because any rational choice depends both on preferences and available information.

Coming back to our initial discussion, a change in the relative importance of different policy issues can stem from the fact that pieces of information have been provided, according to which issue "A" deserves some prompt and sizeable policy action by the elected politician, while this is not the case for issue "B". As an example, in a given moment in time and for a given polity, it could be true that an environmental emergency has occurred, while crime on the streets is not a serious cause of concern. If citizens know these "facts" and must soon elect a new major for their municipality, they would choose by attaching a higher weight to the environmental issue with respect to the "law & crime" one.

In the unidimensional case, voters have got different bliss points with respect to the policy decision to be taken; the same is of course true for what concerns the most general case of a multidimensional policy space: there are several issues, or "problems" pertaining to different issues, and voters are characterised by different preferred solutions for each issue. With respect to this general framework, the model presented here is however based on some simplifying assumptions, that are meant to

emphasise the concept *per se* of endogenous salience, but on the other side correspond to a well established theory about how citizens cast their vote in a multidimensional setting, i.e. the "issue ownership" hypothesis, as introduced by Petrocik [1996].

The idea is that voters have got an instrumental attitude towards the electoral process, i.e. they want to elect the politician that is more capable of solving the most urgent and serious problem facing the country in a given moment in time. On top of that, all citizens share the same belief[1] about the relative abilities of candidates coming from different parties in solving different problems, i.e. problems related to different issues. In particular, in the model I will assume that there are only two issues, and that candidates expressed by party "A" are (rightly) reckoned as more capable of solving the problem related to issue "A", while the opposite is true for party "B" and issue "B". Using Petrocik's terminology, issue A (B) is owned by party A (B)[2].

While in the most general case of a multidimensional policy space citizens could have different views about which is the best solution for a given problem, in the present model there is on the contrary a unanimous agreement, that makes each issue "owned" by (candidates belonging to) a different political party. What matters here is the constituency of the party itself: individuals belonging to a given party are typically grouped together by their common concern for some issues; at the same time, one could argue that any political office is characterised by a limited amount of material resources and of time available for making up decisions. It follows that there are no candidates who are able to solve both problems: citizens take this into account and therefore they try to elect the one being able to solve the problem that is more likely to arise.

How do citizens gather information about which events have occured in the different policy fields? Individual experience is of course important for some facts and issues[3], but an increasingly large amount of information comes from mass media outlets, like newspapers, magazines, TV channels, and the Internet. In some cases this information is concurrent with the one stemming from personal experience, in some others it is the only source of knowledge for the vast majority of members of a given polity.

The normative view about news and journalism is that journalists should be objective and rigorously report what happens in the real world: in fact, when many different events pertaining to different policy fields happen at the same time, journalists and editors have got non negligible degrees of freedom in the selection of what is **newsworthy**[4].

Moreover, it is true that the amount of space that is available on a newspaper

---

[1] This hypothesis of unanimous beliefs is of course very stark, but it can be easily relaxed by assuming that the **majority** of (instrumental) voters shares such beliefs.

[2] 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 assessed, i.e. on a short term basis. The management of the economy is a typical example of a leased or performance-based issue. In the present model I consider two owned issues, but it would be interesting and not particularly difficult to modify it in order to analyse the role of a performance issue.

[3] This is certainly true for relevant economic facts as inflation and unemployment: the direct experience provides daily pieces of information about the purchasing power of money and the job status of people belonging to the reference group: these pieces of information can in turn resonate with or contradict the news provided by mass media outlets.

[4] Apart from this choice between different facts and issues, journalists and news editors can describe and comment any given event from different perspectives; in other terms, which are in fact borrowed from the public opinion jargon, but exactly correspond to the ones being used in the psychology and economics literature, the **framing** of the event is a very relevant choice variable journalists can play with. See Iyengar...

or the amount of time for a TV news broadcast is bounded; this is coupled with a limited amount of attention that can be spent by readers and viewers. Stories on the newspaper are given an implicit ranking, in terms of absolute and relative importance, by the position in which they are published: of course, a higher priority is attached to pieces of news being published on the front page, and within this subset the story on the upper right of the front page is the leading one. The ranking is even more explicit 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. It is clear that the first story is the one to which the news editor *coeteris paribus* attaches the heaviest weight

If citizens are influenced in their voting decision by which kind of news are published on newspapers and/or broadcasted on TV channels, political parties have got strong incentives to reshape or manipulate the agenda of mass media outlets at their own advantage. In particular, if the issue-ownership hypothesis provides a useful and realistic framework to describe how rational citizens vote, then any given party would strongly appreciate the fact that media outlets emphasize events pertaining to the owned issue. This is what political marketing is exactly about.

The hypothesis on the basis of which I develop the model is that the incumbent politician has a comparative advantage with respect to the challenger in making the story about the owned issue "sexier", i.e. more palatable to the taste of the managing editor of the news provider, be it a newspaper or a TV news broadcast. This is particularly relevant because of the limited amount of "space" being available on the newspaper or in the TV news broadcast: when problems pertaining to two different issues occur, the managing editor of the news provider must decide which story must be given more emphasis. In the model I represent this limited amount of space and attention in a stylised way, by assuming that on the newspaper there is room for only one story to be published.

The managing editor of the newspaper is confronted with a editorial choice only when a problem has occurred in each of the two policy fields: in this case, two stories can potentially be published, but there is room for only one. In this set up, I exactly define as "spin" the ability of the incumbent politician to make the story 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; conversely, in the no-spin case and with both problems occurring, the managing editor decides what to publish on the front page by tossing a fair coin.

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. Finally, section 4 concludes, and provides some directions for possible extensions of the model.

2 Related literature

This survey is divided in three distinct parts: the first part deals with the contributions in political economy about electoral competition in a multidimensional policy space, with special reference to the conditions under which a Condorcet winner exists, and to the treatment of the salience structure across issues. The second part is focused on the public opinion literature about agenda-setting effects, i.e. the analysis of whether and to what extent information conveyed by mass media channels is capable of influencing viewers and readers. Finally the third part is concerned with that rapidly growing branch of the political economy field, which specifically analyses the relationship between mass media behaviour and electoral competition. The model presented in section 3 is in fact on the intersection between these three

4

areas of research.

2.1 Equilibrium, multidimensional policy spaces, salience structure

Suppose that a group of agents is affected by a vector p of policies[5], and that they use (strict) majority voting to decide which kind of policy to implement. Under what conditions is there an equilibrium in this voting game? Is it unique? What are the features of this equilibrium or these equilibria, given that they exist? These are the main questions being asked in the positive theory of social choice.

As underlined in the introduction, when the policy space is unidimensional, there are some well known conditions, under which a platform being a Condorcet winner always exists, and coincides with the bliss point of the voter that is ranked as median (Persson and Tabellini [2000], Propositions 1 and 2, pp. 22-23). A sufficient condition for this result is that voters' preferences are single peaked (Black [1948]), while a more general one is the single-crossing property suggested by Gans and Smart [1996].

When the policy space and voters' heterogeneity are indeed multidimensional, a Condorcet winner in the voting game exists under very restrictive conditions of symmetry (Plott [1967], Davis, de Groot and Hinich [1972]): a platform p^* is a Condorcet winner if every hyperplane passing through it separates the policy space in such a way that there is an equal number of bliss points in either of the two subsets being created. Some weaker conditions for the existence of a Condorcet winner can be found out if the policy space is still multidimensional but voters' heterogeneity is shrinked to be unidimensional (Grandmont [1978]).

These results apply to a direct democracy; in fact, modern democracies are representative, in that the most relevant policy choices are made by elected representatives, to whom citizens have delegated the power to decide on their behalf. In this case, the nature itself of political institutions imposes some restrictions on the structure of the voting game.

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. Indeed, the idea behind models of probabilistic voting (Hinich [1977], Coughlin and Nitzan [1981], Ledyard [1981, 1984]) is exactly that this uncertainty faced by candidates translates into the probability of receiving a vote from each citizen being a continuously differentiable mapping of policy platforms, and not a step function as in the deterministic set up[6]. In this case, a unique equilibrium of the voting game exists, given that some technical conditions on the joint distribution of these external factors are satisfied.

On the other hand, if each citizen (by paying a fixed utility cost) may run as a candidate, but cannot precommit to offer policy platforms that there are different from the one she would prefer as a private citizen, then this two-stage game of candidates' entry and voting has typically got a sub-game perfect equilibrium, with multiplicity as a generic outcome of the entry stage[7]. If candidates are citizens who cannot precommit, but moreover, in order to run for elections, they must belong to

---

[5] The first part of this subsection is largely based on Persson and Tabellini [2000].

[6] In the deterministic case, citizens vote for one candidate with probability one if she offers strictly more than what is offered by the challenger, for sure they don't vote for her if she offers less, and they mix the probability if she offers the same.

[7] The citizen-candidate model with endogenous candidates is due to Osborne and Slivinsky [1996] and Besley and Coate [1997].

already established political parties, then the parties' constituency itself puts constraints on the identity of candidates and therefore of policy platforms that can be offered to voters. This is of course a restriction with respect to the more general model with any citizen being a potential candidate, but it reflects a relevant feature of modern democracies, in which parties effectively behave as barriers to entry in the political arena. The model presented in the next section is in fact based on this idea of political parties as determining candidates' characteristics ex ante[8].

A common feature of all these models of electoral competition is that the salience structure among citizens is exogenously given, as it is embedded in their utility function; this salience structure has in fact got important implications on the features of the political equilibrium. For example, in citizen-candidate models with political parties, as in Besley and Coate [2000, 2003] the fact that citizens have got only one vote to cast in the presence of multiple policy issues implies the possibility that on non-salient issues the position preferred by the majority of voters is actually not implemented. This "inefficiency" result can be actually avoided if the non salient issue is **unbundled** from the salient one, i.e. by letting citizens decide on it with an additional and separate vote.

In the political economy literature proper there are indeed very few exceptions to such hypothesis of the salience structure being exogenously given. Cantillon [2001] studies how different electoral mechanisms provide different incentives for political parties to introduce emerging issues in their platforms. Her idea is that each party, apart from deciding which kind of position to maintain on each of the I issues, has got a fixed endowment of "effort" that can be distributed across issues: the effort's share e_i^A devoted to issue i by party A determines the weight $f(e_i^A)$ given by voters in evaluating party A's position on the issue itself. It follows that for each party j there is an endogenous salience structure, which is induced by the vector of efforts $\{e_i^j\}_{i=1}^I$. However, there are some problems in interpreting the fact that these salience structures are party-specific: one reasonable hypothesis is that they represent the precommitment of party j, in case its candidate has been elected, to dedicate a fraction e_i^j of time and resources to issue i.

Strömberg [2001a] develops a model of the interaction between electoral competition and news provision by mass media outlets[9]: in one specification of his model, the incumbent 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. The idea is that the utility of each program depends on the incumbent's competence, which follows a moving average process, and on some local factors, that are indipendently distributed across citizens: newspapers can publish 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 voters are able to precisely extrapolate the incumbent's competence on it: it follows that in their electoral choice citizens give more weight to the program about which they receive more precise information. Indeed, this is a model of endogenous salience structure that is completely based on an information story, without any reference to preference

---

[8]As briefly discussed in the concluding section, one could extend the model in the direction of allowing parties to choose candidates among their members, with a spectrum of different relative abilities of solving the two problems and a sort of "budget constraint" in terms of total abilities. In this case, the concept of issue ownership would imply that there is always a non empty subset of potential candidates in each party being more competent on the owned issue than the one candidate coming from the other party who is the strongest in the non owned field.

[9]Strömberg's general contribution to the understanding of the relationship between the mass media and political equilibrium will be more extensively discussed in subsection 2.3.

changes[10].

2.2 The theory of agenda setting effects

The theory of agenda setting effects is built around the idea that mass media are capable of influencing the importance readers and viewers attach to different issues[11]; according to Cohen [1963], 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." As noted by Lippmann [1922], news provided by mass media outlets are a primary source of information, and sometimes the only one, about public affairs: in the absence of information provided by mass media, most events related to public affairs would in fact be "out of reach, out of sight, out of mind" for the large majority of citizens. It follows that editors and journalists can possibly have sizeable degrees of freedom in the choice of what is newsworthy[12] and this way they can influence the perception of citizens about which issues are relevant and to what extent.

McCombs and Shaw [1972] is the seminal empirical contribution in which such concept of agenda-setting effects has been put to test: 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 reported rankings were then matched with the pattern of news coverage that had characterised available newspapers and network television news in the previous month: the found correlation between these measures of the media and the public agenda was always of a positive sign and typically very large in magnitude. After McCombs and Shaw [1972], there has been a host of studies searching for agenda-setting effects of news coverage: these studies, quite frequently focused on political campaigns, adopted a wide range of different empirical designs, from cross sectional surveys to aggregate time series analysis, from repeated cross sections to controlled experiments. The broad message stemming from this literature, even if with some internal variation, is that agenda-setting effects on public opinion are indeed sizeable.

However, it is true that citizens, in order to get pieces of information about which issues are relevant in a given moment in time, do not solely rely on news provided by mass media outlets, but certainly enjoy a direct experience of real world events, as they happen to them and to their reference group. It is in fact difficult to specify what a given individual reckons as a real world event, i.e. to what she pays attention in her everyday life: attention is a scarce resource as the space on a newspaper. Anyway, editors and journalists as well observe real world events and on the basis of this decide what is newsworthy; on the other side, they could choose to cover more extensively those issues that *ex ante* are matter of public concern, i.e. they could "ride the wave" of public attention in order to increase revenues. It follows that potentially there are several causal links connecting real world cues, the media agenda and the public agenda: real world cues influence both the media and the public agenda, while media agenda, if the theory of agenda-setting effects is correct, has got a strong and separate influence on the salience structure of the public. On the other hand, it

---

[10]Furthermore, to the best of my knowledge, Strömberg [2001] is the only contribution in the political economy literature that explicitly refers to the theory of agenda setting effects, as pioneered by Lazarsfeld *et al.* [1948] and McCombs and Shaw [1972]. More on this in the next subsection.

[11]This survey of the literature about agenda-setting effects is largely based on Iyengar and Simon [2000] and McCombs [2002].

[12]As I will more precisely point out, direct experience of real world events by citizens certainly limits the degrees of freedom enjoyed by news providers in the choice of what is worth to be published and broadcasted.

may be true that media coverage is affected by public concern. Considering the U.S. during the 1974-1980 period and adopting a simultaneous equations' approach, Behr and Iyengar [1985] analyse these links between real world events, television news coverage and the public agenda for the issues of energy, inflation and unemployment: they show that real world cues have both a direct and indirect (i.e. through the effect on news coverage) influence on public concern. Additionally, the relationship between news coverage and public concern appears to be unidirectional, i.e. media agenda influences public concern, and not vice versa, in accord with the pure theory of agenda-setting effects.

It seems that the mass media are not only capable of focusing public concern on a particular issue: their influence can go a step further and affect the way a given issue is thought about by readers and viewers. As noted by McCombs [2002], mass media effects have got some kind of fractal structure: they can highlight some topic as an object of attention, but given this topic they can emphasise some attributes of it, and make them salient. The theory of *issue priming*[13] 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 Iranian hostage issue 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[14].

More generally, a given topic or event can be looked at and dealt with from different perspectives: such framing of the message about an event or an issue is typically meant to maximise the audience support to the position held by the sender herself. These *issue framing* effects appear to be sizeable and capable to induce opinion change at the individual level. For example, for what concerns government spending in the U.S., Republicans often focus on it with broad and general terms, and messages like "We must cut government spending!". On the contrary Democrats highlight specific spending programmes, like health care and food stamps. Jacobi [2000] analyses data from the 1992 CPS National Election Studies and finds that the opposition to increases in government spending is significantly lower when the question about it is worded in terms of specific programmes.

It is clear that political actors find it advantageous to frame a given issue in different ways: coming back to the previous example, Republicans are thought to be more willing to cut public expenditures and therefore taxes; in fact, their position is more easily supported if citizens think more about the total amount being spent, rather than about specific programmes being financed. Conversely, Democrats are typically more eager to sponsor welfare programmes and any hint to specific spending items could activate support for their position, because citizens identify themselves as direct recipients of these programmes or are driven by altruistic feelings.

As underlined in the introduction, it could be true that voters generally reckon candidates coming from a given party as more capable of handling a given issue, apart from more complicated framing effects. 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 indeed tend to emphasise owned issues in their political speeches; secondly, given that issues owned by the Democratic (Republican) party are salient, Republican (Democratic) citizens are less willing to go

---

[13]See Krosnick and Miller [1996] for a review of the literature on issue priming.

[14]Adopting Petrocik's [1996] terminology, this is a case of a performance issue, on which the incumbent proved to be particularly weak.

and vote for their candidate, indipendents are more willing to vote for the Democratic (Republican) candidate, and finally Democrats' (Republicans') turnout increases, together with their vote for their partisan candidate. Moreover, when deciding how to cast their vote, citizens appear to be taking into account how the incumbent is faring on performance issues as well, e.g. the management of the economy and/or of foreign policy: this effect adds up to the one stemming from long term issue ownership.

Apart from these survey-based results provided by Petrocik [1996], there is also experimental evidence (see Ansolabehere and Iyengar [1994]), according to which viewers of televised political ads are more likely to express a voting preference for the candidate that deals with the owned issue rather than the same candidate dealing with the non-owned one, in this case the Republican that talks about crime instead of unemployment, and vice versa for a Democrat.

2.3 Mass media and electoral competition

There is a growing literature in the political economy field which takes explictly into account the role played by the mass media as providers of information. The idea is that the interaction between voters, politicians and interest groups needs information flows, which in many instances cannot come from direct experience or communication between them. As highlighted in the previous subsection, the large majority of voters can get pieces of information about what is happening in the realm of public affairs only through the act of reading a newspaper or a magazine, watching the TV news, or browsing news channels on the Internet. The amount and quality of information being provided, together with the set of citizens that are actually informed by mass media outlets, are in turn valuable pieces of information for elected politicians and candidates, who will act and react accordingly. For example, from an electoral point of view, it is optimal to (credibly) promise public transfers to those groups that are actually able to know about such aspect of the electoral platform: if this is so, these citizens can purposely reward the candidate with their vote.

In this literature, one can trace at least three different ways of analysing the links between mass media and electoral competition.

The first approach, which is due to Strömberg [2001a, 2001b, 2002], is focused on the fact that the distinction between informed and uniformed voters strongly depends on who has got access to mass media channels: indeed, 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, as being able to solve their collective action problem and organise themselves into lobbies, can typically obtain favourable policies[15], 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 bias in favour of these large groups, because they get endogenously informed about electoral platforms, and candidates, as underlined above, take this into account[16]. In support of his theory, Strömberg provides convincing empirical 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 in this literature focuses instead on the way informa-

---

[15]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].

[16]In analogy with Besley and Coate [2001], how would voters strategically elect a politician when the presence of mass media creates a policy bias towards large and relatively affluent groups?

tion provided by the mass media can have an impact on the accountability of the incumbent politician. In an asymmetric information environment voters must understand how well the incumbent politician has performed with respect to the policy tasks she has been assigned. The more mass media outlets provide citizens with information about the incumbent's performance, the more precisely will citizens be capable to punish and reward her with their retrospective vote. If this is the case, the incumbent politician will *ex ante* have stronger incentives to exert valuable effort in her performance. Besley and Burgess [2001] develop a simple model of political agency, in which the effort being put by an opportunistic incumbent, i.e. an incumbent that does not care about the policy *per se* but only about the chance of being reelected, is increasing in media access. The authors test the model against a panel data on the sixteen major Indian states during the period 1958-1992, 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 indeed stronger where newspaper circulation is higher: in particular, what seems to matter is the circulation of newspapers written in the local language.

Finally, the third line of research in the field is exemplified by Besley and Prat [2001], and is focused on the idea that politicians have got clear electoral incentives to alter the set of news that citizens read and view: as in Besley and Burgess [2001], the authors build up a model of political agency, in which the incumbent politician can be of good or bad quality with exogenously given probabilities. If the incumbent is bad, e.g. she is corrupt, with some given probability a verifiable signal about this fact is issued and can be published by mass media outlets: voters read newspapers and if they find this piece of news about the incumbent being corrupt it is optimal for them to elect the challenger. However, the incumbent can write a set of contracts with mass media outlets, in order to convince them not to publish the news about her being of bad quality.

This is the first model in which the strategic interaction between politicians (in this case: only the incumbent politician) and mass media outlets is explicitly taken into account; the model I develop in this paper is indeed 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 potential stories the newspaper's editor must decide what to publish and what to leave out.

3   The model

3.1   Signals and news

Citizens must elect their representative for the next term. There is an incumbent politician and a challenger: wlog 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 more capable of 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", as outlined by Petrocik [1996]. In order to keep the model as simple as

possible, 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. The issue owned by the Republicans is Homeland Security, while the Democratic field is Health Care.

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 $x_R = 0$ means the lack of such problem; the same interpretation 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 $i \in \{R, D\}$. It follows that the ex ante probabilities of the two problems can differ, but 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 here 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 $p_R \cdot p_D$, which of course equals p^2 in the symmetric case. 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. Moreover, I will consider two polar cases: in the first case 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 other 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. $\bar{p} = 1$.

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 $(1 - p_R)(1 - p_D)$ $((1 - p)^2$ in the symmetric case) 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, $pr(n = R | s_R = 1, s_D = 1) \equiv \bar{p}$ and this equals $\frac{1}{2}$ in the no-spin case and one in the spin case. The ex ante probability of reading a Democratic news, given p_R, p_D and $\bar{p}$, can be written as follows:

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

11

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

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

Thus, in the symmetric case, the following proposition holds:

Proposition 1 *In the symmetric case, if there is no spin, it is equally likely ex ante to read a piece of news about the Republican or the Democratic problem.*

If there is spin, it is more likely to read a piece of news about the Republican problem than about the Democratic one.
Proof. *In the appendix.* ∎

Proposition 1 simply follows from evaluating expressions (1) and (2) at $p_R = p_D = p$, in the two cases of $\bar{p} = \frac{1}{2}$ and $\bar{p} = 1$: if the two problems are equally likely to arise, in the case of spin the ex ante probability of reading a piece of news about the problem owned by the incumbent is greater than the one of reading a piece of news about the problem owned by the challenger.

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

Proposition 2 *In the asymmetric case, without spin 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 $p_R > \frac{p_D}{1+p_D}$.
Proof. *In the appendix.* ∎

Proposition 2 states that in the general case, without spin, there are ex ante more news about the Republican problem than about the Democratic one as long as $p_R > p_D$; with spin, the condition for having a higher ex ante probability of news about the Republican problem than about the Democratic one is weaker, just because $\frac{p_D}{1+p_D} < p_D$. Moreover, as a corollary, if $p_R > \frac{1}{2}$, it is always the case that with spin the probability of $n = R$ is larger than the probability of $n = D$.

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 got 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 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 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[17].

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:

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

Indeed, the incumbent is reconfirmed in office for sure if more than half of the population votes for 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. Under these assumptions, it is easy to prove the following proposition:

Proposition 3 *If there is no aggregate uncertainty, the following statements are true:*

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

  b. *if the piece of news 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, just because with some non-null probability the Democratic problem is truly absent. For further reference, it is important to note that this ex post probability is an increasing function of $\bar{p}$. By the same token, when $n = D$, the ex post probability of $x_R = 1$ is given by

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

---

[17]Apart from 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).

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[18], 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 $\frac{1}{2}$.

3.3 The electoral effect of news

What are the overall effects on the electoral outcome of the different stories being published on the newspaper, as a function of the spin regime? In terms of reelection probabilities, proposition 3 in fact shows that, in the lack of aggregate uncertainty, the winning candidate is for sure the one whose owned story[19] has been published on the newspaper. This is always the case, regardless of the spin regime, i.e. the value taken by $\bar{p}$. 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 $\bar{p}$.

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 4 *In the symmetric case, if there is no spin, the effect on the number of votes accruing to the incumbent of a published story about the Republican problem is the same in absolute terms as the effect of a story about the Democratic problem, i.e. $\left|E(f(\bar{p} = \frac{1}{2}, R) - f(\bar{p} = \frac{1}{2}, \varnothing))\right| = \left|E(f(\bar{p} = \frac{1}{2}, D) - f(\bar{p} = \frac{1}{2}, \varnothing))\right|$.*
If there is spin, the electoral effect of the Democratic story is larger than the one stemming from the Republican story, i.e. $|E(f(\bar{p} = 1, D) - f(\bar{p} = 1, \varnothing))| > |E(f(\bar{p} = 1, R) - f(\bar{p} = 1, \varnothing)$
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 for the incumbent). If there is no spin, these differential effects on the number of votes gathered by the incumbent are the same. On the contrary, in the presence of spin by the incumbent, the electoral effect of the less favorable piece of news is stronger than the one stemming from the favorable story. This is so, because, in the presence of spin, 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 $n = D$.

Thus, the model predicts that, in the presence of spin, news that are "bad" from the incumbent's perspective have a stronger impact on the number of votes received by him than good news: this result indeed resonates with some arguments

---

[18]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.

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

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 [...]". In the model developed here, which is based on a simple idea of spin, one does not need any prospect theory *cum* loss aversion, in order to explain this stronger effect on aggregate voting behaviour of pieces of news that are bad for the incumbent.

3.4 Spin and commitment

Up to now, I have compared the two polar cases of complete spin (i.e. $\bar{p} = 1$) and no spin (i.e. $\bar{p} = \frac{1}{2}$), without any explicit reference to the incentives that the incumbent politician faces with respect to the spin activity itself. In particular, 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 only take place 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 it would be better for the incumbent to commit not to exert spin activity, as his ex ante payoff is higher when voters correctly believe that he will not exert any spin effort.

For what concerns 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 $\bar{p} = \tilde{p} + s = \frac{1}{2} + s$: the probability of reading the Republican story given that both problems have occurred depends in a linear fashion on the initial attitude of the newspaper $\tilde{p}$ and the spin effort $s \in [0, 1 - \tilde{p}]$ being exerted by the incumbent. Moreover, in order to concentrate on the issue of ex ante and ex post incentives to spin activity, I assume that the spin effort s is costless to the incumbent politician.

As discussed in the previous sections, the present model is characterised by the lack of aggregate uncertainty, because the probability of the incumbent being reelected is one when $n = R$, and null when $n = D$, regardless of the values taken by p_R, p_D and $\bar{p}$. The only knife-edge case occurs when $n = \varnothing$, as the measure of voters with $\eta = 0$ is pivotal with respect to the final result, is indeed indifferent between the two candidates and mixes its vote with equal probabilities. Within this framework, it is straightforward to prove the following proposition:

Proposition 5 *When there is no aggregate uncertainty, both ex ante and ex post it is optimal for the incumbent politician to exert spin to the maximum extent and fix $\bar{p} = 1$.*
Proof. *In the appendix.* ∎

In the present model, characterised by the lack of aggregate uncertainty, the incumbent politician is not facing any commitment issue, as his ex ante payoff is strictly increasing in $\bar{p}$: this 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 the present model as a particular case of a more general one, which makes the electoral outcome probabilistic, by allowing for the presence of noise voters[20].

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 $\frac{1}{2}$ indeed 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 $\bar{\xi}$ votes for the challenger. It is clear that this general model boils down to the one without aggregate uncertainty when $\mu = 1$, i.e. when there are no uninformed voters. Summing up, given $\bar{p}$ and $n \in \{\varnothing, D, R\}$, the incumbent wins the elections if

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

In order to simplify the algebra, I will henceforth assume that η, the bias in favour of the challenger, is distributed according to a uniform distribution, with support $[-\phi/2, \phi/2]$.

Within this general set up with uninformed voters, and given the uniform distribution of η, one can prove the following proposition:

Proposition 6 *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, ex ante incentives to exert spin depend on the shape of the random variable ξ, in the following way:

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

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

c) *If ξ is distributed according to a U-shaped distribution, it would be optimal for the incumbent to commit not to engage in any spin activity, and keep $\bar{p} = \tilde{p}$.*

Proof. *In the appendix.* ∎

As detailed in the appendix, there is a tradeoff involved in the choice of $\bar{p}$: 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. When there are no uninformed voters, the slope effect is null and therefore ex ante as well the incumbent finds it optimal to fix $s = 1 - \tilde{p}$ and spin the newspaper completely. However, when noise voters are present, the solution of the trade off depends on the shape of the distribution of these uninformed voters. With

---

[20]This idea of modelling electoral competition with a distinction between rational and noise voters is due to Baron [1994].

a U-shaped distribution, extreme outcomes, in terms of uninformed voters' electoral choice, are more likely than moderate ones: it follows that the slope effect dominates the weight one, and the incumbent politician would find it optimal ex ante to commit not engage himself into spin activity. But here a credibility issue arises, as ex post it is always optimal for the incumbent to exert spin to the maximum extent.

4 Concluding remarks

In this paper, I have developed a simple model of electoral competition with 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 more capable of handling the most relevant problem facing the country, and they have a priori views about the relative abilities of candidates belonging to different parties with respect to different problems. An issue is said to be owned by a given party if candidates belonging to it are thought to be more capable of solving problems being related to the issue itself, given that they occur. In this simplified framework, there are two issues, one owned by the Republican Party, the other by the Democrats: problems pertaining to the two issues can occur, with exogenously given and independent probabilities. If a problem occurs, a verifiable and perfect signal is issued, which can be published on the newspaper as a piece of news.

The crucial idea is that there is a limited amount of space on the newspaper itself: in particular, I assume that on the newspaper there is room for only one story to be published. Therefore the managing editor of the newspaper, in the presence of stories about both problems, must decide whether to publish the one about the Republican or the Democratic problem. 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. If there is spin, given that both problems have occurred, the story about the issue owned by the incumbent is always published; conversely, in the no-spin case and with both problems occurring, the managing editor decides what to publish on the front page by tossing a fair coin.

As a function of the spin regime, the model offers some testable predictions about the relationship between mass media behaviour and the electoral process. First of all, if the two problems are equally likely to arise, in the presence of spin there should be more pieces of news about the issued owned by the incumbent than about the other issue; conversely, if there is no spin, the frequency of stories about the two issues should be equal.

Secondly, if all voters are informed by the newspaper, they elect for sure the candidate whose story is published, i.e. the Republican one if the story about the Republican problem is featured, and the Democrat in case of the Democratic story being published.

Thirdly, 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. These effects are on the contrary equal if there is no spin. Finally, for what concerns the incentives faced by the incumbent with respect to spin activity, ex post, i.e. in the case of both problems occurring, it is always optimal for the incumbent to exert spin and induce the editor to publish for sure the favourable story. On the contrary, ex ante incentives exactly depend on the presence or lack of uninformed voters: if all voters are informed, ex ante as well the incumbent prefers to spin the newspaper completely. If uninformed voters are present, ex ante incentives in turn depend on the shape of the distribution of these

17

noise voters. When this distribution is unimodal, i.e. moderate outcomes are more likely than extreme ones, the incumbent's ex ante payoff is maximised with complete spin. On the other hand, with a U-shaped distribution of uninformed voters, i.e. when extreme voting outcomes are more likely than moderate ones, it would be optimal for the incumbent to commit not to engage himself into spin activity. Of course in this case a credibility issue emerges, as ex post incentives drive the incumbent in the opposite direction of complete spin.

Apart from empirically testing its implications, this simple model of spin activity and agenda-setting effects can be extended into two main directions: firstly, one can think about the presence of a plurality of media outlets, and the optimal spin strategy of the incumbent towards these outlets, as a function of the demand substitutability between one news provider and the other.

Secondly, when ex ante and ex post incentives to spin activity diverge, one can study reputational equilibria as the outcome of a repeated game between elected politicians and rational voters.

References

[1] Ansolabehere, S. D. and Iyengar, S. [1994]. "Riding the Wave and Claiming Ownership over Issues: the Joint Effects of Advertising and News Coverage in Campaigns." *Public Opinion Quarterly*, 58(3): 335-357.

[2] Baron, D. [1994]. "Electoral Competition with Informed and Uninformed Voters". *American Political Science Review*, 88: 593-609.

[3] Behr, R. L. and Iyengar, S. [1985]. "Television News, Real-World Cues, and Changes in the Public Agenda". *Public Opinion Quarterly*, 49(1): 38-57.

[4] Besley, T. and Burgess, R. [2002]. "The Political Economy of Government Responsiveness: Theory and Evidence from India". *Quarterly Journal of Economics*, forthcoming.

[5] Besley, T. and Coate, S. [2000]. "Issue Unbundling via Citizens' Initiatives". London School of Economics, mimeo: http://econ.lse.ac.uk/staff/tbesley/papers/initiative.pdf

[6] Besley, T. and Coate, S. [2001]. "Lobbying and Welfare in a Representative Democracy". *Review of Economic Studies,* 68(1): 67-82.

[7] Besley, T. and Coate, S. [2003]. "Elected versus Appointed Regulators", in Rowley, C. (ed.), *Encyclopaedia of Public Choice*. London, Kluwer Academic Publishers.

[8] Besley, T. and Prat, A. [2001] "Handcuffs for the Grabbing Hand? Media Capture and Government Accountability". London School of Economics, mimeo: http://econ.lse.ac.uk/staff/prat/papers/media.pdf

[9] Black, D. [1948]. "On the Rationale of Group Decision Making". *Journal of Political Economy*, 56: 23-34.

[10] Campbell, A., Converse, P., Miller, W. and Stokes, D. [1960]. *The American Voter*. New York, Wiley.

[11] Cantillon, E. [2001]. "Electoral Rules and the Emergence of New Issue Dimensions". Yale University, Cowles Foundation Discussion Papers, no. 1291.

[12] Coughlin, P. and Nitzan, S. [1981]. "Electoral Outcomes with Probabilistic Voting and Nash Social Welfare Maxima". *Journal of Public Economics*, 15: 113-121.

[13] Davis, O. A., de Groot, M., and Hinich, M.J. [1972]. "Social Preference Orderings and Majority Rule". *Econometrica*, 40: 147-157.

[14] Gans, J. S. and Smart, M. [1996]. "Majority Voting with Single-crossing Preferences". *Journal of Public Economics*, 59: 219-237.

[15] Grandmont, J.-M. [1978]. "Intermediate Preferences and the Majority Rule".

Econometrica, 36: 317-330.

[16] Hibbs, D. A. [2000]. "Bread and Peace Voting in U.S. Presidential Elections". *Public Choice*, 104(1-2): 149-180.

[17] Hinich, M. J. [1977]. "Equilibrium in Spatial Voting: The Median Voter Result is an Artifact". *Journal of Economic Theory*, 16: 208-219.

[18] Iyengar, S. and Simon, A. F. [2000]. "New Perspectives and Evidence on Political Communication and Campaign Effects". *Annual Review of Psychology* 51: 149-169.

[19] Iyengar, S. and Kinder, D. R. [1987]. *News That Matters: Television and American Opinion*. Chicago, Chicago University Press.

[20] Jacobi, W. G. [2000] "Issue Framing and Public Opinion on Government Spending". *American Journal of Political Science*, 44: 750-767.

[21] Krosnick, J. A. and Miller, J. M. [1996]. "The anatomy of news media priming", in Iyengar, S. and Reeves, R. (eds.), *Do the Media Govern? Politicians, Voters, and Reporters in America*. Thousand Oaks, Sage.

[22] Lazarsfeld, P., Berelson, B., and Gaudet H. [1948]. *The People's Choice: How the Voter Makes Up His Mind in a Presidential Campaign*. New York, Columbia University Press.

[23] Ledyard, J. O. [1981]. "The paradox of voting and candidate competition: A general equilibrium analysis", in Roth, A. L. and Kagel, J. (eds.), *The Handbook of Experimental Economics*. Princeton, Princeton University Press.

[24] Ledyard, J. O. [1984]. "The Pure Theory of Large Two-candidate Elections". *Public Coice*, 44: 7-41.

[25] McCombs, M. E. [2002]. "The Agenda-Setting Role of the Mass Media in the Shaping of Public Opinion". Paper presented at Mass Media Economics 2002 conference, London School of Economics: http://sticerd.lse.ac.uk/dps/extra/McCombs.pdf

[26] McCombs, M. E. and Shaw, D. L. [1972]. "The Agenda-Setting Function of Mass Media". *Public Opinion Quarterly*, 36(2): 176-187.

[27] Osborne, M. J. and Slivinsky, A. [1996]. "A Model of Political Competition with Citizen-Candidates". *Quarterly Journal of Economics*, 111: 65-96.

[28] Persson, T. and Tabellini, G. [2000]. *Political Economics: Explaining Economic Policy*. Cambridge, MIT Press.

[29] Petrocik, J. R. [1996]. "Issue Ownership in Presidential Elections, with a 1980 Case Study". *American Journal of Political Science*, 40(3): 825-850.

[30] Plott, C. R. [1967]. "A Notion of Equilibrium and its Possibility under Majority Rule". *American Economic Review*, 57: 787-806.

[31] Strömberg, D. [2001a]. "Mass Media and Public Policy". *European Economic Review*, 45: 652-663.

[32] Strömberg, D. [2001b]. "Radio's Impact on Public Spending". Stockholm University, mimeo: http://www.iies.su.se/~stromber/Radio.pdf

[33] Strömberg, D. [2002]. "Mass Media Competition, Political Competition, and Public Policy". *Review of Economic Studies*, forthcoming.

A   Proofs

Proof of Proposition 1.   The proof is based on the study of expression (1) and (2) in the text. In the symmetric case $p_R = p_D = p$. Hence, in the case of no spin, i.e. when $\bar{p} = \frac{1}{2}$, the ex ante probability of $n = R$ can be written as

$$pr\left(n = R \,\bigg|\, p_R = p_D = p; \ \bar{p} = \frac{1}{2}\right) = p\left(1 - \frac{1}{2}p\right),$$

19

while the ex ante likelihood of a Democratic news is the following:

$$pr\left(n = D \left| p_R = p_D = p; \ \bar{p} = \frac{1}{2}\right.\right) = p\left(1 - \frac{1}{2}p\right).$$

By inspection, it is clear that these two probabilities are the same.

In the spin case, i.e. when $\bar{p} = 1$, the probability of reading a piece of news about the Democratic problem equals $p(1 - p)$, while the probability of a Republican news is p. As long as $p \in (0, 1)$, it is true that $pr(n = R \left| \bar{p} = 1\right.) = p > pr(n = D \left| \bar{p} = 1\right.) = p(1 - p)$. ∎

Proof of Proposition 2. In the general case, i.e. when p_R and p_D are not restricted to be the same, the ex ante probability of $n = R$ given no spin is the following:

$$pr\left(n = R \left| \bar{p} = \frac{1}{2}\right.\right) = p_R\left(1 - \frac{1}{2}p_D\right), \tag{5}$$

while the ex ante likelihood of $n = D$ can be written as

$$pr\left(n = D \left| \bar{p} = \frac{1}{2}\right.\right) = p_D\left(1 - \frac{1}{2}p_R\right). \tag{6}$$

It is easy to check that expression (5) is greater than (6) as long as $p_R > p_D$.

In the case of spin, the ex ante likelihood of $n = R$ equals p_R, while the probability of $n = D$ is $p_D(1 - p_R)$. Thus, it is ex ante more likely to have news about the Republican problem than about the Democratic one iff

$$p_R > \frac{p_D}{1 + p_D}. \tag{7}$$

Such condition is weaker than the one being found for the no spin case, as the r.h.s. of expression (7) is always smaller than p_D; moreover, the condition is always true when $p_R > \frac{1}{2}$. ∎

Proof of Proposition 3. Starting from statement a), the incumbent is reelected for sure if $G\left[E(x_R - x_D \left| n = R; \bar{p}\right.)\right] > \frac{1}{2}$. Given that $G(0) = \frac{1}{2}$, and the fact that $G(.)$ is an increasing function, it will suffice to show that $E(x_R - x_D \left| R; \bar{p}\right.) > 0$, i.e. that the median voter strictly prefers the incumbent over the challenger. But this is exactly the case, as

$$E(x_R - x_D \left| R; \bar{p}\right.) = 1 - \frac{p_R p_D \bar{p}}{p_R(1 - p_D) + p_R p_D \bar{p}} = \frac{p_R(1 - p_D)}{p_R(1 - p_D) + p_R p_D \bar{p}} \tag{8}$$

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

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

$$E(x_R - x_D \left| D; \bar{p}\right.) = -\frac{(1 - p_R)p_D}{(1 - p_R)p_D + p_R p_D(1 - \bar{p})}, \tag{9}$$

which is always less than zero, for all values of 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

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

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

Proof of Proposition 4. Firstly, it is true that $E[f(\bar{p}, n = \varnothing)] = G[E(x_R - x_D \mid \varnothing; \bar{p})] = G(0) = \frac{1}{2}$. Then, using expression (8), one can obtain a closed form solution for the votes' share accruing to the incumbent when $n = R$, i.e.

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

Such share is in fact decreasing in $\bar{p}$. From these results about $f(\bar{p}, R)$ and $f(\varnothing)$, it follows that

$$|E(f(\bar{p}, R) - f(\varnothing))| = G\left[\frac{p(1-p)}{p(1-p) + p^2 \cdot \bar{p}}\right] - \frac{1}{2}, \tag{10}$$

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

On the other side, by making use of expression (9), the share of votes the incumbent receives when $n = D$ reads as follows:

$$f(\bar{p}, D) \equiv G[E(x_R - x_D \mid n = D; \bar{p})] = G\left[-\frac{p(1-p)}{p(1-p) + p^2 \cdot (1-\bar{p})}\right]. \tag{11}$$

Such probability is again decreasing in $\bar{p}$. Using the previous result about $f(\varnothing)$, expression (11) and the symmetry of $G(.)$, one can obtain the following:

$$|E(f(\bar{p}, D) - f(\varnothing))| = G\left[\frac{p(1-p)}{p(1-p) + p^2 \cdot (1-\bar{p})}\right] - \frac{1}{2}, \tag{12}$$

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 (10) and (12), 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. $\blacksquare$

Proof of Proposition 5. Firstly, 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 3, 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 $R > 0$.

Secondly, for what concerns ex ante incentives, let $\bar{p}^C \in [\tilde{p}, 1]$ 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:

$$E\Pi(\bar{p}^C) = R\left\{\pi(\bar{p}^C, R) \cdot \left[p_R(1-p_D) + p_R p_D \bar{p}^C\right] + \pi(\bar{p}^C, D) \cdot \left[(1-p_R)p_D + p_R p_D (1-\bar{p}^C)\right] + k\right\}, \tag{13}$$

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 $s = 1 - \tilde{p}$. ∎

Proof of Proposition 6. For what concerns 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:

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

which is derived by making use of condition (4). If η is distributed according to a uniform distribution with support $[-\phi/2, \phi/2]$, $f(\bar{p}^E, R)$ equals $\frac{1}{2} + \frac{1}{\phi} \left[\frac{p_R(1 - p_D)}{p_R(1 - p_D) + p_R p_D \bar{p}^E} \right]$. On the other hand, the probability of confirming the incumbent in office when $n = D$ is the following:

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

where $f(\bar{p}^E, D) = \frac{1}{2} - \frac{1}{\phi} \left[\frac{(1 - p_R)p_D}{(1 - p_R)p_D + p_R p_D(1 - \bar{p}^E)} \right]$, again under the assumption of η being uniformly distributed. Given that $H(.)$ is an increasing function and the fact that $f(\bar{p}^E, R) > \frac{1}{2} > f(\bar{p}^E, D)$, it is clear that $\pi(\bar{p}^E, R) > \pi(\bar{p}^E, D)$ for all $\bar{p}^E \in [\tilde{p}, 1]$, and the first part of the proposition is proven.

For what concerns the second part of the proposition, let $\bar{p}^C \in [\tilde{p}, 1]$ the level of spin to which the incumbent politician can commit ex ante: his expected payoff, as a function of $\bar{p}^C$, is given by expression (13).

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:

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

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 $\tilde{H}(x) \equiv H\left(\frac{1 - 2\mu}{2(1 - \mu)} + \frac{\mu}{1 - \mu} \left[\frac{1}{2} + \frac{x}{\phi} \right] \right)$, and let $\tilde{h}(x)$ be similarly defined, i.e. $\tilde{h}(x) \equiv h\left(\frac{1 - 2\mu}{2(1 - \mu)} + \frac{\mu}{1 - \mu} \left[\frac{1}{2} + \frac{x}{\phi} \right] \right)$. After some manipulation, the first derivative of $E\Pi(\bar{p}^C)$ can be written as:

$$E\Pi'(\bar{p}^C) = M \cdot \left[\tilde{H}(\tilde{x}) - \tilde{H}(\tilde{y}) + \frac{\mu}{(1 - \mu)\phi} \left(\tilde{h}(\tilde{y}) - \tilde{h}(\tilde{x}) \right) \right],$$

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

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

$$\tilde{H}(\tilde{x}) - \frac{\mu}{(1 - \mu)\phi} \tilde{h}(\tilde{x}) \cdot \tilde{x} > \tilde{H}(\tilde{y}) - \frac{\mu}{(1 - \mu)\phi} \tilde{h}(\tilde{y}) \cdot \tilde{y}$$

for all $\bar{p}^C \in [\tilde{p}, 1]$. Define $M(x) \equiv \tilde{H}(x) - \frac{\mu}{(1-\mu)\phi}\tilde{h}(x) \cdot x$: 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 $h(.)$ is differentiable, the first derivative of $M(x)$ can be expressed as follows:

$$M'(x) = -\frac{\mu}{(1-\mu)\phi}\tilde{h}'(x) \cdot x,$$

where $\tilde{h}'(x) = h'\left(\frac{1-2\mu}{2(1-\mu)} + \frac{\mu}{1-\mu}\left[\frac{1}{2} + \frac{x}{\phi}\right]\right) \cdot \frac{\mu}{(1-\mu)\phi}$. Given the definition of $\tilde{h}(x)$, it is straightforward to check that when $x > 0$ (as it is always the case with $\tilde{x}$), the argument of $h(.)$, i.e. $y(x) \equiv \frac{1-2\mu}{2(1-\mu)} + \frac{\mu}{1-\mu}\left[\frac{1}{2} + \frac{x}{\phi}\right]$, is larger than $\frac{1}{2}$, while it is smaller than $\frac{1}{2}$ when $x < 0$. Indeed, $y(x)$ is an increasing function and $y(x)|_{x=0} = \frac{1}{2}$.

In fact, given that $h(.)$, the density function of ξ, is differentiable, the condition that ξ is unimodal around $\frac{1}{2}$ can be expressed as follows:

$$h'(y)\left(y - \frac{1}{2}\right) < 0,$$

for all $y \in [0, 1]$. Following the previous discussion, the same condition can be written in terms of $\tilde{h}(.)$:

$$\tilde{h}'(x) \cdot x < 0$$

But, if this is the case, $M'(x) > 0$ and the first derivative of $E\Pi(\bar{p}^C)$ is positive in the relevant range.

By the same token, if ξ is uniformly distributed, it is true that $h'(y) = 0$, for all $y \in [0, 1]$, and $\tilde{h}'(x) = 0$. Then $M(x)$ does not depend on x, and $E\Pi(\bar{p}^C)$ 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 ξ is symmetric and U-shaped around $\frac{1}{2}$, it is true that $h'(y)\left(y - \frac{1}{2}\right) > 0$. The same condition, expressed in terms of $\tilde{h}(.)$, reads as follows:

$$\tilde{h}'(x) \cdot x < 0.$$

This condition exactly implies that $M'(x) < 0$ in the relevant range, so that the incumbent would ex ante prefer to commit to $\bar{p}^C = \tilde{p}$, i.e. tie his own hands in terms of spin activity. ∎